BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

Further Actions Needed To Improve Emergency Preparedness Around Nuclear Powerplants

Since the Three Mile Island accident in 1979, state and local emergency planning and preparedness around nuclear powerplants have improved considerably under the leadership of the Federal Emergency Management Agency. All 54 operating nuclear powerplant sites have state and local offsite emergency preparedness plans. FEMA has formally approved 24 of these plans, but it does not anticipate approving the remaining plans before September 1985 primarily because they do not fully comply with FEMA's criteria.

Progress has also been made in developing a federal plan for responding to all radiological emergencies. However, the plan being developed does not fully address the need for centralized federal agency control and coordination which special inquiry groups identified after the Three Mile Island accident.

Although considerable progress has been made, GAO believes more can and should be done and makes several recommendations to improve preparedness for a nuclear powerplant accident. GAO also presents a matter for Congress to consider concerning the coordination of the federal response to a nuclear powerplant emergency.

GAO/RCED-84-43

AUGUST 1, 1984

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D C 20548

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To the President of the Senate and the
Speaker of the House of Representatives

This report addresses the adequacy of federal, state, and local offsite emergency planning and preparedness for mitigating the consequences of a nuclear powerplant accident. The report suggests ways in which the Federal Emergency Management Agency and the Nuclear Regulatory Commission can improve such planning and preparedness and contains a matter for consideration by the Congress concerning the coordination of the federal response to a powerplant emergency.

We initiated and completed our review under GAO's basic legislative authority. We wish to acknowledge that the Chairman of the Subcommittee on Oversight and Investigations, House Committee on Interior and Insular Affairs, has held a series of hearings on the issue of emergency preparedness at which we testified. Copies of this report are being sent to this subcommittee and also to the Subcommittee on Energy Conservation and Power, House Committee on Energy and Commerce, and to the Subcommittee on Nuclear Regulation, Senate Committee on Environment and Public Works, due to their special interest in this area.

Copies of this report are also being sent to the Director, Office of Management and Budget; the Director, Federal Emergency Management Agency; Chairman, Nuclear Regulatory Commission; Secretaries of Energy, Agriculture, Transportation, Interior, Commerce, and Health and Human Services; and Administrator, Environmental Protection Agency.

Charles A. Bowsher

Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

FURTHER ACTIONS NEEDED TO IMPROVE EMERGENCY PREPAREDNESS AROUND NUCLEAR POWERPLANTS

D I G E S T

The Three Mile Island accident in 1979 highlighted the need for communities near nuclear powerplants to be prepared to protect public health and safety in the event of an emergency. Although the probability of a serious accident is small, the potential deaths, injuries, and property damage from such an accident are great.

In the event of an accident that has impact beyond the plant property, the state and local governments are responsible for protecting the public health and safety. The federal government provides assistance at state and local governments' request or to otherwise fulfill its statutory responsibilities.

The Federal Emergency Management Agency (FEMA), created in 1978, is the federal agency responsible for offsite nuclear emergency planning and preparedness and is assisted by other federal agencies. However, having no authority to direct the actions of the other federal agencies or state and local governments, FEMA can only encourage and coordinate their participation. FEMA's assessment of offsite safety along with the Nuclear Regulatory Commission's (NRC) evaluation of onsite safety are important elements in NRC's decision to license nuclear powerplants.

In an earlier report issued at about the time of the Three Mile Island accident, GAO criticized the adequacy of emergency planning and preparedness around nuclear facilities. In its current review, GAO concentrated on federal, state, and local actions for mitigating the offsite consequences of a nuclear powerplant accident. Although progress has been made since the Three Mile Island accident, GAO believes more can and should be done.

GAO found that:

--State and local emergency preparedness plans have been developed and tested for all 54

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AUGUST 1, 1984

Tear Sheet

operating nuclear powerplant sites, and 24 of these have met the federal criteria and have been approved by FEMA. The reasons that the remaining plans have not been approved relate to their not meeting federal criteria, some local communities not fully participating in the emergency planning process, and the difficulty some state and local governments have experienced in obtaining funding for emergency planning and preparedness.

--Improvements are needed in the exercises conducted to test the adequacy of state and local planning and preparedness.

--Federal agencies need to provide better guidance to state and local governments for developing state and local emergency preparedness plans.

--The federal response plan for nuclear powerplant emergencies can be improved by providing for more centralized federal agency control and coordination.

OFFSITE NUCLEAR EMERGENCY PREPAREDNESS CAN BE IMPROVED

In December 1979, responsibility for assessing the adequacy of offsite emergency planning and preparedness for nuclear powerplants was transferred from NRC to FEMA. Offsite planning and preparedness relate to protective responses which extend beyond the boundaries of any commercial nuclear facility. State and local emergency preparedness plans have been developed for all 54 operating nuclear powerplant sites, and they have been tested in exercises intended to demonstrate state and local governments' ability to implement them.

FEMA and NRC have developed federal criteria for assessing the adequacy of state and local nuclear emergency planning and preparedness. In applying this criteria to offsite safety, FEMA has concluded that planning and preparedness are sufficient to warrant approval of state and local emergency preparedness plans for 24 operating sites. FEMA does not anticipate that offsite planning and preparedness for the remaining operating sites will be adequate to warrant approval before September 1985. FEMA has not approved offsite planning and preparedness for some communities due to non-compliance with the federal criteria.

Reasons for non-compliance include:

--Some communities that believe the public will not be adequately protected in a nuclear powerplant accident want to prevent or delay the operation of plants. As a result, they have delayed participation in the emergency planning process. Neither FEMA nor NRC has authority to direct communities to participate. NRC's only influence is over utilities through its plant licensing process. NRC is reluctant, however, to prevent plants from operating due to inadequate offsite preparedness because it does not want to penalize utilities for factors beyond their control. (See p. 10.)

--Some state and local governments have had difficulty in obtaining funding for emergency planning and preparedness. As a result, some state and local governments had to delay participation in the preparedness process or have moved slowly in correcting deficiencies that FEMA has identified. Although most of the federal, state, local, and utility officials GAO contacted said that utilities should fund most of the costs associated with developing acceptable offsite emergency plans, they often disagreed on the items that should be funded and the amount of funds that should be provided. (See p. 14.)

IMPROVEMENTS NEEDED IN THE EXERCISES CONDUCTED TO TEST PREPAREDNESS PLANS

FEMA's procedure for evaluating and approving state and local planning and preparedness is basically a two step process involving (1) reviewing plans for compliance with federal criteria that FEMA and NRC developed and (2) testing plans in exercises that demonstrate state and local governments' ability to implement their plans in accordance with federal criteria. FEMA approves state and local planning and preparedness when it is satisfied that the plans adequately meet federal criteria and that state and local governments are capable of implementing them.

GAO found that the quality and consistency of FEMA's conclusions regarding offsite safety could be affected by inadequacies in the exercises conducted to test state and local planning and preparedness:

--FEMA and NRC rely on states and utilities to prepare exercise scenarios that determine what is tested. FEMA, however, has not established minimum requirements for scenarios. As a result, FEMA approved plans even though the exercises were not comprehensive enough to demonstrate whether the response capability was adequate. (See p. 26.)

--FEMA does not consider it necessary to verify that all parts of the preparedness plans comply with federal criteria. As a result, FEMA has approved offsite planning and preparedness without the benefit of accurate information on the extent of compliance or noncompliance with the federal criteria. (See p. 31.)

--FEMA does not have an agency-wide tracking system for assuring that deficiencies identified in previous exercises are corrected. In several cases, FEMA has concluded that preparedness is adequate even though it has no evidence that deficiencies from earlier exercises were corrected. FEMA, however, is developing a system for following up deficiencies which is expected to be in place during fiscal year 1985. (See p. 33.)

FEDERAL AGENCIES NEED TO PROVIDE BETTER EMERGENCY PLANNING GUIDANCE TO STATE AND LOCAL GOVERNMENTS

FEMA regulations provide that federal agencies having radiological responsibilities will assist FEMA in developing guidance for state and local governments' use in planning for and responding to nuclear powerplant accidents. FEMA would also use this guidance in evaluating the adequacy of state and local planning and preparedness. GAO found a direct linkage between many of the deficiencies FEMA has identified in state and local planning and preparedness and areas where federal guidance has been inadequate or nonexistent:

--FEMA has been developing federal guidance for assessing the adequacy of alert and notification systems for communicating emergency messages to the public for over 3 years. In the meantime FEMA has been using interim alert and notification guidelines; however, these guidelines do not provide for testing whether the public knows how to respond to such messages. (See p. 41.)

--Federal guidance on the use of potassium iodide, a drug that can protect the thyroid from accumulating dangerous levels of certain kinds of radiation, lacks specificity on what types of situations should trigger the use of the drug and how it should be distributed and administered. Federal agencies believe the existing guidance is adequate and decisions on the drug's use should be made by state and local governments based on local factors. GAO believes, however, the guidance may not provide an adequate basis for state and local governments to use in making these decisions. (See p. 43.)

--FEMA has developed and published only a portion of guidance describing the types of instruments to use in measuring radioactivity, how to operate them, and how to interpret the results. Certain research and development work was needed before FEMA could complete the guidance. FEMA expects to publish the remaining guidance by the end of fiscal year 1984. (See p. 45.)

FEDERAL RESPONSE PLAN FOR NUCLEAR POWERPLANT EMERGENCIES NEEDS TO BE IMPROVED

The President delegated responsibility for developing and testing a federal response plan to FEMA in September 1980. This plan will describe the specific responsibilities of federal agencies in the event of a nuclear powerplant emergency. It is expected to be finalized by July 31, 1984.

A draft of the plan does not fully address the need for centralized coordination and direction of the federal response that the special commissions studying the Three Mile Island accident identified. FEMA's role as a coordinator in nuclear powerplant emergencies will continue to depend upon the voluntary cooperation of other agencies that have statutory authority to intervene in an emergency. As such, FEMA cannot exercise control over the coordination and direction of the federal response. Partial tests of the federal response plan revealed that coordination and communication problems among federal agencies still need to be resolved. (See p. 52.)

CONCLUSIONS AND RECOMMENDATIONS

GAO recognizes that developing and approving acceptable plans for offsite responses to a nuclear powerplant emergency are long, difficult processes requiring the full participation and cooperation of a myriad of federal, state, and local organizations. GAO also recognizes that FEMA can only encourage and coordinate participation in these processes and that without such participation FEMA's offsite emergency planning and preparedness program would be of little benefit to improving safety around nuclear powerplants.

Considerable progress has been made in state and local emergency planning and preparedness and in developing a federal response plan; however, GAO believes that FEMA and NRC should take specific steps to improve nuclear emergency planning and preparedness.

GAO is making a number of recommendations to the Director, FEMA, and the Chairman, NRC, to improve procedures for making consistent conclusions on offsite emergency planning and preparedness. These recommendations appear on pages 22, 38, and 48. In summary, GAO is recommending actions that would improve the development and evaluation of exercises conducted to test state and local emergency planning and preparedness, the tracking of deficiencies identified in the exercises, and the federal guidance which state and local governments use in developing plans and FEMA uses in evaluating them.

MATTER FOR CONGRESSIONAL CONSIDERATON

The Congress may wish to consider whether stronger central control of the federal response to a powerplant emergency is needed to improve coordination of the federal response. (See p. 57.)

AGENCY AND STATE COMMENTS

FEMA concurred with GAO's general assessment of its radiological emergency preparedness program and indicated that it has already addressed or is taking action on most of the concerns GAO raised. These actions include improving exercise scenarios and developing systems for following up deficiencies. NRC said that the

report contains several meritorious recommendations for improving offsite safety. The Department of Energy commented that it strongly supports efforts to improve the effectiveness of emergency planning and preparedness. The Department of Commerce stated that the report was an accurate assessment of the planning process, while the Department of the Interior said that as far as the report relates to its interests, the agency agrees with GAO's findings.

Notwithstanding the general agreement with the overall thrust of the draft report, some agency and state reviewers expressed disagreements with specific recommendations. They believe the procedures for developing and evaluating state and local plans and testing those plans in exercises were sufficient to determine the adequacy of offsite preparedness on the basis of reasonable assurance. They also believe, in some cases, that the federal guidance which state and local governments use in developing plans and FEMA uses in evaluating them is adequate. Agency and state reviewers also commented on the need for revisions to improve the clarity or accuracy of the report.

GAO made revisions where it considered them appropriate; however, GAO continues to believe that the recommended improvements are needed for FEMA to effectively determine that offsite preparedness is adequate to protect the public health and safety in the event of a nuclear powerplant accident. Details on agency and state comments and GAO's evaluation of them begin on pages 23, 38, 49, and 57. The full text of agency and state comments is contained in pages 65 through 135.

Contents

		Page
DIGEST		i
CHAPTER		
1	INTRODUCTION	1
	Serious nuclear powerplant accidents are unlikely but possible	1
	Exposure to radiological release threatens public health	2
	Emergency planning and preparedness can mitigate accident effects	2
	FEMA has overall federal responsibility for offsite nuclear emergency planning and preparedness	4
	Objectives, scope, and methodology	8
2	OFFSITE NUCLEAR EMERGENCY PREPAREDNESS CAN BE IMPROVED	10
	Some local governments want to prevent or delay operation of nuclear powerplants	10
	Difficulty in obtaining funding can delay adequate preparedness	14
	FEMA conclusions on the adequacy of offsite safety have not been consistent	16
	FEMA and NRC do not have controls to ensure NRC is aware of deficiencies	18
	Conclusions	21
	Recommendations to the Director, Federal Emergency Management Agency, and Chairman, Nuclear Regulatory Commission	22
	Agency and state comments and our evaluation	23
3	IMPROVEMENTS NEEDED IN THE EXERCISES CONDUCTED BY FEMA TO TEST PREPAREDNESS PLANS	26
	FEMA and NRC need to ensure exercise scenarios are adequate to test preparedness	26
	FEMA needs to ensure compliance with all elements of federal criteria	31
	FEMA needs to improve tracking of deficiencies	33
	Better communication between FEMA and states is needed	36
	Conclusions	37
	Recommendations to the Director, Federal Emergency Management Agency, and Chairman, Nuclear Regulatory Commission	38

Recommendations to the Director, Federal Emergency Management Agency 38
Agency and state comments and our evaluation 38

4 FEDERAL AGENCIES NEED TO PROVIDE BETTER EMERGENCY PLANNING GUIDANCE TO STATE AND LOCAL GOVERNMENTS 41
FEMA needs better assurance that the public knows how to respond in an emergency 41
Further federal guidance on potassium iodide use is needed 43
Improved guidance on the use of radiation measurement instruments is needed 45
Guidance on radiation dose levels is needed 46
State and local officials need more and better training 46
Conclusions 48
Recommendations to the Director, Federal Emergency Management Agency 48
Agency and state comments and our evaluation 49

5 THE FEDERAL RESPONSE PLAN FOR NUCLEAR POWERPLANT EMERGENCIES NEEDS TO BE IMPROVED 52
The Three Mile Island accident demonstrated the need for an improved federal response plan 52
A federal response plan is still being developed 53
The new federal response plan is unlikely to resolve coordination problems 54
Partial testing of the federal response has revealed problems 54
Conclusions 57
Matter for congressional consideration 57
Agency and state comments and our evaluation 57

APPENDIX

I SCOPE OF GAO REVIEW 60

II BRIEF DESCRIPTION OF STANDARDS CONTAINED IN THE JOINT FEMA-NRC CRITERIA FOR PREPARATION AND EVALUATION OF RADIOLOGICAL EMERGENCY RESPONSE PLANS AND PREPAREDNESS IN SUPPORT OF NUCLEAR POWER PLANTS 64

III LETTER DATED NOVEMBER 28, 1983, FROM THE DIRECTOR, FEDERAL EMERGENCY MANAGEMENT AGENCY 65

IV	LETTER DATED NOVEMBER 29, 1983, FROM THE EXECUTIVE DIRECTOR FOR OPERATIONS, NUCLEAR REGULATORY COMMISSION	98
V	LETTER DATED NOVEMBER 17, 1983, FROM THE ASSISTANT SECRETARY, MANAGEMENT AND ADMINISTRATION, DEPARTMENT OF ENERGY	111
VI	LETTER DATED NOVEMBER 17, 1983, FROM THE INSPECTOR GENERAL, DEPARTMENT OF HEALTH AND HUMAN SERVICES	115
VII	LETTER DATED NOVEMBER 25, 1983, FROM THE DEPARTMENT OF TRANSPORTATION	121
VIII	LETTER DATED NOVEMBER 21, 1983, FROM THE ASSISTANT SECRETARY OF ADMINISTRATION, DEPARTMENT OF COMMERCE	123
IX	LETTER DATED NOVEMBER 1, 1983, FROM THE DEPUTY ASSISTANT SECRETARY, POLICY, BUDGET AND ADMINISTRATION, DEPARTMENT OF THE INTERIOR	125
X	LETTER DATED NOVEMBER 16, 1983, FROM THE ACTING ASSISTANT ADMINISTRATOR FOR POLICY, PLANNING AND EVALUATION, ENVIRONMENTAL PROTECTION AGENCY	126
XI	LETTER DATED NOVEMBER 21, 1983, FROM THE ACTING SECRETARY, DEPARTMENT OF AGRICULTURE	127
XII	LETTER DATED OCTOBER 28, 1983, FROM THE DEPUTY DIRECTOR, PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY	128
XIII	LETTER DATED NOVEMBER 15, 1983, FROM THE ADMINISTRATOR, WISCONSIN DIVISION OF EMERGENCY GOVERNMENT	133

ABBREVIATIONS

DOE	Department of Energy
EPA	Environmental Protection Agency
EPZ	Emergency Planning Zone
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
GAO	General Accounting Office
NRC	Nuclear Regulatory Commission
OMB	Office of Management and Budget

CHAPTER 1

INTRODUCTION

Over 5 years have passed since the creation of the Federal Emergency Management Agency (FEMA), the March 1979 accident at Three Mile Island in Pennsylvania, and our report which criticized the adequacy of emergency preparedness around nuclear facilities.[1] During this time there has been considerable interest in offsite emergency planning and preparedness, i.e., beyond the boundaries of a commercial nuclear powerplant. There has been local pressure to close at least one operating nuclear powerplant site--Indian Point in New York--and to prevent at least one plant from starting operations--Shoreham, also in New York. Three congressional subcommittees have also been interested in offsite emergency planning and preparedness for nuclear powerplant accidents: (1) the Subcommittee on Nuclear Regulation, Senate Committee on Environment and Public Works, which receives periodic reports from FEMA on the status of offsite planning and preparedness and conducted hearings in April 1981 and 1983; (2) the Subcommittee on Oversight and Investigations, House Committee on Interior and Insular Affairs, which held April, July, and August 1983 hearings; and (3) the Subcommittee on Energy Conservation and Power, House Committee on Energy and Commerce, which held a June 1983 hearing.

SERIOUS NUCLEAR POWERPLANT ACCIDENTS ARE UNLIKELY BUT POSSIBLE

As of 1980, over 3 million people lived within 10 miles of nuclear powerplants that were either planned, under construction, or licensed to operate in the United States. Although safety mechanisms reduce the probability of accidental radiological releases affecting these people, events at Three Mile Island and elsewhere prove accidents can occur.

While experts agree that detonation of nuclear materials at powerplants is impossible, they also agree that accidents involving release of radiation could occur. Few agree, however, on either the probability of such occurrences or the consequences. Nuclear energy advocates conclude that accidents are highly unlikely and in most instances would have little consequence. Opponents contend that accidents with catastrophic consequences are possible and more likely than studies portray. Experts on both sides agree that calculations of the probability of nuclear accidents do not include terrorism or sabotage.

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[1] Areas Around Nuclear Facilities Should Be Better Prepared For Radiological Emergencies (EMD-78-110, Mar. 30, 1979).

An Oak Ridge National Laboratory study[2] concluded that between 1969 and 1979, 169 mishaps at nuclear powerplants could have led to serious accidents. More recently, in February 1983, the system designed to shutdown the reactor when unsafe conditions exist failed twice at the Salem plant in New Jersey. Alert operators acted quickly to avert an incident that Nuclear Regulatory Commission (NRC) officials believed could have progressed to a major incident if additional failures in the system had occurred.

EXPOSURE TO RADIOLOGICAL RELEASE THREATENS PUBLIC HEALTH

The greatest danger from a nuclear powerplant accident is the release of significant amounts of radioactive material into the environment. Exposure to radioactive material may cause death, immediate illness, or increased cancer risk. An accident involving an offsite radiological release threatens public health in two ways:

--People directly exposed to an airborne radioactive cloud near the accident source can receive harmful levels of radiation either externally or by inhaling radioactive material. This type of exposure would usually occur soon after the release.

--People not directly exposed to the radioactive cloud may still be affected by ingesting food and water that has been contaminated by radioactive fallout far from and long after the accident.

Many factors, including weather conditions, wind direction, and geography, would determine the path and extent of the hazard. Plant siting can also affect the impact of a radiological accident on public health and safety. According to NRC officials, plants in certain densely populated areas would probably not be built today in their current locations, including those at Indian Point and Shoreham in New York, Zion in Illinois, and Salem and Oyster Creek in New Jersey. NRC has required improved plant safety mechanisms to compensate for plants located in densely populated areas and for other siting problems.

EMERGENCY PLANNING AND PREPAREDNESS CAN MITIGATE ACCIDENT EFFECTS

The possibility, however remote, that a radiological release can occur supports the development and testing of offsite

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[2]Precursors To Potential Severe Core Damage Accidents: 1969-1979, A Status Report, J.W. Minarick and C.A. Kulielka, Science Applications, Inc., Oak Ridge National Laboratory for NRC, NUREG/CR-2497.

emergency plans to mitigate the effect of an accident. Adequate emergency planning helps ensure that decisionmaking structures and resources will be available when needed and describes the process for triggering their use, while the emergency preparedness process maintains the decisionmaking structures, resources, and trigger mechanisms described in plans for use when needed. The Executive Director for Operations, NRC, emphasized that accidents with offsite consequences are improbable due to the safety features of nuclear powerplants. He said, however, that for those improbable accidents emergency planning provides an added measure of safety and is an important way to reduce the consequences of a very serious accident.

NRC has established four classes of emergencies ranging from the lowest level--an unusual event--and escalating to an alert, a site emergency, and a general emergency, as conditions worsen. Utility officials must notify offsite authorities within 15 minutes of the declaration of an emergency, regardless of its severity. The purpose is to ensure that a response begins based on a potential rather than an actual release. Should an offsite release occur, utility officials would estimate the amount of radiation exposure to the population in the path of the release. If the estimate indicated a potential health hazard, they would notify state and local officials who are responsible for taking prompt action to protect the public from overexposure.

State and local governments are the first line of public defense and are responsible for protecting the health and safety of their citizens during a nuclear emergency. Federal agencies are the second line of defense, providing assistance at a state or local government's request or to otherwise fulfill their statutory responsibilities. Since federal resources are rarely located near a nuclear powerplant, federal assistance would take several hours to arrive at a site.

Choosing an appropriate response to a radiological emergency that provides maximum health protection is difficult. Many decisions must be made in a short time with limited information. Responses to potential indirect radiation exposure may include controlling access to contaminated food and decontaminating foods. Responses to the threat of direct exposure include evacuating, sheltering, and administering potassium iodide--a protective drug. However, there are limits to the effectiveness of each of these responses:

--Evacuation around many plants could take several hours even under ideal traffic conditions. If evacuation is not begun early enough, it is possible for some portion of the population to be directly exposed to radiation.

--Staying indoors, called sheltering, may be recommended by decisionmakers. However, sheltering will generally protect

the population from certain airborne radiation for a maximum of about 2 hours. After 2 hours the composition of the air inside and outside the shelter will be the same.

--Potassium iodide is a drug which protects the thyroid gland from accumulating one type of radioactive element, radioactive iodine. It does not, however, protect the total body from radioactivity. Tennessee is the only state which has distributed potassium iodide to the general population.

In addition to these responses, NRC believes that after a severe accident a most effective protective measure is to relocate the population from affected areas having high levels of ground contamination. According to NRC, studies have shown that a substantial part of the dose individuals receive in hypothetical accidents is from ground contamination.

FEMA HAS OVERALL FEDERAL RESPONSIBILITY FOR OFFSITE NUCLEAR EMERGENCY PLANNING AND PREPAREDNESS

FEMA, created in 1978, is the lead federal agency responsible for establishing policies for and coordinating all emergency planning and preparedness functions of federal agencies in the event of natural and manmade disasters and for working with state and local governments and the private sector to stimulate participation in emergency preparedness programs. In December 1979, responsibility for coordinating state and local offsite planning and preparedness for nuclear powerplant accidents was transferred from NRC to FEMA. NRC is still responsible for making the overall assessment on plant safety, using FEMA findings on offsite safety and its own findings on onsite safety. FEMA is also responsible for developing a national contingency plan that would provide a coordinated federal response to a nuclear powerplant accident. FEMA's fiscal year 1984 budget totals about $478 million, with approximately $6 million for programs related to emergency preparedness around commercial nuclear powerplants.

FEMA and NRC have developed criteria for assessing emergency planning and preparedness

FEMA and NRC have developed federal criteria, published in November 1980, for assessing nuclear emergency planning and preparedness called Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, NUREG-0654/FEMA-REP-1, Revision 1--commonly referred to as NUREG 0654. The criteria include 16 planning standards--15 related to both onsite and offsite safety and 1 related to just onsite safety. These 16 standards parallel the requirements of NRC and FEMA regulations on emergency planning and preparedness.

Briefly, the standards address: assignment of emergency responsibility; emergency response support and resources; emergency classification system; notification methods and procedures; emergency communications; public education and information; emergency facilities and equipment; accident assessment capabilities; protective response plans; radiological exposure control; medical and public health support; general plans for restoring an affected area to normal use and returning the population to an evacuated area; periodic exercises to evaluate emergency response; radiological emergency response training; responsibilities for plan development and review and distribution of emergency plans; and onsite emergency organization. Each standard is a general statement of conditions that offsite planning and preparedness should meet and is further broken down into elements that generally describe the intent of the standard. The standards are elaborated on in appendix II.

The criteria provide that state and local planning and preparedness be adequate to protect public health and safety before being approved by FEMA. Such planning and preparedness must provide reasonable assurance that appropriate offsite protective measures can be taken in the event of a radiological emergency.

The offsite safety standards and their underlying elements are addressed in state and site-specific plans. The site-specific plans are generally annexes to the state plans and cover each community in the 10-mile radius of nuclear powerplants. This 10-mile emergency planning zone (EPZ), called the plume exposure pathway, is the area in which the potential hazard due to direct contact with radiation releases is greatest. State plans address the state emergency role and include plans for state jurisdiction within the 10- and 50-mile EPZs of nuclear powerplants. The 50-mile EPZ, called the ingestion exposure pathway, is the area in which the danger of contamination due to polluted food, milk, and water is greatest. Offsite plans are tested periodically, usually when the utility conducts onsite exercises.

Research underway by government and non-government bodies on the severity of predicted consequences of a nuclear accident indicate that immediate and widespread serious radiation releases to the public from a nuclear powerplant accident may be much smaller than had been assumed in the formulation of FEMA and NRC emergency planning and preparedness criteria. If so, these studies could eventually lead to changes in the criteria.

FEMA follows two tracks in assessing state and local emergency planning and preparedness

FEMA's first track in assessing the adequacy of offsite safety is a formal review of state and local emergency planning and preparedness. It results in formal approvals, also called final findings. The second track flows from a 1980 agreement for FEMA to furnish NRC its findings and determinations, also called interim findings, if the formal review has not been completed.

FEMA's formal approval process requires review of state and local planning and preparedness at each plant site. The review is initiated when the Governor, or a designee, submits the state and local plans for review to FEMA. This review includes

--an evaluation of state and site-specific plans for compliance with the federal criteria that FEMA and NRC developed,

--at least one federally observed exercise[3] that tests state and local ability to implement major portions of their plans, and

--a state-sponsored public meeting, attended by FEMA, that provides citizens an opportunity to learn about and comment on the plan.

If FEMA's review discloses deficiencies in the offsite plan or the exercise, FEMA informs the state of the deficiencies together with recommendations for improvement.

By March 1984, FEMA had formally approved planning and preparedness at 24 of 54 operating nuclear powerplant sites. Similar plans were under review for the remaining 30 operating sites. A formal approval can be retracted if subsequent events or future exercises indicate significant deficiencies in planning and preparedness.

New plants can be licensed to begin operating, and existing plants can continue operating without formal FEMA approval of state and local planning and preparedness. The 1982-1983 NRC authorization act (Public Law 97-415, Jan. 4, 1983) allows NRC to accept for use in making licensing decisions any state, local, or utility plan in the absence of a FEMA-approved state and local plan--if NRC determines the plan provides reasonable assurance that operating the plant does not endanger public health and safety.

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[3]Federal criteria provide that state and local governments seeking approval of their emergency planning and preparedness conduct periodic exercises of their plans involving full participation of appropriate state and local government entities and the applicable utility. The exercise should simulate an emergency which causes offsite radiological releases and that requires an offsite mobilization of state and local personnel and resources that is adequate to verify their capability to respond to a radiological accident and to implement observable portions of their plans.

NRC considers FEMA findings in making licensing decisions

NRC is responsible for determining whether new plants should be licensed and existing plants should continue operating. NRC considers a FEMA finding on whether offsite plans can be implemented with its own findings on plant safety in determining whether nuclear powerplant safety is adequate to protect public health and safety. Since formal approval of offsite safety can be a lengthy process, FEMA may, under its 1980 agreement, provide NRC interim findings on the status of offsite safety at plants under construction and those already operating. An interim finding can be based on any level of FEMA review of planning and preparedness including a review of emergency plans, exercises of emergency plans, or both.

NRC can request interim findings at any time during the licensing process or after a plant is licensed. Typically, however, it does not routinely request interim findings for operating plants but relies on FEMA's report on the exercise results to verify the adequacy of offsite safety at operating plants. NRC officials said, however, that a finding that offsite safety is not adequate to protect the public does not obligate NRC to deny a license, withdraw a license, or take any other punitive action.

If NRC concludes that offsite preparedness at an operating plant does not provide adequate protective measures and if the deficiencies identified in FEMA's findings are not corrected within 120 days, NRC must determine whether (1) the plant should be shut down until the deficiencies are remedied, (2) some other enforcement action is appropriate, or (3) no enforcement action is needed. Under NRC regulations the decision on enforcement action is to be guided by such factors as whether deficiencies are significant, whether adequate interim compensating actions have been or will be promptly taken, or whether other compelling reasons exist for continued operation. NRC might also authorize an Atomic Safety Licensing Board[4] to make a special inquiry regarding offsite safety conditions. FEMA would provide its findings on offsite safety to the Board. The Board could recommend that NRC suspend, revoke, or amend a license. The Board's decisions or recommendations are subject to the review of an NRC Atomic Safety Licensing Appeals Board. NRC has authorized only one such special inquiry--that for the Indian Point site.

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[4]Boards are composed of three judges drawn from NRC's independent Atomic Safety and Licensing Board Panel which is comprised of NRC and non-NRC employees drawn from various professions. The Board performs NRC's hearings functions and makes initial decisions on a variety of licensing and enforcement matters.

Other federal agencies assist FEMA in executing its radiological emergency responsibilities

FEMA's 10 regional offices prepare the interim and final findings on offsite safety. They are assisted by Regional Assistance Committees with representatives from federal agencies having radiological response capability. Federal regulations assign these agencies responsibilities for assisting FEMA in reviewing plans and critiquing exercises. FEMA headquarters and the Federal Radiological Preparedness Coordinating Committee--the headquarters counterpart to the Regional Committees--review final reports before submission to NRC. The Coordinating Committee also assists FEMA in developing the national response plan, policy guidance, and training programs related to emergency planning and preparedness.

In addition to FEMA and NRC, the Regional Assistance Committees and Federal Radiological Preparedness Coordinating Committee member-agencies include the Environmental Protection Agency (EPA) and the Departments of Agriculture, Health and Human Services, Commerce, Energy (DOE), and Transportation. The Department of Defense is also a member of the Coordinating Committee. In addition to Coordinating Committee member-agencies, the Department of Interior has a role in responding to a nuclear powerplant accident that affects fish and wildlife, Indian reservations, and National Parks. FEMA chairs both the Coordinating Committee and the Regional Committees. These committees were conceived as a means of providing FEMA and state and local governments technical expertise. FEMA also uses contractors when additional staff or expertise is needed.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our overall objective was to review the federal, state, and local government responsibilities and capabilities for responding to public health and safety needs of communities around nuclear powerplants in the event of an accident. Our review objectives were to

- --identify federal, state, and local government responsibilities in the context of the actions needed to protect the public,
- --determine the status of offsite safety efforts and the reasons some nuclear powerplants are operating while their offsite emergency preparedness plans contain deficiencies (chapter 2),
- --assess the reliability of FEMA's evaluations of state and local planning and preparedness (chapter 3),
- --determine the adequacy of federal guidance to state and local governments (chapter 4), and

--evaluate the quality of federal planning and preparedness for nuclear powerplant accidents (chapter 5).

We conducted our field work primarily between April 1982 and May 1983 and selectively updated our work in April 1984. We gathered and analyzed information obtained through reviewing documents, observing operations, and conducting interviews. The information examined included FEMA's review of state and local offsite plans, exercise scenarios, exercise reports, and hearing transcripts on selected powerplants; federal, state, and local agencies' legislation, regulations, guidance, policies, procedures, publications, and/or correspondence; congressional and Atomic Safety Licensing Board hearing records; and public comments on proposed regulatory changes. The 31 exercise reports discussed in chapter 3 are the universe of those available for the 17 nuclear powerplant sites included in our review.

We observed exercises of state and local plans at three nuclear powerplants--Dresden Nuclear Power Station, Illinois; Indian Point Station, New York; and Surry Power Station, Virginia. We also attended Atomic Safety Licensing Board, congressional, and NRC hearings. To provide coverage of a range of circumstances affecting the adequacy of state and local planning and preparedness, we included six FEMA regions and states with large and small numbers of nuclear powerplants; plants where FEMA had found offsite planning and preparedness adequate and inadequate; and plants located in rural and populated areas, bordering other states or FEMA regions, and encountering public resistance to planning and preparedness.

Our work covered FEMA headquarters and 6 FEMA regional offices; headquarters and 3 regional offices of EPA, Transportation, and Health and Human Services; headquarters and 2 regional offices of NRC, DOE, and Commerce; headquarters of the Departments of Housing and Urban Development, Interior, and Agriculture; two FEMA contractors; 7 state emergency management agencies; 6 utility companies; 17 nuclear powerplant sites; 17 local governments; and 13 public interest groups and professional associations. (See appendix I for a detailed listing.)

We did not followup on any progress state and local governments may have made after we completed our field work. However, information in our report was updated based on agency and state comments on a draft of this report. Our review was performed in accordance with generally accepted government audit standards.

CHAPTER 2

OFFSITE NUCLEAR EMERGENCY PREPAREDNESS CAN BE IMPROVED

State and local planning and preparedness have improved considerably since the 1979 accident at Three Mile Island. State and local emergency preparedness plans have been developed for all 54 operating nuclear powerplant sites, and they have been tested in exercises intended to demonstrate state and local governments' abilities to implement them. As of March 1984, FEMA had concluded that offsite planning and preparedness were sufficient to warrant formal approval at 24 operating sites. FEMA does not anticipate that planning and preparedness for the remaining 30 operating sites will be adequate to warrant formal approval before September 1985. FEMA has identified significant deficiencies in offsite planning and preparedness for some communities, indicating non-compliance with the federal criteria. FEMA's internal procedures had defined significant deficiencies as those that must be corrected to achieve an adequate level of preparedness. Also, FEMA has identified similar deficiencies in offsite safety at plants nearing completion. Reasons for non-compliance with the federal criteria include:

--Some communities that believe the public will not be adequately protected in a nuclear powerplant accident want to prevent or delay plants from operating and are delaying participation or are not participating in the emergency planning and preparedness process.

--Some state and local governments have had difficulty in obtaining the funding needed to correct deficiencies noted in reviews or tests of their emergency plans.

In addition, FEMA's process for evaluating and approving emergency preparedness plans (1) has resulted in inconsistent conclusions regarding the seriousness of similar deficiencies on offsite safety at different sites and (2) does not ensure that NRC is aware of deficiencies in offsite safety at operating plants.

SOME LOCAL GOVERNMENTS WANT TO PREVENT OR DELAY OPERATION OF NUCLEAR POWERPLANTS

Some local governments have delayed participating or have not participated in emergency planning and preparedness because they believe that an adequate level of preparedness cannot be achieved to protect the public in the event of a nuclear powerplant accident. Delays at the Indian Point site and lack of local participation at the Shoreham site have resulted in debates over how public health and safety can be assured in a nuclear powerplant emergency without state and local government participation in emergency planning and preparedness and how this problem can be averted in the future. Similar problems are anticipated at other sites. FEMA and NRC have been hampered in these instances because

FEMA has no authority to direct the actions of state and local governments and utilities and NRC's only leverage in achieving offsite safety is over utilities through the licensing process. Proposals for addressing these problems have included expanding the federal role in responding to emergencies and allowing utilities to develop and implement offsite emergency preparedness plans.

Lack of participation by communities near the Indian Point and Shoreham powerplants

In two widely publicized cases, communities in New York did not demonstrate adequate emergency planning and preparedness to FEMA. The result was a test of NRC's willingness to shut down the two Indian Point plants and prevent the more than $3.2 billion Shoreham plant from beginning operations.

After two FEMA findings of inadequate offsite safety in April 1981 and August 1982, two NRC-required 120-day periods for taking corrective action, and other delays, during which deficiencies FEMA identified in offsite safety were not corrected, the NRC commissioners decided on June 10, 1983, to allow the Indian Point site to operate. The significant deficiencies that FEMA identified were related to the availability of buses and drivers in one county to assist in an evacuation and nonparticipation of another county in the planning and preparedness process. The Commission concluded that

> ". . . adequate interim compensatory actions have been taken or will be taken promptly, and therefore the Indian Point plants should not be shut down at this time."

A major factor in the Commission's decision to allow the site to operate was that New York State developed a satisfactory contingency plan for taking over emergency preparedness in a county without a plan until the county resumed emergency preparedness functions. For its part, NRC has been reluctant to penalize the utilities owning the powerplants for circumstances beyond their control. In its December 1982 decision to allow Indian Point to continue operating, the Commissioners stated

> ". . . the remaining problems relate to State and local governments and their role in offsite response. The problems are beyond the power of the licensees to control. Thus there is no question here of penalizing licensees. . ."

In September 1983, FEMA informed NRC that significant deficiencies in planning and preparedness no longer existed and that offsite safety was adequate at Indian Point.

In contrast to Indian Point where planning and preparedness have been delayed, the Suffolk County Legislature believes adequate preparedness for a radiological accident at the Shoreham

plant is impossible and has refused to plan for such an accident. Due to the county's position, the utility submitted a plan to NRC which was forwarded to FEMA in June 1983 for review. The utility hopes FEMA and NRC will accept its plan in the absence of a county plan. The utility's plan is predicated on its personnel implementing the offsite emergency plans. FEMA forwarded the results of its review to NRC in March 1984 citing more than 30 deficiencies that needed correcting.

New York officials are pushing for an active federal role

New York State officials are pushing for an active federal role in nuclear emergency planning and preparedness, while FEMA opposes a larger federal role. New York's Governor called on the federal government in May 1983 to fund planning through taxes, provide personnel to assume authority in an emergency, and assume all responsibility within designated emergency zones around each plant. He asked for direct federal participation in nuclear emergency planning and for regionally based, specially trained radiological response teams and other personnel to provide support to states in an emergency. He also suggested that legislation be proposed to address the anomalies created by one locality withdrawing from the planning and preparedness process. Pending legislation (S 1395), would authorize the President, upon state or local government request, to enter agreements making federal personnel available, including members of the Armed Forces, to supplement state, local, and other personnel in implementing emergency response plans.

FEMA believes the federal role should remain unchanged. It opposes heavy reliance on the federal government because state and local units would be first on the scene to assist the public should an incident occur. Also, FEMA stated that portions of the emergency planning and response resources of the state and local governments--fire, police, emergency rescue, warning, direction, and communication--would be activated to manage a radiological emergency or any other form of disaster. The agency believes that substituting these with federal resources for radiological incidents would be costly. Further, many response operations, such as evacuation or sheltering, are site-specific, taking into consideration local facilities, road networks, and traffic flows. FEMA contends that local personnel would be better trained and most knowledgeable to implement related response functions and that federal personnel are not likely to become thoroughly knowledgeable of the specific emergency planning requirements for all the operating nuclear powerplant sites.

Greater utility role in implementing offsite plan discussed

Shoreham utility officials are advocating an expanded role for utilities, allowing them to implement offsite, as well as

onsite, emergency plans. Opponents, however, question the ability and authority of the utility to implement plans.

Shoreham utility officials have presented an emergency response plan for federal approval. The utility wants authority to prove the plan is feasible through use of utility personnel in exercises when state and local government personnel are unavailable. They believe it is important to show state and local officials that a utility plan can be used so that state and/or local officials will not attempt to obstruct the planning process as a means of shutting down nuclear powerplants.

Under its 1982-1983 authorization act (Public Law 97-415, Jan. 4, 1983), NRC may accept a state or utility offsite emergency preparedness plan even though FEMA has not approved it. However, some members of the Congress, some NRC commissioners, FEMA officials, as well as local communities, and public interest groups have questioned whether a utility plan could ensure effective implementation in an emergency if state and local governments reject it. The House Interior and Insular Affairs Committee report on the 1984-1985 NRC authorization bill states that a utility-developed plan would be insufficient if it could not be successfully executed without state and local participation.

The House Appropriations Committee, in approving fiscal year 1984 funding for FEMA, directed the agency to consider emergency plans for nuclear powerplants regardless of whether the plans have been prepared or submitted by a governmental entity or the utility. Alluding to the Shoreham controversy, the committee stated:

> "The fact that a governmental entity cannot or will not perform a particular role or roles in the preparation, submission, or implementation of offsite emergency preparedness plans should not, by itself, constitute a sufficient basis for a determination by FEMA that the plans, or portions thereof, are inadequate - providing a suitable alternative means of implementing the plans is available."

The Chairman, Subcommittee on Nuclear Regulation, Senate Committee on Environment and Public Works, indicated his support for this view in 1983 hearings when he expressed concern that the role assigned to state and local governments might be misused. He was particularly concerned by what he believed were efforts to obtain concessions from utilities in exchange for cooperation in preparing emergency plans.

FEMA testified in the April 1983 hearing before the Subcommittee on Nuclear Regulation, Senate Committee on Environment and Public Works, that it would review a utility plan that does not have the support of state and local governments. FEMA said, however, that it would have to advise NRC that because of the lack of state and local endorsement or participation the adequacy of offsite preparedness or public safety could not be assured. In June

1983, NRC asked FEMA to provide an interim finding on the Shoreham plant based on a utility plan that proposes to use utility rather than state and local personnel to respond in an emergency. FEMA reviewed the plan as requested but established two conditions for a FEMA interim finding: a determination of whether the utility has the legal authority to implement the plan and a demonstration, through an exercise of an adequate plan, that the utility has the ability to implement the plan.

Critics of an expanded utility role believe that it would reduce the overall ability to ensure preparedness. They do not believe local officials can be prepared if they are not included in planning. The Union of Concerned Scientists, a public interest group, believes the utility's resources would be severely taxed in dealing with a major reactor accident, precluding effective management of the offsite emergency response. For a utility to provide adequate protection it would have to assume the basic functions of government and be delegated authority to declare an emergency, make emergency broadcasts, close schools and public buildings, commandeer transportation resources, control traffic flow, order protective actions such as evacuation, and request federal assistance. The public interest group cites as an even more serious issue the fundamental conflict of interest inherent in giving utilities responsibility for emergency planning and response. It believes utility management will be tempted to delay implementing protective measures, hoping that the situation can be brought under control, or, failing to appreciate the magnitude of the danger, will delay necessary precautionary actions.

DIFFICULTY IN OBTAINING FUNDING CAN DELAY ADEQUATE PREPAREDNESS

FEMA records show that state and local governments have had difficulty in obtaining funding for emergency planning and preparedness. As a result, the state and local governments had to delay participation in the emergency planning process and/or have moved slowly in correcting deficiencies. In some cases states have taxed utilities for nuclear emergency-related expenses, in others the utilities have voluntarily paid for them, and in still others no apparent funding mechanism exists. Most of the government and utility officials we asked agreed that the utilities should fund offsite planning and preparedness.

Some local governments have indicated they would not participate in planning and preparedness unless they receive utility funding. For example, four local governments in Missouri indicated they would develop plans for the Callaway nuclear powerplant site only if the utility provided funds for equipment and personnel. Kentucky would not cooperate with planning and preparedness

for the Zimmer site,[1] located in Ohio, until the utility agreed to subsidize participation. City of Zion, Illinois, officials said they would not participate in future offsite exercises unless they were fully reimbursed for a previous Zion site exercise. They also would not execute a letter of agreement with the utility until the city was fully reimbursed and the utility agreed to assume other emergency-related costs. After 2 years of negotiations the utility met the city's demands and the city signed the agreement.

At least 17 states have passed laws providing for utility funding of offsite planning and preparedness. The legislation usually provides for an annual and/or one-time payment per utility or plant. However, even in some of these cases state and local officials do not believe funding provided for under their state's legislation is adequate. For example, in addition to the $575,000 paid to New York as fees mandated by legislation, a state official from the New York Power Authority told us that the Power Authority spent over $8 million in training, services, and emergency equipment related to the Indian Point site. This did not include expenditures by the other utility owning an Indian Point plant. FEMA has proposed establishing a joint FEMA, state, local, and utility committee in New York to screen requests for assistance that the state's annual utility assessment does not cover.

In states without such legislation, some state and local governments have entered into formal contracts with utilities. For example, in Washington the state and utility have signed a 5-year contract to cover expenses related to the Trojan site. In other cases, states have less formal funding mechanisms. For example, Pennsylvania and Ohio local governments determine their needs and request funds directly from the utilities. The utilities have paid for emergency operations centers, emergency plans, and training.

Opinions sometimes differ on what share of state and local costs the utility should pay and on what necessary emergency expenses are. For example, in 1981, St. Lucie County, Florida, asked the utility to pay an estimated $40 million for a bridge, sirens, a central communication center, a fire station, and tests of the emergency plan. The utility would not pay for these items. The town of Monroe, Massachusetts, would not approve the plan prepared for its town for the Yankee nuclear powerplant because officials believed the town needed a new road for evacuation and other emergency purposes which the utility should pay for and because other financial issues were unresolved. In commenting on a draft of this report, the Director, FEMA, told us that the first problem had been resolved but the town has still

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[1]In January 1984, construction on this plant was stopped and its owners announced the plant would be converted to a coal-fired plant.

not approved the emergency plan prepared for the town because of the remaining financial issues. He added, however, that the town has participated in the two offsite exercises that tested its ability to implement the plan.

Most of the utility, federal, state, and local officials we asked agreed that the costs of offsite planning and preparedness are part of the costs of nuclear power which the utility and eventually the electric ratepayer or shareholder should bear. FEMA testified in August 1983 before the Subcommittee on Oversight and Investigations, House Committee on Interior and Insular Affairs, that, in its opinion, utilities should pay expenses directly attributable to emergency planning and preparedness for nuclear powerplant accidents. In FEMA's opinion the states, not the utilities, should fund those other offsite planning and preparedness costs generic to disaster planning and preparedness--that is, costs associated with equipment or resources that states would need in order to fulfill their mandate to protect the public in other kinds of emergencies. These might include costs for communication equipment that would be used whether there was a nuclear powerplant accident, flood, hurricane, or earthquake.

Legislation (S. 1395), pending as of April 1984, provides for federal financial aid and establishes a utility-financed fund for nuclear powerplant emergencies. A criticism of this legislation is that it would impose a fee on utilities which have adequate emergency response plans to pay for those which have not. In June 1983 the Chairman, Subcommittee on Energy Conservation and Power, House Committee on Energy and Commerce, indicated that he opposed the legislation because it would establish a costly federal bureaucracy and favored utilities paying emergency planning and preparedness costs and billing ratepayers.

FEMA CONCLUSIONS ON THE ADEQUACY OF OFFSITE SAFETY HAVE NOT BEEN CONSISTENT

FEMA regulations stipulate that approval of offsite safety is conditional upon its determination that state and local planning and preparedness are adequate to protect public health and safety. Such planning and preparedness must provide reasonable assurance that appropriate protective measures can and will be taken in a radiological emergency. We found that FEMA conclusions on the adequacy of offsite safety at sites having similar deficiencies have not been consistent. FEMA has recognized this problem and is attempting to achieve more uniformity in its conclusions on offsite safety.

In 1982 FEMA provided the NRC Atomic Safety Licensing Board an interim finding of adequate offsite planning and preparedness for the Zimmer plant. Based on plan reviews and an exercise, FEMA concluded that offsite emergency planning and preparedness were adequate even though standard operating procedures were not in place during the exercise. Some of these deficiencies were similar to those at Indian Point where FEMA has made two interim

findings of inadequate offsite safety. They included problems associated with the availability and responsibility of volunteers, transportation of disabled individuals, radio communications, and public education. The Atomic Safety Licensing Board disagreed with FEMA's conclusions and ruled that Zimmer would not be authorized to operate above 5 percent power until certain offsite planning deficiencies were corrected. The Board also noted problems with the plans themselves, for example, that evacuation plans for schools in two counties were deficient.

We also found differences in how FEMA weighed the same deficiency in making interim and formal approvals. We identified 11 sites in addition to Indian Point where the latest plan review indicated that written agreements with support organizations did not exist. Support organizations include bus companies that would assist in an evacuation if one were needed. A deficiency in this requirement was one of the major factors in NRC's deliberations over whether to shut down Indian Point. However, of the other 11 sites that lacked written agreements, 3 had received formal FEMA approvals and 8 had findings of adequate offsite safety based on an exercise. Additionally, in 1983 FEMA noted emergency workers not demonstrating the use of high range radiation detection instrumentation as one of five significant deficiencies supporting the conclusion that offsite safety was inadequate at the Maine Yankee site in Maine. In contrast, FEMA formally approved planning and preparedness at the Hatch site in Georgia after a 1980 exercise in which this same deficiency was reported.

We also found other inconsistencies involving changes in FEMA's findings. In interim findings for nine operating sites, FEMA had first reported to the NRC staff that offsite safety was adequate, but later reported to the NRC Atomic Safety Licensing Board studying Indian Point that the emergency preparedness plans for these same nine sites were inadequate. Also in 1982, FEMA region III concluded that planning and preparedness were adequate at the Beaver Valley site in Pennsylvania even though the exercise report contained 81 recommendations for improvements. At least one Regional Assistance Committee member questioned the reasonableness of this conclusion. In November 1982, after reviewing the exercise report, FEMA headquarters reversed the region's finding.

We believe FEMA's inconsistent conclusions are due to its two-track process for making interim and final findings and to FEMA and NRC not having agreed on what minimum requirements must be met for a finding that offsite emergency planning and preparedness are adequate to protect public health and safety. FEMA's process and requirements differ for providing interim and formal findings and, as a result, FEMA has provided findings of adequate offsite safety for making licensing decisions based on varying levels of preparedness. According to the FEMA Assistant Associate Director, Office of Natural and Technological Hazards Programs, and other FEMA officials, there have been numerous cases

where interim findings were provided to NRC before an exercise of the emergency plan. Notwithstanding this practice, FEMA is opposed to providing interim findings without an exercise that demonstrates whether response personnel are capable of implementing plans. In this connection, in February 1983, FEMA recommended to NRC changes in their 1980 agreement aimed at improving interim findings. The proposed revisions specify that an interim finding provided for NRC use in the licensing process would be an extension of FEMA's formal approval procedures, be based on available plan reviews and exercise results, and assess whether existing offsite planning and preparedness provide reasonable assurance that the health and safety of the public will be protected in a plant accident. FEMA and NRC officials are discussing the revisions but no final action had been taken as of April 1984.

In its comments on a draft of this report, FEMA stated that it is aware that inconsistent findings have been made, but it believes that these are more attributable to variations between the FEMA regions and subjective judgments involved than to difference between its findings processes. FEMA added that it issued guidance in August 1983 to its regions for enhancing uniformity. FEMA also commented that, in conjunction with NRC, it is examining the need to revise the federal emergency planning and preparedness criteria. As part of this effort FEMA and NRC are considering whether the criteria should be prioritized into critical and less critical elements to help identify and prescribe more definitively what constitutes adequate offsite planning and preparedness.

FEMA AND NRC DO NOT HAVE CONTROLS TO ENSURE NRC IS AWARE OF DEFICIENCIES

During our review, we found that FEMA and NRC did not have controls to ensure that NRC is aware of deficiencies found in exercises. FEMA indicated in its guidance to regional offices in effect at the time of our review that exercise reports would be provided to NRC. It did not, however, enforce the requirement, and NRC was unaware that it was not receiving the reports. In August 1983, FEMA issued new guidance stating that FEMA headquarters would provide NRC copies of all exercise reports within 37 days of the exercise. We remain concerned about the adequacy of this effort because we found that FEMA had not enforced similar earlier guidance.

FEMA had not provided NRC exercise reports when requested

NRC had requested that FEMA submit exercise reports, which include findings, on every operating plant by April 1981 to provide evidence of state and local capability to implement emergency plans. NRC subsequently revised this date to April 1982. FEMA, however, had not provided exercise reports on 37 of the 53 sites with operating licenses by the April 1982 deadline and as of May 1983, when we completed our field work, it had still not provided

exercise reports on 14 sites. According to the FEMA Assistant Associate Director, Office of Natural and Technological Hazards, FEMA provided NRC 11 of the 14 remaining reports by December 1983.

According to the NRC Deputy Director, Division of Emergency Preparedness, NRC has not instituted controls to ensure that it received FEMA exercise reports as requested or to otherwise stay abreast of planning and preparedness at operating plants. Other than formal approvals, FEMA was not required to routinely provide NRC the results of its work until August 1983, including the results of exercises.

According to the FEMA Assistant Associate Director, Office of Natural and Technological Hazards Programs and other headquarters officials, FEMA had not provided the exercise findings on all operating sites as requested because they questioned the quality and consistency of the reports its regional offices submitted. These officials cited the following three problems with some early reports prepared in the regions: (1) significant deficiencies existed, but the reports concluded offsite safety was adequate to protect public health and safety, (2) at the time of the required exercises, emergency plans were in early draft stages and did not provide a sound basis for the exercises, and (3) exercises had been conducted without a Regional Assistance Committee review of the emergency plans because of time constraints. FEMA headquarters officials said they did not submit some of these reports to NRC, expecting to wait until after a subsequent exercise to report to NRC. The NRC Deputy Director, Division of Emergency Preparedness, said NRC did not press FEMA for the reports because, without any control system, agency officials did not know all of them had not been provided.

Deficiencies found in exercises not reported to NRC

The 1982 exercises at the Oyster Creek, Beaver Valley, and Rancho Seco (California) sites provide examples of significant deficiencies at operating sites where NRC requested an exercise report that FEMA did not provide. FEMA did not provide NRC an exercise report based on the March 1982 Oyster Creek exercise in which FEMA reported 45 deficiencies, 17 of them significant. The exercise showed that although temporary emergency broadcast system procedures had been developed for use in the exercise, they did not conform to standard procedures, nor had they been approved by the Federal Communications Commission. Although sirens were sounded, the public had not been adequately informed of how to respond, and no public information brochures had been mailed. In one county about 50 percent of those surveyed heard the sirens and did not know what to do. The exercise also showed that a number of municipalities were unaware of the availability of potassium iodide for emergency workers, and emergency workers were not trained in the proper use of dosimeters--radiation measurement devices--or aware of safe radiation exposure limits. According to

the Director, FEMA, the results of a May 24, 1983, exercise that retested significant deficiencies from the first exercise will be provided to NRC. As of the end of April 1984, however, more than 25 months after the first exercise and 11 months after the second, FEMA had still not provided this information to NRC.

We also found that NRC was not informed of deficiencies in the February 1982 Beaver Valley exercise until November 1982, at which time FEMA concluded that emergency preparedness was not adequate to protect public health and safety. FEMA records show that regional FEMA officials were reluctant to even hold the exercise because they believed state and local governments would not be able to demonstrate required capabilities. Also the state of Ohio did not participate and one Ohio county only partially participated in the exercise because they were not adequately prepared to demonstrate their ability to protect public health and safety. Exercise deficiencies at Beaver Valley included:

--One county used radio operators who were unfamiliar with technical data related to the hypothetical nuclear emergency and, as a result, communicated it inaccurately to decisionmakers.

--Another county inaccurately communicated an evacuation order resulting in some communities within the county not receiving it.

--One state did not demonstrate a capability to assess the seriousness of the accident data in order to decide what protective response should be ordered, such as evacuation or sheltering.

--Monitoring and decontamination teams that the two participating states assigned to mass care centers lacked knowledge of their functions.

Also, the performance of the county that was not prepared to fully participate in the February exercise was inadequate when tested in July 1982. Among the deficiencies noted were 12 of 13 sirens not sounding and radiological monitoring equipment not being available at the decontamination and relocation centers.

The Rancho Seco site exercise, held in June 1982, revealed significant deficiencies in communications and public information. The September 1982 Regional Assistance Committee plan review indicated that a number of sections of the plan had not been completed, including those covering communications, coordination of public information, decisionmaking procedures, emergency broadcast message content, and overall training requirements. FEMA did not, however, send NRC a negative interim finding until March 1983, about 9 months after the exercise and 6 months after the Regional Assistance Committee review. In June 1983, after receipt of the negative finding, NRC gave the utility 120 days to

work with the state and local governments to correct the deficiencies before it would consider whether punitive action was necessary.

NRC believes it is aware of deficiencies

Although NRC in its comments on a draft of this report said that FEMA's exercise report is the accepted mechanism for documenting deficiencies in offsite safety, the agency did not believe that not receiving exercise reports has prevented it from acting on possible significant deficiencies in offsite preparedness. NRC believes that deficiencies could not exist in offsite safety without its awareness because the agency has a close working relationship with FEMA. Also, NRC said it is confident that appropriate action has been taken to resolve significant deficiencies identified in exercises at operating nuclear powerplants. It said that all exercise participants and observers, including NRC, would learn of fundamental defects in planning and preparedness through post-exercise meetings.

While NRC and FEMA do have close contacts, we found no evidence that FEMA had informed NRC of the status of planning and preparedness at the operating sites where exercise reports were not provided, or that NRC had taken any action to ensure that deficiencies at these plants were corrected in a timely fashion. We also disagree with NRC's assertion that it would routinely learn of significant deficiencies at the post-exercise meetings. These meetings, which are attended by federal, state, and local officials, affected utility officials, and the public and media, are held immediately after exercises and well before exercise reports are prepared. According to FEMA policy, these meetings are limited to the highlights of the exercise, do not discuss the details of state and local performance, and do not indicate whether state and local governments passed or failed the exercise. At one meeting we attended the discussion was so general that we could not determine what deficiencies existed even though the final report included 7 major and 43 minor deficiencies. According to some state officials, the post-exercise critique and the final report can differ significantly.

CONCLUSIONS

Under FEMA leadership state and local planning and preparedness for radiological emergencies at nuclear powerplants have progressed. FEMA, however, does not anticipate that planning and preparedness will be adequate to warrant formal approval of offsite safety at all operating powerplant sites before September 1985. We believe obstacles exist to timely attainment of adequate preparedness and the federal agencies involved may not be able to remove all of them.

For example, FEMA and NRC can not compel state and local governments to plan and prepare for nuclear powerplant accidents or to correct significant deficiencies in offsite safety. The current system also leaves states, local governments, and utilities to resolve the matter of funding for emergency planning and preparedness among themselves. To the extent that they are unable to establish satisfactory mechanisms for obtaining adequate funding, emergency preparedness, as well as cooperative relationships among all parties, may not be sufficiently developed to protect public health and safety.

In addition, FEMA's process for evaluating and approving emergency preparedness plans has resulted in inconsistent conclusions on offsite safety at sites having similar deficiencies. FEMA has recognized this problem and has initiated several actions aimed at providing more uniformity in its findings, including issuing new guidance to its regions, proposing to make interim findings provided for NRC use in the licensing process an extension of its formal approval process and based on exercise results, and examining whether the federal criteria for emergency preparedness should be prioritized into critical and less critical elements.

Also, FEMA and NRC do not have controls for ensuring NRC is aware of deficiencies at operating sites even though deficiencies may exist. Information on deficiencies should be available to NRC for determining whether existing plants should continue operating. FEMA relies on NRC to stimulate correction of deficiencies in offsite safety at these sites when state and local governments do not voluntarily do so. FEMA, however, had not provided NRC exercise reports on 37 operating plants as requested and NRC had not pressed FEMA for them. This prevented NRC from considering whether actions were needed on significant offsite safety deficiencies. Although FEMA has issued new guidance providing that FEMA headquarters will provide NRC copies of all exercise reports, we are concerned that FEMA did not consistently implement previous guidelines containing a similar requirement. As a result, we believe that joint FEMA and NRC controls are needed so that NRC can alert FEMA when it has not received an exercise report on a particular site.

RECOMMENDATIONS TO THE DIRECTOR, FEDERAL EMERGENCY MANAGEMENT AGENCY, AND CHAIRMAN, NUCLEAR REGULATORY COMMISSION

We recommend that the Director, FEMA, and Chairman, NRC, undertake a comprehensive reassessment of their agreement covering state and local emergency planning and preparedness. The reassessment should (1) identify one procedure and the requirements necessary for making consistent findings on offsite emergency planning and preparedness, and (2) establish and implement controls to ensure NRC receives periodic status reports on the outstanding deficiencies in each offsite plan and exercise.

AGENCY AND STATE COMMENTS AND OUR EVALUATION

In our draft report we proposed that FEMA and NRC establish one procedure based on minimum requirements that state and local governments must meet for a finding of adequate offsite safety. FEMA disagreed with the need to terminate its dual findings process and adopt a single approach for evaluating and approving offsite planning and preparedness. FEMA emphasized that the two existing processes are complementary and designed to meet FEMA's program objective and to respond to NRC's requests for interim findings for licensing considerations. NRC also commented that, while differences may exist in FEMA administrative procedures in producing interim and final findings, no differences should exist in the basic emergency planning requirements that must be met.

We disagree with FEMA and NRC that no fundamental differences exist between the interim and final findings processes. Although both are methods for reaching findings on the adequacy of offsite safety, the level of information considered under each process differs greatly. An interim finding of adequate offsite safety can be based on any level of information, including a review of an emergency preparedness plan, an evaluation of one or more exercises, or a combination of plan reviews and exercise evaluations. In contrast, a final finding, or formal approval, can not be made until the emergency plan is reviewed, an exercise conducted, and a public meeting held. Further, we did not propose, as FEMA states in its comments, that the dual findings process be replaced with one similar to FEMA's formal approval process. Rather, we proposed only that one process, based on one clear set of minimum safety requirements be established for reaching a conclusion that offsite safety is adequate.

FEMA, however, did not disagree with the need to establish minimum requirements. As pointed out on page 18, FEMA stated it is considering, in conjunction with NRC, whether prioritizing federal emergency planning and preparedness criteria would help identify more definitively what constitutes adequate offsite planning and preparedness. Effectively prioritizing this criteria and using it consistently could achieve the same effect as we suggested in our draft report.

FEMA commented that since our report analyzed FEMA's findings at various sites at a specific time in an ongoing process, it does not adequately reflect the degree of progress made at the same site over a period of 2 or 3 years. We believe that our examination of FEMA's assessments of offsite safety at selected sites beginning with FEMA's first site assessment and including assessments through May 1983, when we completed our field work, puts us in a position to evaluate the quality and consistency of FEMA's process for reviewing the adequacy of offsite safety. We fully realize, as FEMA states, that offsite preparedness is continually being assessed and may have progressed since our evaluations were

made. While our report primarily discusses conditions as they existed at the time of our field work, we have also updated our report to reflect progress pointed out to us by FEMA in its comments. NRC, on the other hand, stated that it was gratified that the report noted the considerable progress that has been made on emergency planning and preparedness since the Three Mile Island accident.

NRC commented that the report does not attempt to demonstrate how a significant deficiency in offsite safety is related to state and local governments' capability to protect public health and safety in the event of a nuclear powerplant accident. Further, NRC believes the report does not adequately differentiate between a deficiency in an offsite safety planning element and failure to comply with NRC regulations. Health and Human Services made a similar comment, stating that our report presents no clear evidence that state and local governments are not adequately prepared to respond to nuclear powerplant emergencies.

We believe, however, that deficiencies FEMA identified in assessing emergency preparedness plans, such as not having transportation for evacuating disabled individuals, not informing the public on how to respond to sirens, not distributing emergency information brochures to the public, and not training emergency workers in the proper use of radiation measurement devices definitely cast doubt on state and local governments' capability to protect the public health and safety.

NRC said a basic premise of our report is that emergency preparedness around nuclear powerplants is inadequate because FEMA has not formally approved offsite safety at most sites. NRC believes this premise rests on a misunderstanding of the NRC and FEMA review processes for assessing the adequacy of offsite safety. Along these lines, FEMA said that since emergency planning is a dynamic process we should not presume significant deficiencies exist in offsite safety simply because it has not formally approved offsite safety at a site. Both NRC and FEMA stated that for the most part, state and local governments around operating nuclear powerplants are capable of adequately protecting the health and safety of the public in the event of a radiological emergency, even where emergency preparedness plans have not been formally approved. They believe that state and local governments' planning and preparedness provide reasonable assurance that appropriate measures can be taken offsite. They point out that the objective of emergency preparedness is to provide reasonable assurance, not absolute certainty, that offsite safety is adequate to protect public health and safety. Wisconsin's comment on this issue is that approved plans do not guarantee emergency preparedness.

We are not assuming that sites where FEMA has not formally approved offsite plans have significant deficiencies in emergency planning and preparedness and have clarified those sections of the

report that might have created this impression. Rather, we are reporting that all operating nuclear powerplants do not have approved emergency preparedness plans and that our field work showed that FEMA found significant deficiencies in offsite safety at sites where it had not formally approved such plans.

We have also expanded our report to present in more detail the federal criteria for assessing nuclear emergency planning and preparedness. We specifically added, as NRC and FEMA pointed out, that the federal criteria provide FEMA determine that state and local planning and preparedness adequately protect public health and safety by presenting reasonable assurance that appropriate offsite protective measures can be taken in a radiological emergency. We believe, however, that the inadequacies we identified in FEMA's assessments of state and local planning and preparedness, such as reaching inconsistent conclusions on the adequacies of offsite safety at sites having similar deficiencies, point out the need for improvements in determining whether state and local emergency planning and preparedness provide reasonable assurance that offsite safety is adequate to protect the public health and safety. Also, the fact that FEMA and NRC are considering whether the federal emergency planning and preparedness criteria should be prioritized into critical and less-critical elements to help identify and prescribe more definitively what constitutes adequate planning and preparedness also points out that improvements are needed.

Pennsylvania questioned the accuracy of the facts we presented on the Beaver Valley exercises and suggested that we had confused the Beaver Valley 1982 exercise report with another report. Pennsylvania's comments have some validity. In citing the number of deficiencies in the Beaver Valley exercise, we incorrectly reported the number from the July 1982 retest rather than the original February 1982 exercise. Pennsylvania is correct that the exercise report showed that there were 81 recommendations made for improving deficiencies as a result of the February 1982 exercise rather than 65 deficiencies which we cited from the July 1982 retest. We revised our report accordingly.

Pennsylvania also said that it had no record of FEMA's conclusion that offsite emergency preparedness was inadequate at the Beaver Valley site. The state said that the April 23, 1982, cover letter it received, transmitting the FEMA report on the February 1982 exercise, did not contain a negative finding on the exercise's outcome. The cover letter to which Pennsylvania refers was sent by the FEMA regional office and deals exclusively with the results in Pennsylvania. In contrast, the FEMA headquarters transmittal letter to NRC on this exercise, dated November 18, 1982, discussed offsite safety for Pennsylvania and adjoining states. It stated that the exercise results for an adjoining state were not adequate and therefore public health and safety could not be assured at the Beaver Valley site.

CHAPTER 3

IMPROVEMENTS NEEDED IN THE EXERCISES CONDUCTED TO TEST PREPAREDNESS PLANS

To protect public health and safety in the event of a nuclear powerplant accident, state and local governments prepare emergency response plans and are required to conduct periodic exercises to test their ability to implement them. The 10 FEMA regional offices, with the assistance of the Regional Assistance Committees and FEMA contractors, test the adequacy of plans in exercises using federal emergency preparedness criteria that FEMA and NRC developed. FEMA reports the results to the states which then are expected to initiate corrective actions. We found that improvements are needed in exercises that test state and local planning and preparedness to assure that

--the exercise is adequate to demonstrate state and local capability to respond to an accident,

--all elements in the federal emergency preparedness criteria are tested or verified,

--deficiencies identified in exercise evaluations are followed up and corrected, and

--timely feedback is provided state and local governments on exercise deficiencies.

FEMA AND NRC NEED TO ENSURE EXERCISE SCENARIOS ARE ADEQUATE TO TEST PREPAREDNESS

Even though regulations and an interagency agreement state that FEMA and NRC will prepare representative exercise scenarios which states and utilities may use in testing emergency plans, they have not done so. In many instances FEMA concluded after the exercises that the applicable scenario prepared by the states and utility companies did not provide an adequate opportunity for demonstrating the ability to respond to an emergency.

In addition, FEMA has often received the offsite scenarios too late to make necessary changes and has not been aware of the extent to which exercises of emergency plans included planning and preparedness for federal lands and facilities within the 10-mile EPZ. Also, excessive simulation of critical emergency preparedness activities has occurred in exercises while no surprise exercises and few surprise events have taken place, thus reducing the effectiveness of exercises.

Exercise scenarios need improvement

Utilities, states, and local governments test onsite and offsite emergency preparedness in a joint exercise. This approach permits evaluation of the interface between offsite and onsite emergency response personnel. The utility prepares a scenario describing what will occur during the onsite portion of the exercise and submits it to NRC for review. Because onsite events affect the offsite conditions and response, the states and utilities work together to develop the offsite scenario from the onsite scenario.

FEMA and NRC have relied on states and utility companies to prepare exercise scenarios because of their more specialized knowledge of the sites. FEMA, however, has not established minimum requirements for the scenarios.

The FEMA Associate Director, State and Local Programs and Support, and other FEMA officials, indicated that each exercise should cover the most important elements of the federal criteria, but that all elements could not be tested at each exercise because of time constraints. Although FEMA officials agreed all elements are not equal, they have not established which elements are most important.

In 11 of the 31 exercise evaluations we examined, FEMA concluded that the scenario was unsatisfactory to adequately test state or local capabilities. Yet it concluded that planning and preparedness were adequate in all but one instance. For example, FEMA concluded in the 1981 Salem interim finding that offsite preparedness was adequate to protect public health and safety even though it also reported that the 1981 exercise upon which it was based was not sufficiently comprehensive. Also, FEMA formally approved planning and preparedness at the Surry site in Virginia even though it concluded that the exercises preceding the approval were not adequate to assess offsite safety. Additionally, planning and preparedness were formally approved at the North Anna site in Virginia although neither of the exercises preceding the approval was adequate due to scenario deficiencies.

The FEMA Associate Director, State and Local Programs and Support, and other FEMA officials, said that offsite scenarios were often deficient because the onsite scenarios upon which they were based did not provide for an accident of sufficient magnitude to fully test offsite capabilities. In these cases FEMA did not always conclude that the overall exercise was inadequate. For example, in an additional 12 of 31 exercise reports we examined, FEMA concluded that the exercise scenario did not provide for an offsite radioactive release sufficient to test state and local capabilities to take protective actions. However, in none of these cases did FEMA require state and local governments to retest in order to demonstrate their capabilities.

These FEMA officials attributed the inadequate offsite scenarios to NRC's willingness to accept onsite scenarios that provide for inadequate offsite release of radioactive materials. For example, prior to the 1982 Trojan site exercise, FEMA notified the state and utility that the onsite scenario was too limited to result in an adequate offsite scenario and exercise. However, NRC determined the scenario was adequate. The FEMA Regional Assistance Committee Chairman said the utility refused to change the scenario because NRC had already approved it. After discussions with FEMA, the utility expanded the scenario voluntarily but not to the extent FEMA desired.

FEMA has proposals for better exercise scenarios

FEMA reported to NRC in September 1982 that inadequate scenarios to test state and local ability to mobilize personnel and resources were a widespread exercise deficiency. Our work shows that while the problem still exists, FEMA has taken some steps and proposed others aimed at improving scenarios.

FEMA's February 1983 proposed revisions to its agreement with NRC provide that the two agencies will approve each scenario before the related exercise. Prior approval will help ensure that NRC's onsite and FEMA's offsite considerations are adequately addressed and integrated to provide a technically sound exercise for assessing preparedness. The proposal has been discussed, but no final action had been taken as of April 1984.

In addition to the proposed changes in its agreement with NRC, FEMA officials said the agency contracted with the Idaho National Engineering Laboratory in February 1983 to evaluate all scenarios preceding the exercises. Also, in March 1983 draft guidance to its regional offices, FEMA proposed that a complete exercise should include testing a response to a general emergency. This would require a simulated radiological release to travel beyond the boundaries of the nuclear powerplant site, but not necessarily a radiological release of sufficient magnitude to test critical capabilities.

In commenting on a draft of this report, FEMA stated that in August 1983, it provided its regions a set of 35 standard exercise objectives as a means of improving uniformity. FEMA has not instituted controls, however, to ensure that states and utilities consider these objectives in preparing offsite exercise scenarios. Also, FEMA has not established whether all or certain of these objectives should be addressed in one or more exercises.

FEMA also stated in its comments that it has contracted for a computer system to improve technological support of exercises. FEMA expects to use the system in assisting state and local governments to develop better emergency plans and exercise scenarios, in improving FEMA assessment techniques, and in standardizing the

execution and evaluation of exercises. The system is currently being developed and implemented, and FEMA expects it will be fully operational by December 1984. Because use of the system will be voluntary, it is not clear to what extent it will improve FEMA's emergency preparedness program.

FEMA regional offices have independently addressed the problem of inadequate exercise scenarios. In 1982, region II initiated a task force approach to scenario development in response to Atomic Safety Licensing Board hearings, and NRC imposed 120-day correction periods at the Indian Point site. The task force includes the Regional Assistance Committee agencies, utility companies, and state and local governments. Also, region X has established minimum requirements for exercise scenarios that NRC region V has agreed to adopt when reviewing the adequacy of scenarios. Although some benefit is derived from these individual actions, they nevertheless do not rectify the overall problem.

Exercise scenarios are submitted late

Although FEMA requests states to submit offsite scenarios for review 45 days before exercises, FEMA and state officials told us this time frame is rarely met. The Deputy Director, Pennsylvania Emergency Management Agency, also said that his agency was not requested to comply with the 45-day milestone until 1982, a year after FEMA established it.

According to the FEMA Associate Director, Office of State and Local Programs and Support, and other FEMA officials, late submission of the offsite scenarios prevents FEMA from reviewing them and asking states and utilities to make needed changes. We reviewed the timeliness of scenario submission for the 17 of 31 exercises where transmittal dates were available and noted that 7, or 41 percent, did not meet the 45-day submission deadline. For example, FEMA did not receive part of the scenario for the 1982 Beaver Valley site exercise until 4 days before the exercise. Also, it did not receive the 1982 site scenario for the D.C. Cook site in Michigan until 5 days before the exercise and the scenario was changed the day before the exercise. FEMA reported deficiencies related to five of the seven late scenarios after the exercises.

Exercises do not always cover federal lands

State and local governments plan and prepare for nuclear powerplant accidents on lands and facilities under their jurisdiction. These lands do not always include those under federal jurisdiction--national parks and forests, Indian reservations, and military installations. FEMA does not have procedures to ensure this gap is filled and that planning and preparedness take place for federal lands and facilities within the 10- or 50-mile EPZs. According to a FEMA headquarters program manager, during a 1982

Diablo Canyon site exercise in California, federal officials learned that plans to protect people in a federal wilderness area within the 10-mile EPZ were inadequate.

After this exercise FEMA assigned responsibility to the headquarters program manager for determining the extent of this problem nationwide and invited the Department of Interior to join the Federal Radiological Preparedness Coordinating Committee and the Regional Assistance Committees. The two agencies have met and identified Interior lands and facilities located within the 10- and 50-mile EPZs. The next task will be to develop and implement emergency plans and procedures for assessing coordination between specific Interior lands and facilities and state and local governments, utilities, and other federal agencies.

In its comments on this report, FEMA did not mention attempts to make similar arrangements with the Department of Agriculture or the Department of Defense, agencies which also have jurisdiction over federal lands. The FEMA Associate Director, State and Local Programs and Support, and other FEMA officials, said the overall federal project has low priority and no time frames for completion have been established.

Exercises should include more actual tests rather than simulations

In 8 of 31 cases we reviewed, FEMA reported after the exercise that preparedness was adequate even though state and local government simulated critical functions which should have been tested. For example, in an actual accident requiring public notification sirens would be activated. During several exercises the sirens were not activated, but exercise participants pretended they were. Although there is no federal guidance on whether functions should be tested or simulated, FEMA officials agreed that over-simulation deprives exercise participants of valuable training and practice and precludes examining state and local ability to execute their plans.

Some federal officials believe that certain aspects of response such as public notification, emergency communication, and use of emergency facilities and equipment are so critical they should never be simulated. Federal exercise observers and FEMA exercise evaluations indicated state and local governments sometimes simulate these and other functions such as radiological monitoring, sheltering, distribution of drugs to emergency workers, evacuation, access control, returning the population to an evacuated area, and restoring an evacuated area to normal use.

At the 1982 Hatch and 1981 Dresden (Illinois) site exercises, most of the exercise response for two counties within the 10-mile EPZ was simulated. The sounding of sirens was simulated in many exercises, including the 1982 exercises at San Onofre (California), Beaver Valley, and Surry. In the 1982 Peach Bottom

exercise in Pennsylvania, FEMA reported in its evaluation that numerous simulated elements should have been exercised, such as protective actions and exposure control, and in the future more demonstration and less simulation should occur.

Exercises are not unannounced

The federal emergency preparedness criteria states that some exercises should be unannounced; however, this has not occurred because of difficulties in obtaining participation from the responsible states, local governments, and volunteer groups. Because state and local governments prepare scenarios, some federal exercise observers have questioned the effectiveness of exercises in testing response capabilities. They object to those being tested designing the scenarios and believe that at a minimum exercises should include surprise events. Some Regional Assistance Committee members believe that FEMA's introduction of surprise events in exercises would be an acceptable substitute to unannounced exercises and would allow for a response more closely resembling that of an actual accident. The Director, FEMA region II, agreed. He said that the region began introducing surprises in exercises more than a year ago (late 1982). Surprises have been related to bus evacuation and traffic control and have helped assure that state and local governments more fully test their capability to respond to an accident.

FEMA NEEDS TO ENSURE COMPLIANCE WITH ALL ELEMENTS OF FEDERAL CRITERIA

Each of the 15 planning standards related to offsite safety in the federal emergency planning and preparedness criteria contains a list of elements which are used in measuring state and local compliance with the standard. FEMA does not have, however, a system for ensuring that state and local governments comply with the federal criteria which specifies that they exercise all major elements over a 5-year period and comply with all other elements, including conducting drills. Further, FEMA has not identified which elements are major. As a result, FEMA has approved offsite planning and preparedness without the benefit of accurate information on the extent of compliance or non-compliance with the federal criteria.

We found that FEMA formally approved planning and preparedness at the LaSalle and Hatch sites even though the exercise reports indicated that only 11 percent of the applicable elements had been tested. It also approved planning and preparedness at the Trojan and Sequoyah sites even though the exercise reports indicated that less than 50 percent of the elements had been

tested.[1] The 1980 Hatch site exercise was designed to test elements of only 5 of the 15 offsite safety standards, and the resulting evaluation reported 21 deficiencies. FEMA subsequently reported 10 and 101 deficiencies in the 1981 and 1982 Hatch site exercises, respectively. The 1982 exercise evaluation also reported that many deficiencies identified during previous exercises were unresolved despite commitments that they would be corrected.

In addition, compliance with some elements that can not be tested in exercises is not verified by other means. For example, state and local plans may indicate that (1) agreements exist with bus companies to assist in an evacuation and that drivers have received required training, (2) arrangements exist with host communities to receive evacuees and host communities have plans for sheltering, feeding, and decontaminating them, and (3) schedules exist for conducting periodic drills of selected capabilities. There are at least 30 elements, such as these three, that FEMA can not observe in exercises but that can be evaluated by other means. However, FEMA has not established procedures for assessing compliance with elements that are not assessed in exercises.

A verification program such as the one introduced in FEMA region II at the Indian Point site could be used to assess compliance with elements that are not tested in exercises. FEMA regional officials conducted a pre-exercise verification before the 1983 Indian Point exercise to determine if certain plan elements were in place and if individuals could execute assigned responsibilities. FEMA administered a telephone questionnaire to a sample of bus companies, reception centers, hospitals, congregate care centers, ambulance companies, schools, and special facilities. FEMA then made field visits to follow up on some problems the questionnaire surfaced and shared results with state and local officials so they could take corrective actions. For example, the plan indicated a bus company had trained staff and was willing to assist in emergency evacuations. However, FEMA found that the bus company staff had not been trained and the company had never been contacted concerning participating in an exercise or responding in an emergency.

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[1]We computed the percentage of elements contained in the federal emergency planning and preparedness criteria that were tested in exercises by (1) counting the total number of elements tested at all localities within the 10-mile EPZ of the site, (2) multiplying the total number of elements that can be tested in an exercise by the number of localities in the 10-mile EPZ of the site, and (3) dividing (1) by (2). Therefore, if 100 percent of the elements were tested in one county and no elements were tested in four other counties in the 10-mile EPZ, only 20 percent of the elements would be tested in the exercise. In those cases where FEMA did not match the contents of its evaluation reports with specific elements, we matched the elements before making our computations.

The verification program could also be used to ensure states conduct required drills aimed at testing, developing, and maintaining skills in a particular operation such as communications, fire control, medical emergencies, radiological monitoring, health physics, and equipment checks. In addition to exercises, the federal criteria indicates that states should conduct drills and FEMA should evaluate performance during these drills. FEMA officials said they are not usually provided drill schedules nor are federal observers usually present at drills to identify deficiencies. FEMA region II, in commenting on a draft of this report, stated that it recently began requesting drill and training schedules. According to regional officials, some of the drills were observed and feedback provided to the state. Other than in region II no attempt seems to be made to ensure that drills occur or that deficiencies are corrected. Consequently, state and local preparedness may be deficient, but FEMA would not be aware of it and would not be prepared to monitor corrective actions.

FEMA NEEDS TO IMPROVE TRACKING OF DEFICIENCIES

FEMA does not have an agency-wide tracking system to ensure that deficiencies identified in exercises are followed up and corrected. Consequently, NRC has licensed plants and FEMA has approved offsite safety without assurance that deficiencies were corrected. This situation exists because FEMA's management information system has limited capabilities.

Deficiencies in exercises need better tracking

We found that deficiencies identified by exercises are not always tracked to determine if they are corrected. As a result, FEMA conclusions on the adequacy of offsite safety are not always reliable. For example:

--In 1981, FEMA provided NRC an interim finding on the San Onofre site for use in making a licensing decision. The finding concluded that plans were minimally adequate and capability to implement them was inadequate to protect public health and safety. It stated that evacuation capability was limited and not fully demonstrated, plans for restoring an affected area to normal use and returning the population to an evacuated area were not well-developed and never demonstrated, ingestion pathway sampling and analysis were not demonstrated, dissemination of public information through the emergency broadcast system was not sufficiently tested, and public education, emergency worker training, and required drills were inadequate. However, after the 1982 exercise, FEMA decided that offsite planning and preparedness were adequate although it did not verify in this later exercise whether any of the deficiencies we describe

above had been corrected. NRC subsequently authorized full power licensing of the two new plants at the site conditional upon FEMA reporting to NRC the successful correction of four offsite preparedness deficiencies.

--In 1982, FEMA concluded that planning and preparedness were not adequate at the Beaver Valley site, but concluded after the 1983 exercise that they were adequate to protect public health and safety. However, we found that the 1982 Beaver Valley exercise evaluation noted deficiencies that were not addressed in the 1983 exercise, including not demonstrating (1) backup communications between the Pennsylvania Bureau of Radiation Protection, Pennsylvania Emergency Management Agency, and the emergency operations facility, (2) use of police to close the Shippingport Bridge, (3) and ability to evacuate mobility-impaired persons in Hancock County.

--FEMA noted deficiencies in the 1980 North Anna site exercise that were not addressed in the next exercise, including lack of (1) a simulated radioactive iodine release to allow for adequate testing of response capability, (2) radioactive monitoring in one of the counties in the 10-mile EPZ, (3) actual or simulated distribution of potassium iodide, and (4) sufficient information exchange between the State Health and Agriculture Departments. FEMA formally approved offsite safety at the North Anna site in 1983 even though all 1980 exercise deficiencies were not addressed.

FEMA's management information system has limitations

FEMA has a computerized management information system but because incomplete or incorrect data is being entered into it, the regional offices we contacted could not use it for tracking exercise deficiencies. Also, the system's limited capability allows it to retain information only on deficiencies FEMA labels significant, and then only for one exercise and for one deficiency for each specific element contained in the federal planning and preparedness criteria.

FEMA headquarters staff estimated that the data in its management information system for the emergency preparedness program was less than 50 percent complete. We found that it had incomplete or incorrect information on all of the 15 exercise evaluations for which FEMA provided us computer-generated data. For example, the evaluation report for the Ohio portion of the 1981 Zimmer site exercise indicated seven major deficiencies; however, the headquarters data base indicated only four.

The system also tracks only those deficiencies identified as significant, even though FEMA officials acknowledged that the cumulative effect of minor deficiencies can equal a significant

deficiency and no guidance exists on how to differentiate significant and minor deficiencies. Examples of numerous minor deficiencies that we believe could cumulatively have a significant effect but that would not be tracked include:

--The 1982 Haddam Neck (Connecticut) exercise evaluation noted 101 minor deficiencies, including the need for additional training for response personnel, more public information for persons temporarily in the area, additional radiation detection devices, and a more complete demonstration of restoring an affected area to normal use and returning the population to an evacuated area.

--The 1983 Zion exercise evaluation reported 60 minor deficiencies, including emergency workers who did not collect necessary water, soil, and food samples to test for contamination, could not find their dosimeters (a device for measuring radiation received), and did not understand what dosimeters were or how to use them. Also, there were no lists of mobility-impaired persons who would require transportation in an evacuation.

--The 1982 Fitzpatrick (New York) exercise evaluation noted 31 minor deficiencies, including communication problems, lack of public information for persons temporarily in the area, limited demonstration of restoring an affected area to normal use and returning the population to an evacuated area, emergency rescue squads without protective clothing, and decontamination facilities that did not control contaminated waste water.

An improved system for tracking deficiencies is being developed

FEMA has recognized that weaknesses in the capability of its management information system reduce the effectiveness of the emergency preparedness program and has contracted with Argonne National Laboratory to improve tracking capabilities. The new system, which is partially in place and expected to be fully in place by December 1984, is to track all deficiencies, whether minor or significant, and include the date and description of corrective actions.

In commenting on a draft of this report, FEMA stated that in August 1983 guidance it directed its regional offices to include in exercise reports the deficiencies noted in past exercises, whether they were corrected, and whether the elements of the federal criteria relating to those deficiencies were tested in the current exercise. This data would be included in and tracked by the new system.

BETTER COMMUNICATION BETWEEN FEMA AND STATES IS NEEDED

The FEMA internal guidance in effect during our review required that regions provide exercise evaluations to states within 15 days after exercises. However, FEMA did not usually meet this deadline. Although FEMA provided brief critiques immediately following exercises, state officials indicated these critiques lacked the specificity necessary to clearly understand what corrective action was necessary. Also, FEMA did not expect them to begin corrective action until the formal evaluation report was issued. Furthermore, although guidelines requested states to respond to FEMA reports with a schedule of corrective actions for significant deficiencies, FEMA had not always attempted to ensure that the response indicated when actions would be completed.

We reviewed FEMA's timeliness in submitting 23 of the 31 1980, 1981, and 1982 evaluations for which transmittal dates were available and found only 4 met the 15-day requirement. The 1982 exercise report for the Salem site was not submitted to the state until 7 months after the exercise. FEMA region II officials said the state caused 2 months of this delay by holding the draft evaluation while attempting to implement corrective action that it wanted the final report to reflect. FEMA provided Pennsylvania the 1982 Peach Bottom site evaluation and Illinois the 1981 Zion site evaluation 5 months after the exercises. The Illinois response to FEMA took another 5 months. Consequently, 10 months elapsed from the Zion exercise to FEMA receipt of proposed corrective actions. Waukegan, Illinois officials said the final exercise report relating to their performance did not arrive until 15 months after the exercise, or only 2 months before the next exercise. In contrast, region X officials, in commenting on a draft of this report, said they have always delivered the exercise report within 10 workdays of the exercise.

Promptly notifying the states of deficiencies solves only half the problem; the states then need to initiate corrective action. We also reviewed the proposed corrective actions states submitted to FEMA on 18 of the 31 exercises for which information was available and noted that the corrective actions for 6 exercises did not specify any time frames for completion and those for 6 other exercises specified some time frames, but not for correcting every significant deficiency. For example, when Oregon, Illinois, Virginia, and Georgia responded with corrective actions to FEMA's evaluations for exercises held at the Trojan, LaSalle, Surry, and Hatch sites, none of the corrective actions proposed time frames for completion. In commenting on this matter, FEMA region X officials said that they were unsuccessful in their initial request for corrective action schedules from Oregon, but that their manual tracking system does ensure time frames are specified. They said that as a result of followup correspondence, Oregon established a corrective action schedule for the Trojan site. FEMA region II's manual tracking system, developed in

response to inquiries regarding Indian Point, also ensures that time frames are specified for completing corrective actions.

In August 1983, FEMA provided its regional offices guidance that it believes will standardize evaluation and reporting on exercises. Under its new approach, regional time frames for processing exercise reports have been expanded from the original guidance which only required the regions to provide exercise evaluations to states within 15 days. The exercise report is now due at FEMA headquarters within 30 days of the exercise. FEMA headquarters will review the report for completeness and will furnish two copies to NRC headquarters within 7 days. At this time, the regions will provide the state two copies with a request that the state submit a response to the region, including a corrective action schedule with a completion date for each action, within 30 calendar days. The region will provide the state reply and the regional analysis of the reply to FEMA headquarters within 15 days after receipt from the state, and the results will be furnished to NRC.

CONCLUSIONS

Inadequate exercises of emergency plans have resulted in uncertainties as to whether state and local governments have the ability to execute their plans. Exercise scenarios have not always been sufficiently comprehensive to assure state and local governments are adequately prepared. In addition, FEMA has not always received exercise scenarios from states in sufficient time to return them for needed revisions before exercises.

We believe that FEMA's actions and proposals for improving exercise scenarios and their scopes are steps toward more accurate assessments of state and local preparedness. Still, FEMA needs to establish minimum requirements for exercises, particularly if states and utilities are allowed to continue preparing exercise scenarios.

The exercise process does not ensure that all applicable emergency preparedness elements are tested in exercises or otherwise complied with by state and local governments. For deficiencies identified in the exercises, FEMA does not have an agency-wide system for ensuring that these deficiencies are retested or otherwise tracked until corrected. FEMA, however, expects to implement a system for doing so in fiscal year 1984.

FEMA officials have not always given states timely feedback on exercises or attempted to obtain from them schedules of corrective actions. FEMA issued new guidance that expands time frames for issuing reports and that contains requirements for obtaining schedules of corrective actions. We are concerned, however, that FEMA did not implement previous guidelines on the same subject.

As a result of inadequacies in exercises of emergency plans, FEMA has approved offsite safety and NRC could have licensed plants when a large number of planning elements have not been verified as complying with federal criteria or when deficiencies have not been corrected.

RECOMMENDATIONS TO THE DIRECTOR, FEDERAL EMERGENCY MANAGEMENT AGENCY, AND CHAIRMAN, NUCLEAR REGULATORY COMMISSION

We recommend that the Director, FEMA, and Chairman, NRC, prepare scenarios for exercises of state and local plans as required by their regulations. However, if FEMA develops minimum requirements for exercise scenarios, as we recommend below, this should improve the scenarios prepared by states and utilities and could eliminate the need for FEMA and NRC to prepare scenarios. Under these circumstances, if states and utilities are allowed to continue preparing exercise scenarios, we recommend that the Director, FEMA, and Chairman, NRC, develop procedures to receive and review them in a timely manner to ensure they meet minimum requirements.

RECOMMENDATIONS TO THE DIRECTOR, FEDERAL EMERGENCY MANAGEMENT AGENCY

We recommend that the Director, FEMA,

--in consultation with states, develop minimum requirements for exercise scenarios and identify which elements of the federal criteria are most important and must be given priority in exercises,

--develop and implement a program for verifying compliance with elements in the federal emergency preparedness criteria that are not tested in exercises,

--implement, once developed, an agency-wide system for tracking all deficiencies identified in exercises until corrected, and

--improve the process for reporting exercise results so states receive exercise evaluations in a more timely manner and for obtaining schedules of corrective action from the states by ensuring recently issued guidance is effectively implemented.

AGENCY AND STATE COMMENTS AND OUR EVALUATION

FEMA agreed with the general thrust of most of the recommendations intended to improve the quality of exercises through developing better exercise scenarios. It stated it has initiated

actions to assure that exercises are sufficient for testing offsite planning and preparedness and has proposed that FEMA and NRC approve scenarios before exercises are conducted. FEMA did not comment specifically on our recommendation that FEMA and NRC develop the scenarios, while NRC commented that utilities and states have more knowledge of plant systems and site characteristics and thus are better able to develop scenarios. NRC added, however, that it is developing guidance for preparing exercise scenarios to ensure that the various emergency response functions are adequately tested. Pennsylvania and Wisconsin generally agreed with NRC that states should prepare the scenarios because of their knowledge.

We believe that the efforts FEMA and NRC have underway go a long way toward addressing our recommendations and could help to improve the adequacy of exercise scenarios. However, until these changes are completed and effectively implemented and minimum requirements for exercise scenarios are developed, we believe that the adequacy and comprehensiveness of scenarios can be better ensured if FEMA and NRC prepare the scenarios. However, if FEMA develops minimum requirements for the exercise scenarios and states and utilities are allowed to prepare them, FEMA and NRC should develop procedures to receive and review them in a timely manner to ensure they meet minimum requirements.

FEMA objected to our recommendation to verify that every offsite safety element complies with federal criteria because it believes that it would impugn the integrity of state and local governments and their commitment to offsite preparedness and would be prohibitively expensive. We believe that the verification of the elements that are not tested in exercises is essentially no different than FEMA's review of plans, evaluations of exercises, or participation in public meetings--other key components of FEMA's offsite safety program. We have, however, revised the recommendation, making it clear that the only elements requiring verification are those not tested in exercises. Those tested in exercises would not require verification because the exercise itself is a form of verification.

Related to this matter, FEMA and NRC both commented that the objective of emergency preparedness is to provide reasonable assurance, not absolute certainty, that offsite safety is adequate to protect public health and safety. However, not assessing compliance with all the elements along with the weaknesses noted in the process used to test and evaluate exercises raises the question of how reasonable assurance can be determined.

NRC commented that our report indicates NRC has permitted continued operation of nuclear powerplants and has licensed new plants for operation that have significant deficiencies in offsite safety. Our report adequately supports the conclusion that plants have continued to operate with significant deficiencies in offsite

safety, and we demonstrate in chapters 2 and 3 of the report that it is possible for NRC to license plants when deficiencies exist because of the inadequacies in FEMA procedures for assessing compliance with NRC regulations and federal criteria.

DOE expressed concern that some of the recommendations, particularly those in this chapter, could unnecessarily delay the nuclear powerplant licensing process. DOE added, however, that the recommendations could be crafted to provide the same constructive improvement in emergency preparedness without creating further delays. Because DOE did not provide any specifics on its comments and because neither NRC, the agency that licenses nuclear powerplants, nor FEMA, the agency that assesses offsite safety, raised this concern, we do not believe there is a need to modify the recommendations.

Pennsylvania opposed introducing surprise events into exercises because it believes that exercises are already jammed with sufficient activity in a compressed time frame. Wisconsin opposed surprise exercises based on a federally dictated scenario because it believed they would disrupt state and local government operations, could publicly embarrass them, and would not improve state and local support of nuclear power or development of effective response capabilities.

Wisconsin and Pennsylvania concerns regarding introducing surprises in exercises are not supported by the experience of FEMA region II which routinely introduces surprises to more fully test response capabilities. We believe that if state and local governments are permitted to continue preparing scenarios, FEMA and NRC should be introducing surprises into exercises to ensure that state and local governments are able to respond to unprogrammed events. Surprise elements would not necessarily add more time to the exercise, as Pennsylvania suggests, because they could replace other programmed activities. Also, we do not believe surprise exercises would disrupt state and local government operations. Although the contents of exercises would be a surprise, the dates would be announced. State and local governments that are prepared for the exercise should do well and improve not only response capability but public confidence as well.

CHAPTER 4

FEDERAL AGENCIES NEED TO PROVIDE BETTER EMERGENCY PLANNING GUIDANCE TO STATE AND LOCAL GOVERNMENTS

FEMA's regulations, published in March 1982, state that federal agencies having radiological emergency responsibilities will assist FEMA in developing guidance for state and local governments' use in preparing radiological emergency plans. Each agency also received individual assignments corresponding to the responsibilities and capabilities of the agency. In addition to its use by state and local governments, the guidance would assist FEMA in its evaluations of the planning and preparedness of the state and local governments. We found that although federal agencies have progressed toward fulfilling their assignments, key guidance has not been provided. Furthermore, many of the deficiencies FEMA has identified in state and local planning and preparedness relate to areas where improved federal guidance is needed. Improved guidance is needed for

--assessing the adequacy of public alert, notification, and education,

--making decisions on the use of potassium iodide,

--designating the instruments to use in measuring radiation, how to use them, and how to interpret the results, and

--projecting radiation doses that should trigger protective actions and describing how to execute the actions.

In addition, FEMA needs to develop and present radiological emergency training to state and local officials responsible for offsite planning and preparedness as required by its regulations.

FEMA NEEDS BETTER ASSURANCE THAT THE PUBLIC KNOWS HOW TO RESPOND IN AN EMERGENCY

Federal emergency preparedness criteria, published in November 1980, states that alert and notification systems should communicate emergency messages to the entire population within 10 miles of each nuclear powerplant. It also states that education should be provided to ensure the public understands these messages, including recommended protective actions such as sheltering or evacuation. However, it was not until September 1983 that FEMA began implementing interim guidelines for assessing the adequacy of alert and notification systems, and these do not provide for testing whether the public knows how to respond to emergency messages. In the absence of this guidance, FEMA had been conditioning all approvals of offsite safety with a statement that

alert and notification systems have not been evaluated. As a result, some state and local governments have not upgraded their alert and notification systems. Where FEMA did make limited attempts to test public alert, notification, and education, these tests have indicated that deficiencies exist.

Proposed guidelines for determining whether public alert and notification efforts comply with federal criteria have been under development for over 3 years, with target dates often changing. In 1982, FEMA appeared ready to implement alert and notification guidance after the Office of Management and Budget (OMB) approved FEMA's questionnaire for evaluating the adequacy of alert and notification systems. The questionnaire was reviewed by OMB as part of its responsibilities for reducing reporting burdens on the public. According to FEMA officials, many utilities objected to the questionnaire, believing that not enough people would respond to accurately measure compliance. As a result of utility objections, FEMA contracted with Argonne National Laboratory to develop new guidance that was published for final comment in the Federal Register in September 1983. FEMA is using this guidance for testing how well alert and notification systems work until it is finalized, which should be in mid-1984. The guidance still will not address the adequacy of public education.

According to FEMA, it originally planned to include a section on public education in the alert and notification questionnaire. FEMA said that its initial questionnaire approval request to OMB indicated that a major purpose of the questionnaire was to assess public understanding of the notification message. However, OMB disapproved the request and cited this assessment as unnecessary. Based on OMB's response, FEMA decided that the questionnaire would assess only whether the public could be promptly notified of an accident and whether planning information had been provided. It would not assess whether the public knew how to respond to an accident or understood the contents of materials provided. FEMA then modified the questionnaire, and OMB subsequently approved it as a telephone survey.

Prior to the issuance of the preliminary guidance in September 1983, each FEMA region attempted to independently evaluate public alert, notification, and education systems. FEMA region II required that sirens be sounded and emergency messages be broadcasted. Afterwards it contacted citizens to determine if they had heard the sirens, listened to emergency broadcasts for information, and were aware of potential protective actions. FEMA region X used a similar method, but relied on the public to call in and report whether sirens were heard. FEMA regions III, V, and IX did not require that emergency messages be broadcast during siren testing and did not contact the public to determine if sirens were heard and understood, or to verify that the public was aware of emergency plans. In FEMA region IV, sirens and other means of notification were activated during exercises, but the public was not contacted to determine whether they were effective.

These limited tests of public alert, notification, and education systems have revealed problems. In 1982, FEMA reported to NRC that alert and notification were areas in which both plans and exercise performance were often inadequate. The same report cited lack of public education as a widespread plan deficiency. Although FEMA was to develop and implement a public education and information program to support state and local planning and preparedness, it has not done so. Instead the agency has been accepting public education as adequate if states or utilities have prepared and distributed emergency information brochures or similar materials within the 10-mile EPZ. In the 1982 Indian Point and Salem exercises, however, spot checks revealed low public awareness of response plans even where public information brochures had been distributed.

Because utilities did not know how their alert and notification systems would be evaluated, some have been reluctant to upgrade them. For example, the Oyster Creek utility decided not to further improve the site's alert and notification system until FEMA's evaluation criteria was available, although the most recent exercise at the site had indicated substantial improvements were needed.

FURTHER FEDERAL GUIDANCE ON POTASSIUM IODIDE USE IS NEEDED

FEMA regulations provide that the Department of Health and Human Services will provide state and local governments with guidance on the use of potassium iodide--a drug that prevents the thyroid from absorbing radioactive iodine. The Food and Drug Administration (FDA), an agency within the Department, has issued guidance which concludes that under certain conditions the use of potassium iodide provides an effective ancillary protective action during a nuclear powerplant accident. Neither FDA guidance nor other proposed federal policy on the use of potassium iodide, however, provides an adequate basis for state and local governments to use in deciding whether to distribute the drug to the general public, making distribution decisions, or providing medical assistance.

Potassium iodide protects the thyroid from radioactive iodine but may produce side-effects in a small part of the population. Radioactive iodine has been considered a major probable component of an accidental radioactive release during a nuclear powerplant accident. By blocking absorption of radioactive iodine, potassium iodide can potentially prevent radiation-induced thyroid cancer. FDA evaluated the medical and radiological risks of the drug, concluded that it is safe and effective, and approved its over-the-counter sale for emergency use. FDA guidance states that risk of radioiodine-induced thyroid nodules or cancer at certain projected doses outweighs the risk of short-term use of relatively low doses of potassium iodide. The drug does not, however, provide protection from other components of a radioactive release. In addition,

if enough radioactive iodine is released, it would threaten other body organs which potassium iodide does not protect.

Based on the 1979 recommendation of the President's Commission on the Accident at Three Mile Island, FEMA decided to stockpile enough potassium iodide to protect the entire population in the 10-mile EPZs. In August 1982, however, FEMA reversed its earlier decision and decided not to procure or stockpile the drug. According to the Chairman of the Federal Radiological Preparedness Coordinating Committee's ad hoc subcommittee on potassium iodide, the decision was based on FEMA's inability to develop a practical and effective plan for distribution during an emergency and the political unacceptability of distribution to the general population. FEMA's policy shift surprised most states because FEMA had consistently said it would purchase potassium iodide for the states to use.

FEMA has no plans to issue guidance on public use of potassium iodide, although it has recommended the drug's use by emergency workers and people in institutions that can not be immediately moved. FEMA and the Coordinating Committee have decided that no guidance beyond that provided by FDA is needed. While an ad hoc subcommittee of the Coordinating Committee, which includes FEMA, drafted a federal policy statement on potassium iodide, it has not been approved by the agencies making up the Coordinating Committee. The draft leaves the decision on whether to provide potassium iodide to the public to state and local governments and says this decision should be based on local factors, but does not specify how to weigh these factors.

Neither the draft federal policy statement nor FDA guidance provides decisionmakers information for determining when potassium iodide use should be considered or how to make decisions related to its use. For example, the federal policy statement raises these issues related to potassium iodide use, but offers no guidance on addressing them: whether potassium iodide should be distributed to the population before or after an accident occurs; whether evacuation can be completed more quickly than distributing the drug; how potassium iodide will be distributed during an emergency; what medical assistance will be available to assist individuals who have an adverse reaction to the drug; how medical authorities will advise the population to take the drug; if potassium iodide is distributed in advance, what assumptions should be made about its availability; and how the drug will be provided to persons temporarily in the area. FDA guidance does not address these omissions in federal policy because it covers only medical questions, leaving FEMA to provide other guidance on potassium iodide.

The NRC Commissioners are considering whether the general public should use potassium iodide. Based on a cost-benefit analysis, NRC staff have recommended that the drug not be stockpiled or predistributed for use by the general public.

IMPROVED GUIDANCE ON THE USE OF RADIATION MEASUREMENT INSTRUMENTS IS NEEDED

During a radiological emergency decisionmakers need accurate and timely data on the magnitude and direction of radiological releases to areas surrounding nuclear powerplants. Instruments are needed to detect offsite radioactive releases that could contaminate air, water, and food. FEMA has not provided state and local governments with adequate and complete guidance on what instruments to use, how to operate them, and how to interpret the results as required by its regulation published in March 1982. In its plan reviews, FEMA has noted that state and local governments often lack the methods, equipment, and expertise to rapidly assess radiological hazards.

An interagency committee, now chaired by a FEMA representative and supported by FEMA and NRC contracts with the Idaho National Engineering Laboratory, has been developing instrumentation guidance for almost 10 years. Of four guidance documents planned by this subcommittee, only one, Guidance on Offsite Emergency Radiation Measurement Systems: Phase 1 - Airborne Release, dated September 1980, covering exposure to radiation from airborne radioactive materials, has been published. Of the remaining three guidance documents needed, one has not been drafted and the remaining two are in final draft form. Realizing, however, that development of guidance would be delayed pending completion of needed research and development work, FEMA, since 1981, has made certain of its contractors available to assist states in improving radiation measurement systems.

In 1981, a committee of the Conference of Radiation Control Program Directors, an organization representing state officials, reviewed the published guidance on airborne releases and found its monitoring procedures would not provide timely decisionmaking information and would allow excessive exposure of monitoring personnel. The committee also criticized the guidance because it did not evaluate available instrumentation systems. In 1982, FEMA discovered that the method of measuring radioactive iodine prescribed in the guidance might not provide accurate readings under realistic field conditions. According to FEMA and NRC, however, alternative methods are much more expensive and some are also unreliable under certain field conditions. Also, according to the Federal Radiological Preparedness Coordinating Committee's Chairman of the Emergency Instrumentation Subcommittee, a FEMA official, the document's guidance on measuring the radioactive exposure of emergency workers does not adequately emphasize the problems of obtaining a reliable record from self-reading personal dose monitoring devices. Additionally, it conflicts with federal emergency preparedness criteria and the views of some radiological experts by making the use of backup permanent record devices optional. A state radiological expert told us that permanent record devices are essential to obtaining an accurate record of total exposure.

FEMA, in commenting on a draft of this report, stated that it expects to revise the existing guidance document and publish the three remaining documents by the end of fiscal year 1984.

GUIDANCE ON RADIATION DOSE LEVELS IS NEEDED

The Environmental Protection Agency (EPA) under FEMA regulation, is to provide guidance on the projected radiation doses that should trigger protective actions in radiological emergencies and how to carry out those actions. EPA has prepared a Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, but this manual is incomplete. The current manual lacks nine sections including guidance on protective action for exposure to radioactive matter, the application of protective action guides for food and water and for contaminated property and equipment, offsite emergency radiation measurement systems, a planner's evaluation guide to protective actions, and a summary of the technical basis for the protective action guides.

FEMA and EPA officials agree that the protective action guides are basic to emergency decisionmaking because they provide the radiation dose levels at which protective actions should be initiated. In a 1982 letter to EPA headquarters, an EPA Regional Assistance Committee member concluded that without a complete EPA manual state and local offsite plans were being prepared and evaluated without adequate criteria. The areas in which EPA has not provided guidance correspond to several widespread deficiencies that FEMA has noted, including the lack of

--methods, equipment, and expertise to make a rapid assessment of radiological hazards,

--specific action levels for determining the need for decontamination, and

--adequate procedures for restoring an affected area to normal use and returning the population to an evacuated area.

Some progress has been made in eliminating the gaps in the EPA manual. Protective guides for human food and animal feed have been completed. Although they are not yet included in the manual, they are available to planners. EPA is working toward completing the manual and expects to issue most of the remaining sections in June 1984.

STATE AND LOCAL OFFICIALS NEED MORE AND BETTER TRAINING

FEMA regulations require it to develop and manage a radiological emergency response training program to meet state and local needs. Federal emergency preparedness criteria states that nine categories of state and local personnel should receive training for nuclear powerplant emergencies, but FEMA training fully

covers only three of the nine categories. For example, although training is needed for directors of response organizations, such as heads of state and local departments that would respond in an emergency, FEMA provides training only for state and local emergency managers, those individuals specifically assigned responsibility for coordinating the jurisdiction's response to an emergency. In addition, training is needed for radiological monitoring teams, police, security staff, firefighters, and local support services personnel. However, FEMA trains only the small fraction of these people who are also part of organized radiological emergency response teams. Further, FEMA has not provided training for another target group, communications personnel.

The training courses FEMA offers these groups also need to be improved. In 1981 FEMA assumed management of three training courses on nuclear powerplant emergencies that DOE and NRC formerly administered. FEMA evaluated training needs and concluded that seven more courses were needed to address the nine categories identified in federal criteria. Only three of these seven courses, for doctors and medical personnel treating contaminated and injured persons, have been developed. Additionally, an optional segment on commercial nuclear powerplant emergencies has been added to a general course for state and local emergency managers, partially satisfying the need for another course. Training has still not been developed for emergency responders such as police, fire, public works, and rescue personnel; state and local elected and governing officials; and state and local leaders of response organizations other than emergency managers and personnel monitoring the level of offsite radiation.

FEMA training officials also believe that the three existing courses on nuclear powerplant emergencies now need a thorough revision to bring them up to date with current technical knowledge and to bring them in line with actual training needs. They added that FEMA, however, has not provided the resources needed for all the revisions. Some course material has been updated, but the basic content and structure have not been changed. Some FEMA officials, however, give expansion of FEMA training programs a low priority, believing that state and local governments can meet their own needs.

Problems resulting from training shortcomings have directly impacted offsite emergency preparedness plans. In this regard, FEMA has identified state and local training problems, such as lack of training for directors and coordinators of response organizations and lack of expertise to rapidly assess radiological hazards as widespread deficiencies in offsite plans. While these training deficiencies have been addressed in FEMA plans to revise and expand its training program, little corrective action has been taken.

FEMA officials are concerned that, because of inadequate federal training of state and local personnel, governments are

developing their own training programs, and the quality may not always be adequate. According to a FEMA region IX official, many local governments are training radiological monitoring teams using inappropriate materials developed for civil defense courses. FEMA region V and X officials agreed that federal government materials would be beneficial in assuring more uniformity in state and local training.

In commenting on a draft of this report, FEMA stated it plans to update one of the three courses in fiscal year 1984 after federal emergency preparedness criteria is revised and that by the end of fiscal year 1984 it expects to offer up to eight courses. FEMA added that although revisions, updates, and additions of courses are needed to some degree, it believes that an extensive amount of radiological emergency preparedness training is available to state and local officials.

CONCLUSIONS

State and local governments are the first line of defense in the event of a serious nuclear powerplant accident and their ability to respond depends to some extent on the adequacy of guidance and training provided by FEMA and other federal agencies. Although progress has been made, more can be done to help state and local governments to respond effectively to a radiological emergency. FEMA has begun implementing interim guidance for evaluating public alert and notification around nuclear powerplants, but it has no plans for providing guidance for assessing whether the public knows how to respond in an emergency. Without an assessment of public education FEMA can not be assured that the public knows how to respond to a nuclear powerplant emergency. The issue of when potassium iodide should be used and how it should be distributed needs to be resolved, and federal guidance provided to state and local governments to aid them in making decisions related to its use. More complete guidance on how to use radiological measuring instrumentation and standards on the levels of radiation doses that trigger protective actions are needed. Without this basic guidance state and local decisionmakers will not be fully prepared to make the best decisions to protect the public during an emergency. Finally, FEMA needs to provide more and better training for responding to radiological emergencies to state and local government officials.

RECOMMENDATIONS TO THE DIRECTOR, FEDERAL EMERGENCY MANAGEMENT AGENCY

We recommend that the Director, FEMA, issue final guidance for evaluating public alert and notification and work through the Federal Radiological Preparedness Coordinating Committee to

--develop guidance for assessing public education in the 10-mile EPZ of nuclear powerplants,

--develop definitive federal guidance on potassium iodide use,

--update and expand guidance on using radiation measurement instruments and interpreting the information obtained, and

--improve existing radiological emergency training for state and local officials.

AGENCY AND STATE COMMENTS AND OUR EVALUATION

Agencies commenting on our draft report disagreed with the need for additional guidance for assessing the alert notification systems and for more definitive potassium iodide instructions. Wisconsin, on the other hand, commented that federal guidance is needed in these areas.

FEMA believes that its September 1983 guidance for assessing the adequacy of prompt alert and notification systems and federal emergency preparedness criteria provide an acceptable framework from which public education can be evaluated. The guidance does not, however, include provisions for assessing whether the public knows how to respond to a nuclear powerplant accident.

NRC and FEMA emergency preparedness criteria provide that the public be informed of the actions it should take during a nuclear powerplant accident. We believe that FEMA is not doing all it can to determine if this objective is being met. We wrote in our 1979 report on emergency planning and preparedness that:

> "The success of all emergency planning depends on public reaction to the information and directions provided . . . It can be expected that the public's response will be no better than its understanding of the hazards and its preparedness to perform recommended protective actions promptly and in good order."

We question the adequacy of FEMA's efforts to develop the comprehensive public education program that was recommended by the President's Commission on the Accident at Three Mile Island and recognized by FEMA in its 1980 task force report to the President on emergency planning and preparedness. The Federal Radiological Preparedness Coordinating Committee began work on a public education program oriented toward populations residing within the 10-mile EPZs of nuclear powerplants in October 1980. By March 1981 it had developed plans for a nine-item program. Of the items planned only a single booklet was produced and it will not be finalized until fiscal year 1984.

In December 1983 the FEMA Assistant Associate Director, Office of Natural and Technological Hazards, acknowledged that:

"Because other issues . . . demanded the attention of limited FEMA staff, the public information and education issues were assigned a lower priority. FEMA recognizes this as a problem area and is attempting to resolve it through future meetings of the Federal Radiological Preparedness Coordinating Committee. Limited staffing constraints will, however, continue to affect progress in this area."

In the absence of an independent federal program, FEMA has relied on the utilities in cooperation with state and local governments to educate the population within the 10-mile EPZs. Our work has shown that public awareness of response plans has been low even where public information brochures were distributed.

FEMA indicated that it plans to contract for a consultant to review public information brochures and set guidelines for future publications. The guidelines will attempt to assure that the emergency information is clear and suitable for the general public. The review, however, will not assess whether the brochures provide complete and correct information to the targeted population.

With respect to potassium iodide, FEMA believes that the FDA guidance is an adequate aid to those state officials wishing to distribute the drug to the public because it states the conditions of use, the need for swift action, and the technical basis for the present tablet formulation.

While the FDA guidance provides medical information on the drug, we do not believe that it fully satisfies the needs of state and local governments. As stated in our report, the FDA guidance does not provide information for determining when potassium iodide use should be considered or how to make decisions related to its use. For example, emergency conditions could be such that long evacuation times would make potassium iodide use desirable. Neither federal policy nor FDA guidance, however, addresses the considerations in deciding to use potassium iodide when evacuation times would be so lengthy that the public would be exposed to radioactive iodine--even if sheltered. Likewise, they do not discuss the merits of distributing in advance versus stockpiling the drug, or how the choice between these two strategies is affected by local conditions. For example, stockpiling would probably not be feasible in a rural area because people are so spread out that timely distribution during an accident could not occur.

The Department of Health and Human Services commented that distributing potassium iodide to the population near nuclear powerplants is a complex issue that involves judgments about the risk potentials, actual use of potassium iodide if distributed, and expense of distribution and replacement when its expiration date is reached. Health and Human Services said that the objective of FDA guidance is to provide state and local governments the technical considerations related to potassium iodide use, but to leave decisions on distribution to state and local authorities.

We agree that distributing potassium iodide to the population near nuclear powerplants is a complex issue. For this reason we believe that state and local authorities need additional information for making sound decisions on its use and that FEMA should provide the needed guidance. The FDA guidance is helpful, but because it is limited to the medical aspects of potassium iodide use, more technical guidance on the non-medical aspects of its use is needed.

Health and Human Services also commented that current assumptions on the amount of radioactive iodine released during a nuclear powerplant accident are being assessed and may have a significant bearing on potassium iodide distribution. We recognize that ongoing research will improve our knowledge of the kind of radioactive releases that could occur during a nuclear powerplant accident. We do not believe, however, that this is a satisfactory reason for failing to develop federal guidance. Federal guidance should reflect current knowledge. The guidance need only make it clear what uncertainties are involved. Just because potassium iodide use is a difficult and controversial issue is not sufficient reason to ignore critical considerations related to its use.

As discussed in the body of this chapter, FEMA commented that it is taking or planning actions aimed at improving its guidance on the use of radiation measurement instrumentation and its radiological emergency training for state and local officials. These actions, if fully implemented, appear to address our concerns.

CHAPTER 5

THE FEDERAL RESPONSE PLAN FOR NUCLEAR POWERPLANT EMERGENCIES NEEDS TO BE IMPROVED

The lack of a coordinated federal response at Three Mile Island caused confusion and, as a result, a new plan is now being developed that is intended to clarify the duties and responsibilities of 12 federal agencies with radiological emergency response roles. Although FEMA is coordinating this interagency effort, the plan, which is expected to be completed by July 31, 1984, does not establish a lead federal agency to direct and coordinate the federal response as recommended in studies of the Three Mile Island accident. Instead, two agencies, FEMA and NRC, will coordinate the offsite and onsite response actions, respectively, but neither will direct the response of the federal agencies involved in an emergency.

THE THREE MILE ISLAND ACCIDENT DEMONSTRATED THE NEED FOR AN IMPROVED FEDERAL RESPONSE PLAN

The President's Commission on the Accident at Three Mile Island was disturbed by the uneven quality of federal emergency plans. It cited the slow development of a federal response plan as an example of the way in which planning for radiological emergencies at nuclear powerplants lacked coordination and urgency. The Commission recommended that emergency planning and response be centralized in a single agency at the federal level and that this agency coordinate closely with state and local agencies, assure adequate planning, and manage the emergency response. Based on this recommendation, the President delegated responsibility for developing and testing a federal response plan to FEMA in September 1980.

Another group studying the accident, the NRC Special Inquiry Group, also had similar concerns about federal response planning. This group concluded that there was no federal emergency response in which the operational mechanisms and responsibilities of interagency response, coordination, and command were clearly spelled out and that in a fast-moving accident with greater offsite consequences, well-developed federal plans could be extremely important. At Three Mile Island the lack of a plan delayed federal response and resulted in confusion and poor coordination. The Group recommended that clear and explicit federal emergency response roles be established and understood by all parties, a formal, understandable federal plan be developed, and FEMA maintain and test the plan.

A FEDERAL RESPONSE PLAN IS STILL BEING DEVELOPED

In December 1980, FEMA published the National Radiological Emergency Preparedness/Response Plan for Commercial Nuclear Power Plant Accidents. Although it was called a plan, it essentially provided a framework for developing an operational plan. It assigned responsibilities to executive agencies and provided guidance to them for developing detailed implementation plans for emergencies at commercial nuclear powerplants. It also addressed the roles of key agencies in managing a federal response--assigning NRC coordination of the radiological safety aspects of federal response and assigning FEMA all other aspects of federal coordination. Under this guidance some agencies made progress in developing or refining response plans. Except for the NRC plan, however, these response plans were not tested in an exercise.

In early 1982, FEMA officials and the Federal Radiological Preparedness Coordinating Committee decided that a single plan, to be called the Federal Radiological Emergency Response Plan, should be developed for all radiological emergencies. At the same time FEMA officials and the Coordinating Committee decided to prepare expanded federal guidance for developing this plan. A final version of the planning guidance was published in April 1983 and it specifies the roles of federal agencies with radiological emergency response responsibilities.

According to the expanded guidance, FEMA will coordinate the offsite federal response by referring state and local requests for assistance to the appropriate federal agency, promote coordination of federal assistance, monitor the progress of agencies, transmit federal recommendations to the Governor(s), provide information to the White House, and attempt to resolve interagency disagreements. NRC will manage federal onsite actions, serve as the primary source for technical information on onsite conditions and offsite radiological effects, and evaluate licensee protective action recommendations for offsite authorities with input from other federal agencies as required.

The planning guidance specified that each participating agency should submit a revised response plan for FEMA to review for completeness and adequacy of coordination. FEMA will ask the agencies to fine-tune their individual plans before they are finalized based on its review, public comment on the plans, and lessons learned from an exercise of the plan. The new federal response plan will contain executive summaries of each of the agency plans, concept of operations from the planning guidance, and an appendix containing individual federal agency response plans. FEMA expects to publish the final plan by July 31, 1984.

THE NEW FEDERAL RESPONSE PLAN IS UNLIKELY TO RESOLVE COORDINATION PROBLEMS

The draft federal response plan does not assign any one agency lead responsibility for directing the offsite federal response. FEMA is responsible for promoting coordination among federal agencies but will not control federal activities. The plan allows all federal agencies to provide assistance under their statutory authorities and encourages them to share information about their activities with FEMA and other agencies.

Several agencies plan to provide assistance in an accident under their statutory authority without a request from FEMA, any other federal agency, or the state, if they believe action on their part is justified. Although federal response planning has attempted to increase coordination of federal and state responses during an emergency, federal officials at the headquarters and regional levels of several agencies said that some agencies will respond under their statutory authority without a state or federal request for assistance. DOE will respond immediately to a request for radiological assistance from any source, even without state approval. Health and Human Services officials said that the agency's statutory authority would be the leading factor regarding emergency actions and they would intervene if they believed it was necessary to protect public health whether or not they received a request for assistance. Commerce officials said they would send a weather support team to the scene of an accident if requested by DOE, NRC, or FEMA, but they might also send the team if a request was not received.

PARTIAL TESTING OF THE FEDERAL RESPONSE HAS REVEALED PROBLEMS

A partial exercise to test the headquarters communication of the federal response for nuclear powerplant accidents revealed coordination problems between FEMA and NRC. FEMA plans a second exercise to more fully test coordination. Two regional exercises held in one FEMA region also revealed coordination and communication problems among federal agencies.

A headquarters response exercise has revealed coordination problems

According to a FEMA report, the October 1982 headquarters communication exercise, involving participants from more than 12 federal departments and agencies, was designed to (1) evaluate how well the draft planning guidance specified agency headquarters activities and described the interfaces among federal agencies and (2) provide an opportunity for federal agencies to evaluate the compatibility of their agency plans with the draft planning guidance.

Four major problems surfaced during this exercise:

--FEMA and NRC notification procedures were not followed, resulting in some federal agencies activating their emergency responses with partial, second-hand, or outdated information and thereby reducing the efficiency of their responses and delaying interagency coordination.

--NRC did not keep FEMA informed of the origin of the general emergency, the cause of the radiological release, and the actual and anticipated offsite impacts of the release. Information exchange between NRC, FEMA, and other federal agencies was also limited.

--The federal government did not adequately coordinate its response actions. NRC did not use all available information from other federal agencies or review its protective action recommendations with them. Also, FEMA did not fulfill its coordination role and other federal agencies did not keep FEMA informed of their activities.

--The draft planning guidance did not provide for a coordinated release of public and congressional information at the headquarters level.

NRC disagreed with a number of FEMA's criticisms of the exercise, indicating that differences in FEMA and NRC interpretation of agency roles under the response plan are still a problem. The NRC questioned the need for FEMA to know the origin of the general emergency and asked that FEMA provide a list of needed information with a justification for the need. NRC believed that its protective action recommendations were adequate and did not believe it needed to obtain additional information from other federal agencies. NRC emphasized that it is not required to consult with other agencies in developing protective actions if it does not believe their advice is needed.

In commenting on a draft of this report, FEMA stated that the four major problems identified in the 1982 interface exercise were subsequently addressed by FEMA and appropriate changes were made in the planning guidance prior to it being issued in April 1983. FEMA also stated that since the October 1982 exercise, FEMA and NRC have developed joint operational response procedures that, according to FEMA, clarify the two agencies' roles.

FEMA believes that for a full test of federal response a field exercise is needed. The primary purpose of the interface exercise was to test communications. The exercise did not test the major coordination responsibilities of NRC, FEMA, and DOE. Originally a field exercise was planned for the spring of 1983, but delays in finalizing the planning guidance forced a scheduling delay until early 1984. This exercise was conducted in March 1984 as we were finalizing this report and involved 11 federal agencies, several state agencies, 2 local authorities, and a utility.

Regional response exercises have uncovered problems

Although regions provide a major component of federal response, comprehensive exercises at the regional level--both in FEMA region X--revealed coordination and communication problems among federal agencies. The exercises were coordinated with state and local offsite exercises at the Trojan nuclear powerplant. The first was in 1981 and revealed that the process for notifying federal agencies of an emergency was inadequate. The exercise did not provide an adequate opportunity to test federal response due to FEMA's delay in notifying other federal agencies that an emergency existed and state officials' failure to request assistance from any federal agency other than DOE. No requests for assistance were made to FEMA, Commerce, Health and Human Services, Transportation and the Department of Agriculture, partly because of state decisions and partly because of exercise scenario limitations.

Federal participation was also included in the 1982 Trojan exercise. Communication problems between NRC and FEMA during a deployment test on the day before the exercise delayed notifying and deploying regional federal resources. Federal agencies were deployed at the utility's emergency operations facility but they did not have adequate space or communications equipment. According to FEMA, arrangements at the facility discouraged coordination between FEMA, NRC, and DOE. FEMA and other federal agencies shared a single telephone, significantly delaying FEMA communications. Although the utility did provide FEMA with the accommodations required by NRC guidance, FEMA considered the utility to be openly critical of the presence of agencies besides NRC at the emergency operations facility. Also, FEMA was not an integral part of the protective action recommendation process. FEMA officials believe that the only way they can effectively coordinate federal response is by being intimately involved in emergency operations facility activities.

FEMA region X said the exercises at Trojan were beneficial because they allowed FEMA and other federal agencies to identify and correct problems. Other federal regional officials said that they believe an exercise of federal response is needed in their regions. They believe that such an exercise is the only genuine test of federal response capability. A FEMA Regional Assistance Committee Chairman said that the test should be part of an offsite exercise of state and local plans so that not only coordination between federal agencies but also the interface between the federal, state, and local governments could be tested. In the past exercises, tests of communications with federal agencies during offsite exercises have been very limited.

CONCLUSIONS

The accident at Three Mile Island established the need for improved federal planning for nuclear powerplant emergencies. Although considerable progress has been made in developing a new federal response plan, it has not been finalized.

The draft plan does not completely meet the needs identified after the Three Mile Island accident. The plan is designed to improve federal coordination by improving information exchange among agencies. However, it does not provide that one agency or person will manage the federal response. Any coordination of federal response will result from voluntary cooperaton among agencies. Coordination problems between FEMA and NRC were revealed in a partial exercise of the response plan and in regional response exercises. Further exercises are needed to determine how effective federal response planning has been.

MATTER FOR CONGRESSIONAL CONSIDERATION

The Congress may wish to consider whether stronger central control of the federal response to a nuclear powerplant emergency is needed to improve federal coordination in such an emergency. If such central control is to be established, any proposed legislation would need to designate a federal agency to exercise the control. The proposed legislation should also provide the controlling agency the authority to require periodic exercises of the federal response plan in each region in conjunction with state and local exercises. We would be available to assist in drafting such legislation.

AGENCY AND STATE COMMENTS AND OUR EVALUATION

FEMA commented that the federal radiological emergency community is much better prepared to work together in responding to a commercial nuclear powerplant accident than at the time of the Three Mile Island accident. FEMA also stated that our position that FEMA will coordinate but not control federal activities is an accurate and appropriate evaluation. In this regard, FEMA added that it coordinates the response activities of other federal agencies but has no authority over these agencies.

DOE and NRC believe that current provisions for coordinating the federal response in an emergency are adequate and that stronger central control is not needed. DOE said that under the proposed plan the federal agency that owns, authorizes, regulates, or is otherwise responsible for the affected facilities would have considerable authority to coordinate and direct federal activities in a radiological emergency. As a result, DOE believes that it would be inappropriate to designate FEMA as the controlling federal agency for all radiological emergencies.

NRC is the federal agency with responsiblity for nuclear powerplants in the context that DOE describes. The proposed federal response plan reveals, however, that NRC would do little to coordinate federal activities outside the nuclear powerplant boundaries should an accident occur. Rather, other federal agencies would provide offsite resources as they deemed necessary. FEMA is expected to promote coordination of these activities but has no authority over other federal agencies.

An effective federal response plan should prevent federal agencies from responding in a situation without adequate coordination and consultation with the state and other federal agencies. It was this kind of uncoordinated response that the NRC Special Inquiry Group objected to in its study of the Three Mile Island accident. The group found that EPA and Health and Human Services had initiated radiological monitoring without a request from DOE, NRC, or the state, resulting in poor federal coordination. During our field work we found indications that this problem might recur during a future emergency.

We are concerned that the proposed response plan may not assure that the federal response will be orderly, effective, and coordinated with state and local authorities. The limited-scope exercises that have been conducted thus far have not dispelled this fear. Wisconsin's comments on a draft of the report reinforce our concern. Wisconsin said that a more definitive posture on coordination and control of the federal response is needed for the state to coordinate its response with that of federal agencies.

NRC stated that our report does not recognize that federal agencies support state efforts. We do recognize this relationship, starting in the introduction, where we refer to state and local governments as the first line of defense in a nuclear powerplant accident. Much of our concern over the development of an adequate response plan is because federal agencies may not accept the states' leadership role and will act independently and individually in response to a nuclear powerplant accident.

NRC stated that the organization described in the planning guidance for the proposed federal response plan is reasonable, practical, and effective and that an additional management layer would not enhance the effectiveness and efficiency of the federal response. To verify that these qualities exist, the federal response plan must be exercised on a regular basis, both at the national and regional levels. A plan may appear effective on paper, but as FEMA has found in its evaluations of state and local governments, a plan's actual effectiveness depends on the actions of many individuals who may not behave as planners assume. Full-scale exercises will reduce this uncertainty and demonstrate whether a decentralized approach to federal planning and preparedness can provide the level of coordination needed.

NRC also stated that while all responding federal agencies have not participated in a single exercise, individual agencies have exercised their plans in site exercises. We found only a few incidences of active participation by agencies other than NRC. The participation we found was generally limited to tests of communications, without any mobilization of federal resources. We believe--as do many states--that more federal involvement is needed to ensure a coordinated and effective response in an actual emergency. Wisconsin commented that although FEMA and NRC had developed regional response plans, they had not been adequately tested in Wisconsin through federal agency participation in nuclear powerplant exercises.

SCOPE OF GAO REVIEW

FEDERAL AGENCIES

Department of Agriculture
- Headquarters, Office of Emergency Planning and Defense Mobilization

Department of Commerce
- Headquarters, National Oceanic and Atmospheric Administration
  - National Weather Service
    - Office of the Federal Coordinator for Meteorology
- Regional offices
  - Central region
    - Meterological Services Division
    - Data Acquisition Division
  - Eastern region
    - Meterological Services Division

Department of Energy
- Headquarters, Radiological Control Division
- Regional offices
  - Region I, New York
  - Region V, Chicago

Department of Health and Human Services
- Office of Assistant Secretary for Health
  - Headquarters, Public Health Service
    - Centers for Disease Control
    - Food and Drug Administration
    - Health Resources and Services Administration
    - National Institutes of Health
  - Regional offices, Food and Drug Administration
    - Region II, New York
    - Region III, Philadelphia
    - Region V, Chicago
  - Regional offices, Public Health Service
    - Region II, New York
    - Region III, Philadelphia
    - Region V, Chicago

Department of Housing and Urban Development
- Headquarters, Office of Emergency Planning

Department of Interior
- Headquarters, Office of Environmental Project Review

Department of Transportation
- Headquarters, Office of Emergency Transportation
- Regional offices

Region II, Boston - Coast Guard
Region III, Philadelphia - Federal Highway Administration
Region V, Chicago - Federal Highway Administration

Environmental Protection Agency
Headquarters, Office of Radiation Programs
Regional offices, Air Management Division
Region II, New York
Region III, Philadelphia
Region V, Chicago

Federal Emergency Management Agency
Headquarters, Office of State and Local Programs and Support
Office of Natural and Technological Hazards Programs
Office of Public Affairs
Emergency Management Institute
Regional offices, Technological Hazards Branch
Region II, New York
Region III, Philadelphia
Region IV, Atlanta
Region V, Chicago
Region IX, San Francisco
Region X, Seattle

Nuclear Regulatory Commission
Headquarters, Office of Inspection and Enforcement, Division of Emergency Preparedness
Regional offices, Division of Emergency Preparedness and Operations Support
Region I, King of Prussia, Pennsylvania
Region III, Glen Ellyn, Illinois

FEMA CONTRACTORS
Argonne National Laboratory
Idaho National Engineering Laboratory

STATES
Illinois - Department of Nuclear Safety
Emergency Services and Disaster Agency
Minnesota - Department of Public Safety
New York - Department of Health, Radiological Emergency Preparedness Group
Office of Disaster Preparedness, Division of Military and Naval Affairs
Ohio - Disaster Services Agency
Pennsylvania - Emergency Management Agency
Virginia - Office of Emergency and Energy Services
Wisconsin - Department of Health and Social Services
Division of Emergency Government

LOCAL GOVERNMENTS

Illinois
- Lake County
- City of Chicago
- City of Waukegan
- City of Zion

New York
- Orange County
- Putnam County
- Rockland County
- Westchester County
- New York City

Pennsylvania
- Allegheny County
- Beaver County
- Borough of Aliquippa
- Borough of Industry
- Borough of Midland
- City of Pittsburgh

Wisconsin
- Kenosha County
- City of Milwaukee

NUCLEAR POWERPLANTS[1]
- Beaver Valley Power Station - Pennsylvania
- Edwin I. Hatch Plant - Georgia
- Indian Point Station - New York
- LaSalle County Nuclear Station - Illinois
- Monticello Nuclear Generating Plant - Minnesota
- Nine Mile Point Nuclear Station - New York
- North Anna Power Station - Virginia
- Oyster Creek Nuclear Power Plant - New Jersey
- R.E. Ginna Nuclear Power Plant - New York
- Salem Nuclear Generating Station - New Jersey

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[1]The following sites are not listed in this table because coverage was limited to the discussion appearing in the text, except at the Dresden Nuclear Power Plant at which we also observed an exercise: Callaway Plant - Missouri, Calvert Cliffs Nuclear Power Plant - Maryland, Davis-Besse Nuclear Power Station - Ohio, Diablo Canyon Nuclear Power Plant - California, Donald C. Cook Plant - Michigan, Dresden Nuclear Power Station - Illinois, James A. Fitzpatrick Nuclear Power Plant - New York, Haddam Neck Generating Station - Connecticut, Maine Yankee Atomic Power - Maine, Peach Bottom Atomic Power Station - Pennsylvania, Quad Cities Station - Illinois, Rancho Seco Nuclear Power Plant - Californa, Shoreham Nuclear Power Station - New York, St. Lucie Plant, Units 1 and 2 - Florida, Three Mile Island Nuclear Station - Pennsylvania, and Yankee Nuclear Power Station - Massachusetts.

San Onofre Nuclear Generating Station - California
Sequoyah Nuclear Power Plant - Tennessee
Surry Power Station - Virginia
Susquehanna Steam Electric Station - Pennsylvania
Trojan Nuclear Plant - Oregon
William H. Zimmer Nuclear Power Station - Ohio
Zion Nuclear Plant - Illinois

UTILITY COMPANIES

Cincinnati Gas and Electric Company - Ohio
Commonwealth Edison Company - Illinois
Consolidated Edison Company of New York, Inc.[2]
Duquesne Light Company - Pennsylvania
Long Island Lighting Company - New York[3]
Power Authority of the State of New York

PUBLIC INTEREST GROUPS, PROFESSIONAL ASSOCIATIONS, AND MISCELLANEOUS CONTACTS

American Nuclear Society
American Red Cross
Atomic Industry Forum
Citizens Against Nuclear Power
Citizens Opposed to Radioactive Pollution
Critical Mass Energy Project
Interorganizational Advisory Committee
National Audubon Society
Nuclear Energy Information Service
Physicians for Social Responsibility
Pollution and Environmental Problems, Inc.
Sinnissippi Alliance for the Environment
Union of Concerned Scientists

EXERCISES OBSERVED

Dresden Nuclear Power Station, Illinois
Indian Point Station, New York
Surry Power Station, Virginia

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[2]Coverage was limited to reviewing testimony at Indian Point Atomic Safety Licensing Board, Nuclear Regulatory Commission, and congressional hearings.

[3]See footnote 2 above.

BRIEF DESCRIPTION OF STANDARDS CONTAINED IN THE JOINT FEMA-NRC CRITERIA FOR PREPARATION AND EVALUATION OF RADIOLOGICAL EMERGENCY RESPONSE PLANS AND PREPAREDNESS IN SUPPORT OF NUCLEAR POWER PLANTS

(1) Primary responsibilities for emergency response by the nuclear facility licensee, and by State and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established and each principal response organization has staff to respond to and augment its initial response on a continuous basis

(2) On shift facility licensee responsibilities for emergency response are unambiguously defined adequate staffing to provide initial facility accident response in key functional areas is maintained at all times timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified (This standard applies only to NRC licensees but is included here for completeness)

(3) Arrangements for requesting and effectively using assistance resources have been made arrangements to accommodate State and local staff at the licensee's near-site Emergency Operations Facility have been made and other organizations capable of augmenting the planned response have been identified

(4) A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures

(5) Procedures have been established for notification, by the licensee, of State and local response organizations and for the notification of emergency personnel by all response organizations, the content of initial and follow up messages to response organizations and the public has been established, and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established

(6) Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public

(7) Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance and procedures for coordinated dissemination of information to the public are established

(8) Adequate emergency facilities and equipment to support the emergency response are provided and maintained

(9) Adequate methods, systems and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use

(10) A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public Guidelines for the choice of protective actions during an emergency consistent with Federal guidance are developed and in place and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed

(11) Means for controlling radiological exposures, in an emergency, are established for emergency workers The means for controlling radiological exposures shall include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides

(12) Arrangements are made for medical services for contaminated injured individuals

(13) General plans for recovery and reentry are developed

(14) Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills and deficiencies identified as a result of exercises or drills are (will be) corrected

(15) Radiological emergency response training is provided to those who may be called upon to assist in an emergency

(16) Responsibilities for plan development and review and for distribution of emergency plans are established and planners are properly trained

Source: 44 Code of Federal Regulations 350.5.

Federal Emergency Management Agency

Washington, D.C. 20472

NOV 25 1983

Mr. J. Dexter Peach
Director, Resources, Community
and Economic Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

The Federal Emergency Management Agency (FEMA) appreciates the opportunity to comment on the draft General Accounting Office (GAO) report, "Emergency Preparedness Around Nuclear Power Plants: Further Actions Needed." The primary value of this report from FEMA's perspective is that it raises fundamental questions that need to be addressed about the goals and objectives of FEMA's (and of other Federal agencies') efforts to enhance State and local government emergency planning and preparedness.

FEMA concurs with your general assessment of the Agency's radiological emergency preparedness (REP) program that: "Although progress has been made since the Three Mile Island Accident, GAO believes more can and should be done." Indeed, FEMA has already addressed and is taking action on most of the concerns raised in this report. With regard to the GAO's assessment of specific aspects of the REP program, fundamental differences exist between our respective evaluations of this program. First of all, the GAO advocates that the Nuclear Regulatory Commission (NRC) not issue operating licenses to utilities until offsite planning and preparedness is evaluated and determined to be in compliance with virtually all the criteria of NUREG-0654/FEMA-REP-1, Rev 1. This expectation does not represent a day-to-day, operational objective of the REP program, nor of the NRC's licensing actions. While FEMA desires the fullest possible compliance from State and local governments, our objective is to foster the development and enhancement of radiological emergency planning and preparedness as fully and rapidly as possible within the constraints of Federal, State, and local capabilities and resources. Specifically, our objective is to make determinations on the adequacy of offsite preparedness on the basis of reasonable assurance, not absolute certainty.

Secondly, the GAO recommends the termination of FEMA's two-track (Memorandum of Understanding (MOU) and 44 CFR 350) evaluation and approval processes with the adoption of a single, comprehensive approach for evaluating and approving offsite planning and preparedness. The two processes are, in fact, complementary and are designed to meet our program objective and to respond to NRC requests for interim findings on an as-needed basis for licensing considerations.

GAO Method. The principal method used by the GAO in appraising FEMA's REP program is to analyze and compare different site-specific, "evaluation snapshots" of offsite preparedness based on our findings and determinations over a period of three years. This method has utility for assessing the thoroughness of site-specific evaluations per our established guidance and for making comparisons between these specific evaluations in order to determine the degree of uniformity in the Agency's evaluations and determinations. However, the use of this method does not address the more fundamental question of the degree of progress made by State and local governments at the same site over a period of two to three years.

The "evaluation snapshots" analyzed by the GAO represent FEMA's findings at a specific time in an ongoing, iterative process between State and local governments and FEMA whereby offsite preparedness is continually assessed and reassessed. As the state of preparedness at a particular site undergoes change over a period of time, so will the FEMA "evaluation snapshots." This being the case, the critical element missing from the GAO analysis is the degree of progress made between one "snapshot" to another at the same site and by the same State and local jurisdictions.

Such an evaluation of our REP program would more accurately reflect the effectiveness of our efforts over the last three years and would show that most or all jurisdictions studied over a period of two or three years have demonstrated significant progress in developing and enhancing their level of preparedness. It would underscore FEMA's (and other Federal agencies') contribution to improving the quality of offsite preparedness at particular sites across the Nation and, thus, support the conclusion that State and local governments, for the most part, have the capability to adequately protect the health and safety of the public in the event of radiological emergencies at commercial nuclear power plants.

Organization of FEMA's Response to Specific Concerns and Issues. FEMA's response to specific concerns and issues presented in the GAO report are presented in two ways. First, responses to five of the most significant issues are addressed in this letter. Secondly, attachments to this letter are grouped into two categories--responses to specific concerns and comments on Region- and site-specific references in the GAO report.

Significant Issues and Recommendations. Almost all the GAO recommendations in this report pertain to the five significant issues which are discussed below.

1 ocedure for approving offsite emergency preparedness. Of all the ..ions made in the report, the one which would probably have the most ct, if adopted, on our REP program, is the one calling for the establishment of a single procedure for evaluating and approving offsite emergency preparedness. The general thrust of GAO comments supporting this recommendation is that the NRC-FEMA MOU process should be terminated and one process, similar to the present 350 processes, adopted.

APPENDIX III

Unfortunately, the impression given by the GAO in its discussion of the MOU and 350 processes is that these represent two fundamentally different and unrelated approaches for evaluating offsite preparedness. Such is not the case. Both approaches are part of FEMA's overall process of working with State and local governments on offsite emergency planning and preparedness and making determinations on the adequacy of these activities. Under both the MOU and 350 processes, these determinations are made at different times as needed to meet NRC licensing schedules for new plants and regulatory requirements for operating plants. The criteria (NUREG-0654/FEMA-REP-1, Rev. 1) used in making evaluations of State and local plans and preparedness are the same in both cases. Finally, both processes are designed to further the same objective: to provide reasonable assurance that the health and safety of the public living in the vicinity of nuclear power plants can be protected through an enhanced level of offsite preparedness.

The GAO recommendation that the two-track process should be terminated is at odds with current NRC licensing requirements and practice and is contrary to the expressed (1982/1983 NRC Appropriation Authorization, Section 5) intent of the Congress to give NRC discretion in issuing operating licenses to utilities even without FEMA approved State and local government emergency plans. The two-track approach currently employed by NRC and FEMA is, therefore, consistent with the expressed desire of the Congress and provides the flexibility necessary to respond to the NRC licensing schedule requirements.

2. Minimum requirements for evaluating and approving offsite preparedness. In recommending that FEMA and NRC establish minimum requirements for State and local governments to meet before a determination of adequate offsite preparedness is made, instances are cited showing inconsistencies in making such determinations between various sites. FEMA is aware that different evaluations and findings have been made between interim findings and 350 determinations, but believes these are more attributable to variations in the approach and interpretation by FEMA Regions and subjective judgements involved rather than to differences between the two processes. FEMA has already initiated actions to assure a more uniform approach by our Regions in making such determinations when it issued instructions on August 5, 1983, to its Regional Directors entitled "Procedural Policy on Radiological Emergency Preparedness Plan Reviews, Observations and Evaluations, and Interim Findings." (Attachment B-1)

FEMA and NRC are jointly examining the need for revising our guidance document, NUREG-0654/FEMA-REP-1, Rev. 1. This review effort was initiated in May of 1983 and will result in the publication of a revised document in January 1985 if the NRC and FEMA decide to revise it. Two concerns that are being addressed in this review/revision effort include the prioritization of criteria into critical and less critical elements and the establishment of separate criteria for evaluating emergency plans and exercises. An assumption underlying the prioritization of elements is that such an effort would help FEMA and NRC identify and prescribe more definitively what constitutes adequate offsite planning and preparedness. This assumption will be considered in our joint effort with NRC.

3. Improvement in the quality of exercises. Two GAO recommendations concern the adequacy of exercise scenarios. FEMA concurs with the general thrust of these recommendations which are intended to improve the quality of exercises through the development of better exercise scenarios. FEMA and NRC have already initiated actions to improve the quality of exercise scenarios. FEMA has contracted with the Idaho National Engineering Laboratory (INEL) to review exercise objectives and scenarios prior to exercises being conducted to assure that the scope of the exercise is sufficient for testing and evaluating offsite planning and preparedness. Also, FEMA has proposed to NRC that both the exercise objectives and the scenario be approved by FEMA and NRC prior to the conduct of the exercise. (See Attachment B.)

4. Tracking of deficiencies. FEMA concurs with the need to establish a nationwide management system for tracking deficiencies. FEMA has authorized the Argonne National Laboratory to assist us in establishing a computerized system for tracking the correction of deficiencies identified in both emergency plans and exercises which is incorporated into the Agency's Exercise Evaluation and Simulation Facility. The disposition of such deficiencies will be monitored for all involved State and local governments for each site from initial identification by FEMA to their correction by affected State and local governments. (See Attachment B.)

The objective of establishing a system to track deficiencies for all sites and specific jurisdictions is to assure that all identified deficiencies are corrected. Provisions are made in the final rule, 44 CFR 350, and the August 5, 1983, memorandum referenced above for FEMA to require remedial exercises and other appropriate measures as well as to secure commitments from State and local governments to correct deficiencies, both in plans and general preparedness.

5. Coordinated Federal response planning. In addressing FEMA's responsibilities for establishing coordinated Federal response planning, the GAO states that our efforts provide "little assurance that the confusion and poor coordination that existed among the Federal agencies responding to the Three Mile Island accident would not reoccur." This statement ignores the greatly improved interagency planning and exercising process that has taken place in the past three years. Activities such as the interagency discussions that have occurred in the process of developing the Federal Radiological Emergency Response Plan, the development of the NRC-FEMA Operational Response Procedures and the planning for and participation in two major nuclear weapon accident exercises have all contributed to a better overall understanding of the relative roles of all Federal agencies that would respond to a radiological emergency. The Federal radiological emergency response community is much better prepared to work together in responding to a commercial nuclear power plant accident than at the time of the Three Mile Island accident. (See Attachment A.)

In conclusion, FEMA believes this report correctly raises important questions as to how our REP program should be structured and carried out, particularly with respect to the NRC licensing process and the intent of the Congress. In

APPENDIX III

spite of the different perspective of the GAO towards specific aspects of offsite preparedness evaluation and approval, we are in agreement with the fundamental need to move forward to further enhance the level of State and local government planning and preparedness around commercial nuclear power plants. We have been working and will continue to work on matters contained in the recommendations of the report, consistent with FEMA's integrated approach to emergency management, our special responsibility to NRC, the voluntary nature of State and local participation, and our interpretation of the dictates of Congress and the resources available to be applied to the REP program.

Sincerely,

Louis O. Giuffrida
Director

Enclosures 9

APPENDIX III

ATTACHMENTS (See GAO note)

A. Federal Response Planning

B. Uniformity of Exercise Plan Evaluation, Tracking of Deficiencies and Scenario Generation

C. Department of Interior/Public Lands

D. Alert and Notification and Public Education

E. Potassium Iodide (KI)

F. Radiological Instrumentation

G. Training

H. Verification Analysis

I. Region- and Site-Specific Comments

GAO note: FEMA's attachments were supplemented by detailed material (referred to as attachments A-1, B-1, etc.). Due to their volume, they have not been included in this report. Changes have been incorporated into this report where appropriate based on this material.

Federal Response Planning

1. Page vi, "Conclusions and Recommendations" Section

The General Accounting Office (GAO) finding of "little assurance that the confusion and poor coordination that existed among the Federal agencies responding to the Three Mile Island accident would not reoccur" overlooks the interagency planning and exercising process that has occurred in recent years. Activities such as the interagency discussions that have occurred in the process of developing the Federal Radiological Emergency Response Plan, the development of the Nuclear Regulatory Commission (NRC)-Federal Emergency Management Agency (FEMA) Operations Response Procedures, and the planning for and participation in two major nuclear weapon accident exercises, have all contributed to a better overall understanding of the relative roles of all Federal agencies that would respond to a radiological emergency. In summary, the Federal radiological emergency response community is much better prepared to work together in responding to a commercial nuclear power plant accident.

2. Page 53, "FEMA Hopes to Have a Draft Completed by September 30, 1983, and a Final Plan Published by July 31, 1984."

This statement does not recognize an important step leading to the publication of the Federal Radiological Emergency Response Plan in mid-1984. FEMA is scheduled to issue a plan by December 30, 1983, for interim use and public comment. This interim plan will then be revised, if necessary, based on lessons learned from an exercise scheduled for March, 1984 at the St. Lucie (Florida) commercial nuclear power facility. It will then be published as the final plan in mid 1984.

3. Page 54, "The Federal Response Plan Provides for Limited Cooperation" Section

This section notes that FEMA will coordinate but not control, Federal activities. Similar statements are made elsewhere in the report. This is an accurate and appropriate observation. However, we believe the GAO report should emphasize that the Federal response plan is being developed in this manner because of limitations in the authority of FEMA. FEMA is the coordinator for the response activities of other Federal agencies, not an authority over these agencies.

4. Pages 54-56, "Partial Testing of the Federal Response has Revealed Problems" Section

This section should be put in proper perspective. The overall process of developing and testing the Federal Radiological Emergency Response Plan (FRERP) should first be outlined. Before the actual drafting of the FRERP began, an interagency committee began work on the Planning Guidance. The process of developing the Planning Guidance was used to resolve many interagency issues between FEMA, the NRC, and other Federal agencies. Before the planning guidance was issued to other Federal agencies in April, 1983, the October 1982 Headquarters Interface Exercise was held for the purpose of discovering shortcomings in the planning guidance.

GAO note: Page numbers have been changed to refer to the final report.

APPENDIX III

The four major problems identified in this exercise (and as outlined on pages 54-56 of the draft GAO report) were addressed by FEMA, and appropriate changes were made in the planning guidance prior to it being issued to other Federal agencies for their use.

The April 1983 Planning Guidance (see Attachment A-1) serves as the basis for FEMA and other Federal agencies to prepare or revise their radiological emergency response plans. The FRERP, including executive summaries of each agency's plan, is scheduled for publication not later than December 30, 1983, for interim use. It is being written to overcome the problems identified in the October 1982 exercise.

5. Pages 54-55, "A Headquarters Response Exercise Has Revealed Coordination Problems" Section

This section states that "coordination problems and differences of outlook between FEMA and NRC were revealed during the October 1982 exercise" and makes references to "differences in FEMA and NRC interpretation of agency roles". FEMA and NRC, recognizing that many specific points in FEMA-NRC relations during an accident would require resolution, jointly developed the "NRC/FEMA Operational Response Procedures for Response to a Commercial Nuclear Reactor Accident" (see Attachment A-2). These procedures focus on the relationship between the two agencies at the headquarters level, at the regional level, and at the scene of an accident. They cover notification schemes and a manner of activation, organizations at headquarters and at the site, interface procedures and coordination of onsite and offsite operations. These joint procedures have been formally agreed upon by the two agencies and are now being printed. A copy of these procedures is attached.

APPENDIX III

Uniformity of Exercise and Plan Evaluation, Tracking of Deficiencies and Scenario Generation

On August 5, 1983, guidance was provided to the Regions on a new modular approach to the evaluation and reporting of exercises. This new modular approach will serve to standardize the evaluation and reporting methods for all ten Regions. The modular format consists of nine exercise modules, each corresponding to either a function or a location that an observer will be assigned to evaluate. Each module is divided into sections according to emergency functions.

Under this new approach to evaluation and reporting on exercises, time frames have been given to the Regions relating to their processing of the exercise evaluation. The report on each exercise is due to Headquarters not later than 30 days after the exercise. FEMA Headquarters will quickly review the report for completeness and within 7 days will furnish two copies to NRC Headquarters. At this time, the Region will provide two copies to the State with a request that the State provide a response to the Region within 30 calendar days. The response is to include a corrective action schedule with a completion date for each action. The State reply, along with their proposed corrective action(s) and completion date(s) and the Regional analysis will be furnished to FEMA Headquarters within 15 days after receipt from the State. The results will be furnished to NRC. This represents the periodic status reports recommended by GAO in Recommendation #5 to FEMA on page 22 of the draft report.

In the August 5 guidance to the Regions, instructions were provided as to how the deficiencies should be summarized and listed in the report. This listing and the modular exercise evaluation format has been designed to be compatable with the new computer based data system known as the Exercise Evaluation and Simulation Facility (EESF). The revised data base under EESF will have the capability to retain and recall data for all elements of all sections for all exercises, i.e., a complete history file will be created and retained for recall at any time. Therefore, all deficiencies and their corrections will be tracked. The data base will contain the date of the correction and a description of the corrective action.

In addition, EESF will provide improvement in the technological support of exercises. This technology should permit better integration of the mutually dependent Federal, State, and local direction and control functions and a more standard and meaningful way to evaluate periodic exercises at all levels. EESF will combine computerized evaluation of exercise elements and performance, with analytical assessment of radiological releases to the atmosphere, simulation of evacuation dynamics, and estimation of dose to the population. These capabilities can be used to assist State and local governments to develop better plans and exercise scenarios, to improve assessment techniques, and to standardize the execution and evaluation of exercises. For example, a common decision for emergency managers is whether to use evacuation or sheltering as a protective response. This system would permit rapid assessment of the consequences of either alternative.

APPENDIX III

EESF is currently being developed and tested, and will be operational in early FY 1984. It will be operated in conjunction with the FEMA Emergency Information Coordinating Center, and will be used by the Agency to improve exercising and response capabilities across the board.

Attached is a copy of the August 5, 1983, guidance on uniformity of exercises entitled, "Procedural Policy on Radiological Emergency Preparedness Plan Reviews, Exercise Observations and Evaluations, and Interim Findings" (Attachment B-1) and the EESF document dated August 15, 1983, and entitled, "Exercise Evaluation and Simulation Facility Functional Requirements Summary" (Attachment B-2).

APPENDIX III

Attachment C

Department of Interior/Public Lands Issue

The Federal Emergency Management Agency (FEMA) has initiated efforts to address the issue of radiological emergency preparedness vis-a-vis Federally owned and controlled lands and facilities. In addition to our ongoing work with the Departments of Defense and Energy concerning their nuclear facilties, we have established a working relationship with the Department of Interior concerning its role in radiological preparedness.

Specifically, at the request and recommendation of FEMA, the Federal Radiological Preparedness Coordinating Committee (FRPCC) voted to invite the Department of Interior to become a full member of the FRPCC. Accordingly, FEMA has formally invited the Department of Interior to participate in FRPCC and Regional Assistance Committee (RAC) activities (see Attachment C-2). Also, staff from both FEMA and the Department of Interior have met to identify the Department of Interior lands and facilities that are located within the 10 and 50 mile Emergency Planning Zone (EPZs). FEMA has provided such a list (see Attachment C-1) to the Department of Interior on August 22, 1983. The Department of Interior has forwarded this list to appropriate regional offices for confirmation. We expect the Department of Interior to complete its confirmation process by the end of 1983.

The next task to be addressed, subsequent to the identification and selection of Department of Interior lands and facilities, is to develop and implement emergency plans and procedures for assuring coordination between specific Department of Interior lands and facilities and State and local governments, licensees and other Federal agencies. Also, FEMA expects to involve the Department of Interior in joint exercises involving licensees and State and local governments in those cases where in their lands and facilities are within established 10 mile EPZs.

APPENDIX III

Attachment D

Alert and Notification Systems and Public Education

As the report indicates, there were delays in issuing final guidance and starting formal testing of alert and notification systems for the 10-mile emergency planning zones (EPZ) at nuclear power plants. However, after an extensive comment period and field testing, the guidance was published in the Federal Register on September 15, 1983, for final comment. (The guidance, in its current form, is being used in the interim for the formal testing which began on September 28, 1983, at the San Onofre Nuclear Generating Station (SONGS). Comments are due on the guidance by December 1, 1983, which should allow FEMA to issue the guidance in its final form in the first quarter of calendar year 1984.

In the past, some aspects of the total alert and notification systems (e.g., call-down capability, 15-minute notification within 5-miles of the site, Emergency Broadcast System (EBS) activation and broadcasting) have been observed during exercises and evaluated by FEMA. However, FEMA was not able to conduct design reviews of entire systems in accordance with NUREG-0654/FEMA-REP-1, Appendix 3, criteria. This process entails a technical engineering review of the alert and notification system itself as well as the conduct of a statistical survey of the population of the EPZ. Historically, FEMA has not had the requisite technical expertise and guidance to perform such reviews. The subsequent development of the testing criteria through contractor support was time-consuming. However, two pilot demonstrations and the first formal demonstration at SONGS showed that the telephone survey methodology and acoustical review procedures are successful. FEMA plans to use these methods to test alert and notification systems at 24 plants in FY 84 and 28 plants in FY 85.

The use of these standardized criteria, which put into concrete form the more general standards E, F, N and Appendix 3 of NUREG-0654/FEMA-REP-1, should eliminate any inconsistency which has existed in past alert and notification testing.

As to the content of the notification, a section on public education was originally to have been part of the FEMA alert and notification survey questionnaire. In fact, as part of FEMA's June 9, 1981, survey approval request, we stated that one of the survey's main purposes was to assess the public awareness of the meaning of the notification message. However, in OMB's disapproval of the information collection request, this assessment was specifically cited as unnecessary.

First, OMB stated that since NUREG-0654/FEMA-REP-1 makes the licensee responsible for disseminating basic emergency planning information to the public within the plume EPZ, "FEMA could discharge its oversight responsibility by requiring licensees to include the agency on the annual mailing of emergency information. It should not be necessary to ask ten percent of the affected population what they know about actions they should take in the event of nuclear emergencies."

APPENDIX III

OMB also stated that " . . . as to FEMA's proposal to assess the level of public understanding of the notification message, it could be argued that once the agency has assured that the warning signal was audible, and that the licensee has provided the population with emergency information, it has discharged its responsibility. FEMA should not be expected to make sure the public has read the material it has been given; that is an individual decision. Nor should it be required to expend scarce resources supplementing the licensees' efforts."

Based on this OMB response, FEMA decided that the alert and notification test survey would assess only whether the public could promptly be notified of an accident and whether planning information had been provided; it would not assess the level of the public's understanding of those materials. FEMA then modified the questionnaire, which was subsequently approved by OMB. In order to make the information collection more efficient for the public and FEMA, the written questionnaire was modified to a telephone survey format. The telephone survey instrument has now been reapproved by OMB for use by FEMA in FY 84 during alert and notification tests. This approval has reaffirmed FEMA's original position and the earlier OMB approvals.

FEMA has not neglected the area of public information. As part of the standard planning review process, FEMA's Regional Offices review, against standard G of NUREG-0654/FEMA-REP-1, emergency information brochures, pamphlets, etc., submitted by licensees and States. Also, a separate contract is to be let by FEMA in the next couple of months to review and critique all existing brochures and set general guidelines for future publications. The guidelines will attempt to assure that the emergency information is clear and is presented at approximately the eighth-grade reading level, the level generally agreed on by experts as most suitable for materials for the general public.

In FEMA's opinion, the Standard Review Guide for assessing the adequacy of prompt alert and notification sytems and the criteria established in Standard G (Public Education and Information) in NUREG-0654/FEMA-REP-1 provide an acceptable framework from which public alert, notification, and education can be evaluated.

APPENDIX III

Attachment F

Potassuim Iodide (KI)

GAO recommends expanding Federal guidance on the use of potassium iodide by the general public, including information on when the drug should be used, and how distribution decisions should be made.

Background

During the deliberations of the Federal Radiological Preparedness Coordinating Committee (FRPCC) Subcommittee on Potassium Iodide and Mechanical Respiratory Protection, this matter was discussed fully and documented in the records of discussion. Even when FEMA was examining stockpiling options, there was no plan to go beyond the recommendation of the Conference of Radiation Control Program Directors delivered to FEMA in March of 1982.

The topic of additional guidance was referred to the full FRPCC by the Subcommittee when it submitted the Draft Federal Statement. The Nuclear Regulatory Commission (NRC) Subcommittee representative maintained that additional Federal guidance was needed. The majority disagreed, citing the full and complete review by the Food and Drug Administration (FDA) as sufficient. NRC's position was based on needing assurance that a State plan was effective under all circumstances, including a quick breaking accident. This involved the Subcommittee in appraisals of the source term, an action clearly beyond its scope. Upon a poll of the entire FRPCC, directed by the FRPCC Chairman, no support for additional guidance beyond the medical guidance of FDA was deemed necessary, and FEMA did not pursue the matter. Pursuant to this polling, the FRPCC adopted the FDA guidance and the FRPCC Chairman formally requested agency endorsements. Of the 9 agencies, 3 have endorsed the draft Federal statement (see attachement E-1): FEMA, Environmental Protection Agency and the Department of Health and Human Services. Of the balance, Commerce/National Oceanic and Atmospheric Administration, United States Department of Agriculture and Department of Transportation declined on the grounds of insufficient expertise and agency involvement. Department of Energy and the Department of Defense both took issue with the full Committee's action, (see attachment E-2). The NRC has not responded to this date, although FEMA met with the Commission staff on September 16th to discuss a pending NRC action.

As to the General Accounting Office's (GAO) specific recommendation, FEMA is in no position to write Federal guidance on technical and medical matters which override the responsibility of State Health Officials short of a Presidential Disaster Declaration. FEMA has sought to assist the States with technical recommendations concerning the packaging of potassium iodide for general use.

These recommendations were not pursued because during the summer of 1982, the FDA withdrew its limitation on the direct sale of potassium iodide to the general public. In effect a decision was reached to allow market forces to determine the availability of potassium iodide.

APPENDIX III

Meanwhile, it remains the view of FEMA and the FRPCC itself that FDA guidance is quite adequate as an aid for assisting those State officials who desire to distribute KI to the public. It states the conditions of use (25 REM projected dose to thyroid), the need for swift action (50% effectiveness if taken four hours after exposure), and the technical basis for the present tablet formulation.

APPENDIX III

Attachment F

November 11, 1983

Radiological Instrumentation

Instrumentation for use by State and localities for radiological emergencies associated with nuclear power plants is based on guidance developed in accordance with conceptualizations of how emergency operations would be conducted. Instrumentation is needed to detect radioactive releases offsite that could endanger the atmosphere, water, and food. Contamination of milk supplies by radioiodine is of special concern. For this reason simple rugged field instruments for the detection and measurement of radioiodine are a special requirement.

Guidance is developed by a subcommittee of the FRPCC supported by FEMA and NRC contracts with the Idaho National Engineering Laboratory. The subcommittee has been meeting about once a month with its activities fully documented. The contractor's activities include research and development on instrumentation, guidance development and support to States and localities through the Regional Asssistance Committees (RACs).

It is true that the instrumentation guidance development has suffered serious delays. The reason for this is that the guidance must be based on supporting research and development. The major problem is the development of simple, rugged field instruments that can accurately measure radioiodine in the presence of other radioactive gases (noble gases). This problem has affected the usefulness of FEMA-REP-2 for the Airborne Plume Pathway. This is the only guidance document published. It was published before the performance of the radioiodine monitor described therein was validated by tests performed by INEL. Research and development work by INEL completed in February 1983 (NUREG/CR-1599) gives evidence that this type of monitor might give false indications of the presence of radioiodine under certain accident conditions when the radioactive noble gas to radioiodine ratios are very high. This could lead to erroneous decisions regarding the presence of radioiodine.

Research and development, as well as experience, have also shown that radioiodine monitoring systems other than that described in FEMA-REP-2 have similar problems. As a matter of fact, to this date, no rugged field instrumentation system has been fully demonstrated. For this reason the subcommittee requested that the EPA's Eastern Environmental Radiation Facility in Montgomery, Alabama undertake to provide a test capability for evaluating such systems. This capability is now being established. When completed it will be possible to test, evaluate and compare the performance of all candidate systems under realistic field conditions. Having this capability will make it possible to develop and improve the necessary instruments.

Similar problems existed in the development of instrumentation guidance for food and water. It was first necessary to do the research and development. This has been accomplished and new dates for completion of the remaining instrument guidance documents have been established as follows:

Milk Pathway	May 1984
Food and Water Pathway	June 1984
Update of Airborne Plume Pathway (FEMA-REP-2)	September 1984
First Draft of Recovery and Reentry Guidance	July 1984

These will be issued initially as contractor's research reports to expedite their availability.

The subcommittee recognized early that guidance would be delayed by the necessity to do the supporting research and development. Therefore, in August 1981 the subcommittee commenced a program for providing for the closest possible contact between the experts preparing the guidance and the users in order to be responsive to urgent user requirements. This is accomplished as follows

- Technical assistance is provided to the States, via the RACs, by experts from Idaho National Engineering Laboratory (INEL) for planning and exercise.

- The same INEL experts participate in the planning and accident assessment courses conducted by FEMA.

- Members of the subcommittee and INEL experts participated in the annual conferences of the Conference of Radiation Control Program Directors (CRCPD) in 1982 and 1983.

- Close liaison is maintained with the CRCPD in all stages of guidance development.

These activities serve to provide informally, to the users, the latest technical guidance, and to obtain in return users reaction and technical input to the guidance development project. User experiences with instruments adapted to the application are essential to the success of the project. Thus, the most up-to-date information is made available to the field at the earliest possible time. Documentation on the above initiatives is available in the subcommittee files and includes the minutes of subcommittee meetings.

Since technical assistance is available through the RACs upon request by the States, there is no reason why any State cannot have the latest information on instrumentation.

The document "Guidance on Offsite Emergency Radiation Measurement Systems. Phase I - Airborne Release" also known as FEMA-REP-2 is not regarded by the subcommittee to be in conflict with NUREG-0654. Also, the section of FEMA-REP-2 which pertains to emergency worker dosimetry is regarded by the subcommittee as accurate. The only problem with FEMA-REP-2 is the fact, as described above, that the radioiodine monitor described therein may not be useful under certain accident conditions when the radioactive noble gas to radioiodine ratios are very high. This was not fully established until the necessary R&D by NRC was completed and reported in NUREG/CR-1599 dated February 1983. This will be corrected in the process of updating FEMA-REP-2.

Attachment C

Response to Selected Portions of GAO Report on Radiological Emergency Preparedness Training

Federal, state, and local officials need more and better training - Improvement required

Although the "Radiological Emergency Preparedness Planning" course needs some revision, other courses in the series (e.g., Radiological Accident Assessment and Radiological Emergency Response) are current with available technology on a widescale basis. Advanced technology such as computer modeling coming on line will be included into courses as available (e.g., Exercise Evaluation and Simulation Facility).

The "Radiological Emergency Preparedness Planning" course will be revised in FY 1984. Revision is pending changes in NUREG 0654/FEMA REP-1 scheduled for FY 1984.

FEMA offers only a limited range of training for nuclear power plant emergencies

The following is a list of courses conducted or funded by FEMA for response to nuclear power plant emergencies as well as to other radiological incidents (e.g., transportation, etc.). The nine training categories identified in NUREG 0654 are listed adjacent to the course which applies to the category.

COURSE	TRAINING CATEGORY IDENTIFIED IN NUREG 0654
* 1) Radiological Emergency Planning Course	o State radiological planners o Directors/coordinators for resp. organizations o Personnel responsible for emergency management information
* 2) Radiological Accident Assessment Course	o State personnel responsible for accident assessment o Directors/coordinators for response organizations
* 3) Radiological Emergency Response Course--conducted at the Nevada Test Site	o Radiological monitoring teams and analysis personnel if part of organized state and local response teams o Medical support personnel if part of organized state and local response teams o Directors/coordinators for response organizations

APPENDIX III

COURSE	TRAINING CATEGORY IDENTIFIED IN NUREG 0654
**4) Prehospital Response to Radiation Accidents - fielded in mid-FY 1984	o First aid and rescue personnel o Local support services/emergency services o Police security and firefighting
**5) Hospital Management of Radiation Accidents	o Medical support personnel
II6) Radiological Monitoring	o Police security and f'-efighting personnel o First aid and rescue personnel
**7) Workshops on Radiological Emergency Preparedness	o Directors and coordinators of response organizations o Others

* Courses specific to nuclear power plant accidents
**Generic courses for general radiological emergencies

Attachment G-1 includes a listing of Radiological Emergency Preparedness training requirements as identified by the Federal Radiological Preparedness Coordinating Committee (FRPCC). Column No. 5 shows the current status of courses. NOTE: The "Personnel Category" column includes all nine categories of training identified in NUREG 0654.

As seen from Attachment G-1, by year end FY 1984 will offer eight courses related to Radiological Emergency Preparedness, not just three as stated on pages 41-42 of the GAO report. All courses to be deployed in FY 1984 were under development at the time of the GAO review.

Although revisions, updates, and additions of courses are needed to some degree, it is evident that an extensive amount of Radiological Emergency Preparedness training is available to state and local officials. Greater and improved recruitment efforts may be required to assure full training of directors and coordinators of response organizations as described on page 42 of the GAO report.

Attachment No.G2 is a series of charts and graphs showing the numbers of individuals trained in the three "basic" courses in radiological emergency preparedness and response which are given through NETC (i.e., Radiological Emergency Planning Course, the Radiological Accident Assessment Course, and the Radiological Emergency Response Course) from January 1981-February 1983. Information on other radiological training is not included since it is not possible to do this in the time allowed given the extensive rosters of these students.

State and local personnel need more training

Radiological monitor training has been under revision for some time to correct part of this problem. New materials will be fielded in mid-FY 1984 and will address comprehensive radiological problems. Materials will be standardized with a more uniform delivery nationwide.

A single off-site monitoring course for nuclear power plants has not been fielded although developmental work in this area is being done.

APPENDIX III

Attachment H

Verification Analysis

The General Accounting Office (GAO) recommends on page 38 that a verification program, similar to the one used by the Federal Emergency Management Agency (FEMA) Region II at Indian Point, be used to assess compliance with all elements in NUREG-0654/FEMA-REP-1, especially for those elements not tested in exercises. While such a procedure may provide important documentation of selected aspects of preparedness, its use as a routine measure is not appropriate for the following reasons:

First, FEMA believes that the responsibility for public health and safety vested in State and local government warrants an implicit trust in their assertions regarding offsite preparedness. While some elements may indeed have occasional shortcomings (as occurred at Indian Point), the vast majority of individual plan elements are conscientiously developed, whether verified or not. To subject every element to a detailed verification analysis impugns the integrity of the State and local government and their commitment to offsite preparedness.

Second, to conduct a verification analysis of every element at all 53 operating reactor sites would be prohibitively expensive, whether done by Federal employees or under contract. The analysis performed on Indian Point only examined concerns related to transportation, housing, and medical care for evacuees, yet it cost in excess of $100,000. Were all other elements to be similarly analyzed, costs would escalate dramatically for any single site, let alone all 53. If for no other reason, a full-scale verification program is not practical from a financial standpoint. The costs incurred do not balance with the benefits obtained.

Although in certain unusual situations, verification analysis may be sparingly conducted, FEMA concludes that the GAO recommendation on this issue should not be adopted.

Attachment I

Region- and Site-Specific Comments

Below are the Region- and site-specific comments on the General Accounting Office (GAO) Report. Some are refinements of language. However, some are substantive comments focused on the accuracy of a particular statement. These include, in some cases, updates on individual problems or situations which show that the Federal Emergency Management Agency (FEMA) has addressed the issue in question. In such cases, recent developments should be reflected in the GAO report. In some areas, e.g., alert and notification, these developments should substantially alter the report.

We have listed all comments under the report heading to which they relate. We have also given page references.

Chapter 1 - Introduction

- o EMERGENCY MANAGEMENT AND PREPAREDNESS MITIGATION ACCIDENT EFFECTS.

- o Comment from FEMA, Region I on Page 4;
  (Insert the underlined word to replace the word shown in the draft)
  .....potassium iodide.....one type of radionuclide.....

- o FEMA AND NRC HAVE DEVELOPED CRITERIA FOR ASSESSING EMERGENCY PLANNING AND PREPAREDNESS.

- o Comment from FEMA, Region I on Page 5

  Paragraph 3 should be changed to read

  "FEMA and NRC conduct exercises to test offsite and onsite emergency preparedness, respectively."

Chapter 2

- o LACK OF UNIFORM APPROACH FOR OBTAINING FUNDING DETERS PLANNING AND PREPAREDNESS

  1. Page 10, paragraph 1

  A principal reason that formal approvals under 44 CFR 350 have not been completed for two-thirds of the operating reactor sites is that the plans have not reached their final iteration at the State and local level or in the extensive Regional review process. Thus, a State may not have requested a formal approval from FEMA for a particular site. Since planning is a dynamic, iterative process, there should be no presumption of significant deficiencies, simply because a formal approval has not been issued.

  2. Comment from FEMA Region V on page 15.

  This is not an accurate characterization of the situation. FEMA Region V's understanding of this situation was that the City of Zion was using the requirement to develop REP plans for the Zion Nuclear Power Station as a vehicle to obtain more tax dollars. It is suggested that the State of Illinois be contacted to obtain more exact information.

3. Comment from FEMA, Region V on page 15, paragraph 3.

Columbiana County has been provided financial assistance by the utility such as funding for a county EOC, plan development and training. To our knowledge, the utility has not complained about providing this support.

5. Comment from FEMA, Region I on page 15, paragraph 3.
Change the last two sentences to read:

In Monroe, Massachusetts, the town has refused to sign the approval of the town plan. First, because they felt the town needed a new road; this problem was resolved by the utility purchase of a "snowfighter" for the town. Second, the town is currently refusing to sign the approval page of the plan because of financial issues. The town has participated in both off-site exercises.

o SHOREHAM UTILITY OFFICIALS ADVOCATE A GREATER INDUSTRY ROLE

1. Comments from FEMA, Region II, on page 13, first paragraph:

Change the second sentence to: "The utility wants authority to prove the plan is feasible through use of utility personnel in exercises when State and local government personnel are unavailable."

Page 13, first paragraph: Change the third sentence to: "They believe it is important to show State and local officials that a utility plan can be used so that State and/or local officials will not attempt to thwart the planning process as a means of shutting down nuclear power plants."

o FEMA AND NRC HAVE NOT DEFINED MINIMUM REQUIREMENTS FOR ADEQUATE OFFSITE SAFETY

1. Comment from FEMA, Region II : (See GAO note)

Since the time of the interim finding on Salem mentioned by the GAO, evaluation procedures for planning and preparedness have been substantially improved in Region II under a new Regional Director.

2. Comment from FEMA Region V : (See GAO note)

At the time of the GAO interviews, Illinois had completed an evacuation study while the Stone and Webster Consultants were still in the process of developing a "model." The DOT Regional Assistance Committee (RAC) member did not, seemingly, accept the State study and wished to obtain a more formal modeling process. FEMA Region V took into account the comments and recommendations of the RAC member but made the determination that adequate studies had been made by the State with additional work in progress being accomplished by Stone and Webster. The Stone and Webster study was completed and the results were provided to and accepted by the Regional Office and the complete RAC, including the DOT RAC member.

GAO note: This section has been deleted from the final report.

3. Comment from FEMA Region V on page 16, paragraph 4

In the past, based on plan reviews and exercises, findings of adequacy were issued for offsite planning and preparedness at the Zimmer Nuclear Power Station despite the absence of standard operating procedures (SOP). These findings of adequacy were issued because the emphasis of the FEMA Regional and RAC reviews at that time did not include a requirement for SOP review or SOP's being in place during an exercise. However, after the Zimmer Atomic Safety and Licensing Board concluded that SOP review was essential, the FEMA Region and RAC began reviewing them and has been doing so ever since.

4. Comment from FEMA, Region I, on Page 17; paragraph 1

Change sentence beginning "Additionally, in 1983 FEMA noted failure....." to read:

Additionally, in 1983 FEMA identified five significant deficiencies which led to a finding that off-site safety was inadequate at the Maine Yankee site in Maine. One of those deficiencies was an inadequate demonstration of radiological exposure control equipment and an inadequate supply of self-reading and permanent record dosimeters.

o FEMA AND NRC DO NOT HAVE A FORMAL PROCEDURE FOR MAKING NRC AWARE OF DEFICIENCIES

1. Comment on page 18, paragraph 2

FEMA has recently improved its internal procedures through guidance issued on August 5, 1983 to its Regional Offices. This guidance sets deadlines for both Headquarters and Regional review and transmittal of exercise reports. FEMA is committed to meeting these deadlines and has, in fact, begun to do so. We have also instituted a tracking system to make sure that deadlines are adhered to. Through these procedures, FFMA will keep NRC advised of deficiencies and actions to correct them.

2. Comments on page 19, paragraph 3.

In connection with the Oyster Creek 1982 exercise, all significant deficiencies were retested in the May 24, 1983, exercise. Most had been remedied. FFMA Region II is now in the process of arriving at a final corrective action schedule with the State of New Jersey. When we receive this final list (which will include some May 1983 deficiencies which are already resolved), we will transmit it to the NRC along with the Post-Exercise Assessment for the May 24, 1983, exercise and a comparison of deficiencies in the 1982 and 1983 exercises. In our view, this is the best way to communicate to the NRC the progress made since the 1982 exercise.

With respect to the specific deficiencies noted in the GAO report, standardized emergency broadcast procedures are now in place.

3. Comment from FEMA Region IX on page 20, paragraph 2--Rancho Seco:

An interim finding from FEMA to NRC on the Rancho Seco facility was originally targeted for April 1982. Since, as of that date, a draft plan had not been submitted, nor an exercise held, it was agreed between FEMA and NRC to delay any finding until a draft plan was submitted and reviewed, an exercise held and performance evaluation made on any findings developed. The exercise was conducted in June 1982, the plan was completed in September 1982.

After the June 1982 exercise and September 1982 plan review, FEMA Region IX held several meetings with State and local authorities, the utility, and NRC in an attempt to arrive at timely corrective actions as a result of the exercise and plan review. By February 1983 when the schedule of corrective actions was formalized, a major problem of an operable EOF (interim or permanent) remained. Failure to achieve resolution of the EOF problem and other deficiencies during this period resulted in the negative interim finding in March 1983.

Chapter 3

o FEMA AND NRC DO NOT ENSURE EXERCISE SCOPE IS ADEQUATE TO TEST PREPAREDNESS

1. Comment from FEMA Region II:

Page 26, third paragraph, last sentence states: "FEMA also has not compensated for allowing State and local governments to prepare scenarios by introducing suprises in exercises to test capability to respond to unprogrammed events." In FEMA Region II during exercises, including March 3, 1983 Indian Point exercise observed by GAO, there has been significant free play of activities (surprises). This was accomplished by introducing messages with unprogrammed events to the exercise participants while the exercise was in progress. We are confident that this approach resulted in a fuller test of State and local governments' capability to respond to an actual incident.

In an attempt to present a more complete picture on the issue raised by GAO, we recommend that the following paragraph be added:

"It is important to note that FEMA addressed this problem, notably in Region II at Indian Point, Ginna, Salem, and Fitzpatrick. For over a year, FEMA Region II has used considerable free play of activities (surprises) during their exercises including bus evacuation routes, traffic control points, evacuation of mobility-impaired, impediments to evacuation, etc. This was accomplished by introducing free-play messages with unprogrammed events to the exercise participants. This approach assured that the State and local government more fully tested their capability to respond to an actual incident."

2. Comment from FEMA Region V, on page 31, first paragraph:

FEMA Region V has informally in most instances requested and on some occasions insisted that unprogrammed events be "induced" during the normal (scenario-driven) exercise play. This was to test not only response time, but to preclude pre-knowledge of the exercise scenario and the possibility that some participants would be able to pre-formulate their responses.

o FEMA HAS NOT DEFINED ADEQUATE EXERCISE SCOPE

1. Comment from FEMA Region II, on page 27, fourth paragraph:

After the sentence: "For example, FEMA concluded in the 1981 Salem interim findings that offsite preparedness was adequate to protect public health and safety even though it also reported that the 1981 exercise upon which it was based was not sufficiently comprehensive." Since the time of the interim finding on Salem mentioned by GAO, however, evaluation procedures for planning and preparedness have been substantially improved in Region II.

2. Comment from FEMA, Region X on Exercise Scenario Adequacy (pp. 27 - 28)

Reference is made to the problem we encountered with the 1982 Trojan exercise scenario (pp. 27-28). Reference is also made to Region X's minimum exercise standard (p. 29 . The report does not mention that FEMA Region X and NRC Region V subsequently agreed that FEMA's interest and requirements will be supported by NRC.

Recommendation: It is recommended that the last sentence of the first paragraph on page 29 starting with the word "Also" and ending with "utilities," be changed to read as follows: "Also, Region X has established minimum requirements for exercises, and NRC Region V has agreed to support and sustain those requirements as a part of their review and determination of the adequacy of the scenario."

o EXERCISES INCLUDE EXCESSIVE SIMULATION OF RESPONSE

1. General comment on FEMA Region V efforts to avoid exercise simulation, page 30.

FEMA's exercise evaluation instrument has been designed to be consistent with both 44 CFR Part 350 and NUREG-0654/FEMA-REP-1, Revision 1. This evaluation tool, approved by FEMA, requires the demonstration of capability, not the simulation of capability. FEMA Region V has attempted to develop a record of capability through its evaluation of REP exercises to give a reasonable basis to its findings. In this regard, FEMA Region V has attempted to convince the States to design future REP exercise scenarios to encompass areas not demonstrated previously. One example of this is the State of Michigan.

Some exercises conducted to date have not fully demonstrated the State and local government's ability to alert, staff, and activate their emergency operations centers (EOC) in a timely manner. In addition, Michigan has preferred to simulate the use of vehicles and equipment to control access to the plume exposure pathway. FEMA Region V has requested Michigan and Berrien County demonstrate these capabilities at the next D. C. Cook exercise. Initial feedback from Michigan indicates attempts will be made to accommodate FEMA Region V on this matter. It must be kept in mind that FEMA and NRC have the responsibility to review the exercise scenarios developed by the utility and the State.

Comment regarding simulation during the 1981 Dresden (Illinois) exercise, page 30, paragraph 5.

The GAO reports that "most of the exercise response . . . was simulated." Without more information from GAO, it is difficult to comment on such a broad and general statement.

2. Comment from FEMA Region IX regarding page 30, paragraph 5, --San Onofre:

Public notification around the San Onofre Nuclear Generating Station is tested and evaluated annually as a separate event. The utility has conducted two such tests--one in 1982 and one in 1983--including inquiries of the public. A test of the alert and notification of the public was conducted in September 1983, by FEMA, using the new criteria reflected in the FEMA-43 Alert and Notification Publication. This was the first formal demonstration of the new criteria. As part of the demonstration, telephone surveys were conducted, using nationally accepted survey techniques, to determine the effectiveness of the San Onofre A&N system.

3. Comment from FEMA Region IX on page 29, paragraph 4, fourth sentence--Diablo Canyon:

The issue of protection for transients in a Federal wilderness area within the 10-mile EPZ had been addressed in the planning elements; however, it was evaluated as being an item for improvement in the timeliness and handling of the alert and notification of the public in that area. Corrective actions have been effected.

o EXERCISES DO NOT INCLUDE SURPRISES

1. Comment from FEMA Region II on page 31, paragraph 1:

See references to surprise events in Regions II and V.

2. Comment from FEMA, Region X on page 29, first full paragraph, last sentence:

See Region X comments above on pp. 27-28.

o FEMA DOES NOT VERIFY THAT ALL PLAN ELEMENTS COMPLY WITH FEDERAL CRITERIA

1. Comment from FEMA Region X on page 31, third paragraph, sentence 2:

Verification of Plan Elements: Reference is made to the 350 approval that was made for the Trojan site even though the exercise report indicated that less than 50 percent of the elements had been evaluated. In view of the fact that the Region required several subsystem exercises (November 15 and 17, 1981) and other drills before submitting the Region's recommendation for 350 approval, we do not believe this statement to be factual. Note the 350 submittal contains both exercise reports.

Recommendation: It is recommended that the final report remove reference to Trojan from the bottom paragraph on page 28. Revised sentence should read: "It also approved planning preparedness at the Sequoyah site even though the exercise report indicated that less than 50 percent of the elements had been evaluated."

2. Comments from FEMA Region V on page 31, third paragraph.

We are not able to determine how GAO came up with a comment that only 11 percent of the applicable NUREG-0654 elements had been evaluated on planning and preparedness for La Salle. In one county alone (Grundy) during the first exercise (December 4, 1980), field 13 of the data base indicates that more than 11 percent of the NUREG-0654 criteria were evaluated, not to mention the plan review itself.

Regional Director's Evaluation approvals do not always reflect 100 percent compliance with every NUREG criteria because 100 percent compliance is not totally necessary for the protection of the population. So where it has been determined by FEMA that the population can be protected, some plans have been conditionally approved with "minor deficiencies" because these deficiencies were not of a magnitude to preclude adequate protection to the public.

3. Comment from FEMA Region IV on page 31, third paragraph:

An examination of the original data from the Hatch qualifying exercise in 1980 (which was conducted before NUREG-0654 became final) reveals that the structure of the evaluation format used at that time does not permit easy correlation with specific NUREG-0654 elements and subelements as they are now designated. Therefore, it is not understood how the GAO arrived at the statement that "only 11 percent of the applicable NUREG-0654 elements had been evaluated". In 1981, the first year that the "Execrit" form (based on NUREG-0654) was utilized, 66 percent of the NUREG elements were evaluated during the Plant Hatch exercise.

In 1982 and 1983 over 50 percent of the NUREG-0654 elements that can be tested in an exercise (as itemized in the then-current Execrit evaluation system) were evaluated during the course of each exercise. The October 1983 Hatch exercise demonstrated that all significant previously observed deficiencies were corrected.

4. Comment from FEMA Region II on page 33, first paragraph:

This paragraph states that FEMA is not provided with drill schedules nor are Federal observers usually present at drills to evaluate them.

FEMA Region II has been requesting schedules of drills and training sessions. Some of those drills were observed and feedback provided to the State. The Westchester bus evacuation drill of August 23, 1983, was formally evaluated by FEMA.

FEMA DOES NOT HAVE A SYSTEM FOR TRACKING DEFICIENCIES

1. As GAO mentions later in the report, FEMA Region II has an excellent manual tracking system for deficiencies which permits them to include in each exercise report an easy-to-read comparison table of deficiencies and their status from exercise to exercise.

2. Comment from FEMA Region X on pp. 33-35:

System for Tracking Deficiencies (pp. 33-35): FEMA Region X is referenced on pp. 31 and 33 with regard to tracking deficiencies. This section refers to exercise deficiencies. FEMA Region X's manual system, which as been in operation since November 1979, tracks exercise deficiencies, plan review deficiencies, and preparedness program milestones and is updated approximately on a monthly basis. The revised schedule is forwarded to all appropriate parties. Even though Oregon's reply (p. 33) did not contain proposed time frames for completion of corrective actions, FEMA Region X initially requested those time frames. Followup correspondence and the monthly significant schedule quickly established time frames for all corrective action items.

In addition, reference is made on page 36 that most Regions take months to develop and submit exercise reports to States and local governments. FEMA Region X has always produced and delivered the exercise report within 10 workdays of the exercise. This performance should be recognized in the report.

Recommendation: It is recommended that Region X's record be added to the comments on page 36 regarding timeliness of preparing the exercise report. If that is done, the numbers would change from 23 to 26 evaluations, and 7 which met the 15-day deadline instead of 4.

Regarding tracking deficiencies, it is recommended that references to Oregon and Trojan be deleted from the paragraph preceding "Conclusions" on page 36. Further, it is recommended that the following sentence be added to that paragraph: "FEMA Region X has used a manual tracking system that ensure time frames are specified for completing corrective actions as a result of exercise reports, plan reviews, and preparedness programs."

o DEFICIENCIES IN EXERCISES ARE NOT ALWAYS TRACKED

1. Comment from FEMA Region IX on page 33, paragraph 3--San Onofre:

The objectives of the 1982 exercise were developed to reflect the ability to demonstrate corrective action items that were appropriate to an exercise. The 1981-82 ASLB hearings regarding San Onofre contain partial documentation of a corrective action plan and completed actions that were established by San Onofre and the surrounding jurisdictions. A finding and determination statement, developed by FEMA, was prepared and presented.

2. Comment from FEMA Region III on pp. 33-34:

On pages 33 and 34 it states that officials in Region III said they did not track deficiencies. This was true in the past but it is an issue that has been addressed by the Region in 1983. It should be noted that because the same deficiency occurs in two consecutive exercises does not mean that the particular deficiency is not being tracked. It simply means that a State or local government has not adequately addressed the problem from one exercise to the next. As the GAO report frequently acknowledges, FEMA cannot mandate the State and local governments to do everything we would like them to. If a deficiency takes place, we will continue to work with the appropriate officials to resolve the problem. We will work with the State and local governments to establish time frames to address the issue; we cannot "guarantee" those time frames will be met.

o FEMA'S MANAGEMENT INFORMATION SYSTEM HAS LIMITED CAPABILITY

1. Comment from FEMA Region V (See GAO note)

FFMA Region V began tracking deficiencies prior to 1983. Computer Regional Exercise (RX) reports indicating exercise deficiencies were used in Regional Director's Evaluations, Exercise Reports, Interim Reports, Scenario Reviews, etc.

2. Comment from FEMA Region II on page 35.

"Examples of numerous minor deficiencies that we believe are significant but would not be tracked include:" The report then cites the 1982 Fitzpatrick exercise. Please note that FEMA Region II's remedial action schedule tracks all deficiencies; significant and minor. In addition, the Post Exercise Assessment has a chart regarding the status of all deficiencies from previous exercises. We suggest that a statement be inserted to clarify this.

GAO note This paragraph has been deleted from the final report.

3. Comment from FEMA Region V on page 35, paragraph 2--Zion:

The 60 deficiencies referred to in the GAO report represents 47 minor deficiencies for Illinois and 13 for Wisconsin.

4. Comment from FEMA, Region I on page 35 :

Change the section which begins: ". . . The 1982 Haddam Neck . . . " by deleting "an operational siren alert system," "state policy on potassium iodide," "and improved communications between State and local organizations." All of these noted deficiencies were significant.

o FEMA DOES NOT PROVIDE TIMELY FEEDBACK ON DEFICIENCIES, OR RECEIVE ADEQUATE SCHEDULES OF CORRECTIVE ACTIONS

1. Comment from FEMA Region II on page 36, paragraph 2

After the sentence, "The 1982 exercise report for the Salem site was not submitted to the State until 7 months after the exercise.", please add the sentence: "One of the reasons for this delay is that the State held the draft report for more than two months as they attempted to implement corrective actions so the report could reflect this progress." Delay by the State for this reason has been the cause of late submission of the formal report to States in several cases.

2. Comment, second paragraph, relating to delays in the receipt of the exercise report by Waukegan, Illinois.

Since the substantial delay resulted from the State's actions, this is not FEMA's responsibility. However, during this period, FEMA pursued a course of corrective action persistently with the State.

3. Comment from FEMA Region V :

Page 36, paragraph 2 - This is not accurate in that FEMA Region V has placed a great deal of emphasis on receiving a "schedule of corrections" indicating correction dates. In fact, State responses to Exercise Reports have been returned requesting this schedule.

Page 36, paragraph 3:

The State of Illinois generally responds to exercise reports by stating that the discrepancies will be corrected prior to the next exercise. Even though we ask for specific dates of correction for each discrepancy, the State prefers not to address each item individually. For the last year, however, Illinois has provided FEMA Region V specific dates for correction of identified deficiencies.

4. Comment from FEMA Region IV on page 36 :

In 1983 any schedule for corrective action concerning Plant Hatch will contain proposed time frames for completion.

5. Comment from FEMA Region II on page 37, fourth paragraph, sentence starting on line 4 reads:

"FEMA has no system for ensuring that deficiencies identified in exercises are retested or otherwise tracked until corrected."

It has been FEMA Region II policy to test, to the fullest extent possible, the implementation by the State and localities of remedial actions designed to correct deficiencies identified during the previous exercise. We recommend that this important fact be reflected in the GAO report.

o RECOMMENDATIONS TO THE DIRECTOR, FEDERAL EMERGENCY MANAGEMENT AGENCY

1. Comment of FEMA Region IV on page 38, recommerdation #2:

Regarding the Report's suggestion that plan elements that are not checked during an exercise be verified at some other time, the Region IV staff plans to institute periodic field visits to accomplish verification. During the course of these field visits the monitoring of training courses and the assessment of the local public information program can also be accomplished, as suggested in the Report.

Chapter 4

o FEDERAL, STATE, AND LOCAL OFFICIALS NEED MORE AND BETTER TRAINING

1. Comment from FEMA Region IX (See GAO note)

While FEMA does not have formal approval authority regarding training courses, FEMA Region IX has established a listing of training courses available for attendance by emergency response personnel (for Nuclear Power Plant-related event), as a recommended guide and such information is taken under advisement by most jurisdictions or agencies.

2. Comment from FEMA Region II (See GAO note)

States that: "FEMA officials in Regions II, IV, V, and IX do not monitor the quality of State and local training." FEMA Region II has always monitored training on a sample basis. Now with additional staff this effort can be increased.

Chapter 5

o THE FEDERAL RESPONSE PLAN FOR NUCLEAR POWER PLANT EMERGENCIES IS INCOMPLETE AND UNTESTED

o A FEDERAL RESPONSE PLAN IS STILL BEING DEVELOPED

GAO note This section has been deleted in the final report

1. Comment from FEMA, Region V (See GAO note)

The FEMA Regional Response Plan is dated October 29, 1982, and it was exercised July 20-21, 1983, during the second training drill for the Big Rock Point exercise of July 26, 1983. Participants included FEMA Region V, six RAC

members (NRC, DOE, EPA, USDA, DOT, and FDA), the State of Michigan, Charlevoix, and Emmet Counties. The response team was deployed from Chicago, Illinois, and Battle Creek, Michigan, to field locations in the State of Michigan EOC in Lansing and the County fairgrounds in Petoskey, Michigan.

o REGIONAL RESPONSE EXERCISES HAVE UNCOVERED PROBLEMS

1. Comment from FEMA, Region X on page 56, paragraphs 1 and 2:

Regional Response Exercises: Reference is made to the two Federal response exercises held at Trojan in 1981 and 1982 (pp. 56). Whereas emphasis is placed upon the lessons learned, no reference is made to the corrective actions taken by the Region and other regional agencies to improve their preparedness following both exercises. No reference is made to the NRC guidance for emergency operating facility (EOF) preparedness (NUREG-0696) which requires the utility only to provide one telephone and accommodation for one FEMA person at the EOF. Any additional accommodations by the utility are voluntary. Therefore, we believe the reference to the utility's position on page 56 , second paragraph, and the conclusion for utility cooperation (Deleted) are inappropriate due to the fact that the GAO did not recognize or consider the NRC guidance on this matter.

Recommendation: It is recommended that a sentence be added following the second paragraph under "Regional Response Exercises Have Uncovered Problems." "Following the exercise, the various regional agencies prepared critiques, identified lessons learned, and developed and implemented corrective actions."

Also, because of the existing Federal guidance (NUREG-0696) and the situation of first-time exercises, it is strongly recommended that the following sentences be dropped:

(p. 56) "FEMA official stated . . . at the emergency operations center."

(p. 56) "Exercise of Federal Response . . . indicates lack of cooperation by utilities . . . coordination role."

GAO note This section has been deleted in the final report.

APPENDIX IV

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D C 20555

NOV 2 9 1983

Mr. J. Dexter Peach
Director, Resources, Community,
and Economic Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

Enclosed are comments from the Nuclear Regulatory Commission on the draft General Accounting Office report "Emergency Preparedness Around Nuclear Power Plants: Further Actions Needed." We appreciate the opportunity to comment on the report. We are gratified that the report makes note of the considerable progress that has been made in emergency planning and preparedness since the accident at Three Mile Island. The report contains several recommendations for improvement pertaining to offsite emergency preparedness which we believe have merit.

While the report contains several constructive recommendations, we note certain aspects of the report which we believe are not accurate representations of the NRC's actions regarding several emergency response issues. In particular, the misperception evidenced in the report that the Nuclear Regulatory Commission has permitted continued operation of nuclear power plants, and has licensed new plants for operation, which have significant deficiencies in offsite preparedness with the implication being that public health and safety is not adequately protected. We believe that this is not the case and have provided comments on this issue in Enclosure 1. We have also provided comments on three other emergency preparedness subject areas. These subject areas concern the use of interim FEMA findings versus final FEMA findings in the NRC regulatory review process, the timing for the consideration of offsite preparedness issues in the NRC licensing process, and the Federal response plan for nuclear power plant emergencies. In addition, we have provided detailed comments in Enclosure 2 on specific points in the report.

Sincerely,

William J. Dircks
Executive Director for Operations

Enclosures:
1. General Comments on the GAO Report
2. Specific Comments on the GAO Report

General Comments on the GAO Report

1. The NRC has permitted continued operation of nuclear power plants, and has licensed new plants for operation, which have significant deficiencies in offsite preparedness

The GAO report makes numerous references to the existence of significant deficiencies in offsite emergency preparedness due to a variety of reasons including a lack of funding for some State and local governments, the failure of FEMA and NRC to define minimum requirements for adequate offsite preparedness, the lack of a formal procedure for FEMA to make NRC aware of deficiencies, and weaknesses in exercise scenarios to fully test the implementation of offsite emergency plans. The report indicates that the NRC has permitted continued operation of nuclear power plants, and has licensed new plants for operation, which have significant deficiencies in offsite preparedness. The report implies that public health and safety is thus adversely affected.

The report fails to define "significant deficiency" or in any way attempt to demonstrate how an alleged significant deficiency in offsite preparedness is related to "safety" in such a way that the capability of State and local response organizations to protect the health and safety of the public in the event of a radiological incident at a nuclear power plant is precluded. The report does not adequately differentiate between a deficiency in a NUREG-0654 plan evaluation criterion (i.e., planning element) and a failure to meet a basic planning standard of 10 CFR Part 50.47(b) of the Commission's regulations.

The NRC relies on a defense-in-depth strategy to ensure that the public is protected. Plants must be designed to the highest standards and sited in suitable locations. Notwithstanding all the precautions taken to prevent accidents, the plants must be designed to cope with, and engineered safety features must be provided for, a series of postulated accidents referred to as design basis accidents. It is important to note that emergency planning is based on postulated accidents beyond the design basis accidents which a nuclear plant is designed to handle. For such design basis accidents, the small releases that might occur would not require protective measures such as evacuation or sheltering for the public. These actions only become important when more improbable events which progress beyond the design basis accidents are postulated. For these more improbable accidents, emergency response planning provides an added measure of safety and is an important way to reduce the consequences of a very serious nuclear accident should one occur. It is the position of the NRC that for all operating nuclear power plants, including those that recently have been licensed to operate, adequate protective measures can and will be taken to protect the health and safety of the public in the event of a radiological emergency.

ENCLOSURE 1

2. The failure of FEMA to provide and the NRC to request final findings has resulted in an inadequate level of emergency preparedness

One of the basic premises of the GAO report is that the state of emergency preparedness around nuclear power plant sites is inadequate because FEMA has not provided the NRC final findings, that is, formally approved offsite preparedness at most sites. We believe this premise is founded on a misunderstanding of the NRC/FEMA review process for assessing the adequacy of emergency preparedness at operating nuclear power plant sites and plants which are in the operating license review stage.

Following the accident at TMI-2, the President issued a directive on December 7, 1979, which among other assignments directed that FEMA assume the lead responsibility in offsite emergency planning and response. The directive did not deal explicitly with FEMA's role in the NRC licensing process. To implement the President's directive, the NRC and FEMA signed a Memorandum of Understanding (MOU) on January 4, 1980 describing each agency's responsibilities in improving emergency preparedness at nuclear plants. This MOU was revised and updated on November 1, 1980.

FEMA's responsibilities in the MOU include making findings and determinations as to whether State and local emergency plans are adequate and capable of implementation. The procedures for requesting and reaching a FEMA administrative approval of State and local plans are set forth in 44 CFR 350 which was issued as a proposed rule for comment and interim use on June 24, 1980, and as a final rule on August 19, 1982. Recognizing that the formal approval process under 44 CFR 350 could be lengthy, and that 44 CFR 350 was a FEMA administrative procedure outside of the NRC licensing process, provisions were included in the MOU for obtaining timely submittals of FEMA findings and determinations upon the request of the NRC to support NRC licensing reviews. FEMA's view is that findings and determinations provided under the formal 44 CFR 350 process are known as "final" findings while those obtained as a result of an NRC request under the provisions of the MOU are known as "interim" findings.

FEMA also assists the States and local communities to upgrade their radiological emergency preparedness. This is accomplished through formal training programs and by direct involvement with the FEMA regional offices.

The NRC's upgraded rule on emergency planning, 10 CFR Part 50 and Appendix E thereto, requires the NRC to make a finding as to whether the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. The NRC bases its finding on a review of the FEMA assessment on offsite preparedness and on the NRC assessment on onsite preparedness.

ENCLOSURE 1

For operating nuclear power plants, that is, plants which held a license to operate at the time the NRC final rule on emergency planning became effective (November 3, 1980), the NRC based its reasonable assurance finding on (1) the submittal of licensee and State and local government emergency plans upgraded to meet the requirements of the final rule, (2) a review of the onsite plans by the NRC, (3) a comprehensive appraisal conducted by the NRC at each operating reactor site in 1981 and 1982 to verify the implementation of the licensee plan, and (4) the evaluation of a joint exercise involving the licensee and State and local governmental organizations conducted during 1981 and 1982. The onsite portion of the exercise was observed by the NRC while the offsite portion was observed by FEMA and other members of the Regional Assistance Committee (RAC). This series of events in effect constituted the means by which the NRC determined that there was an adequate level of emergency preparedness at operating nuclear power plants

The NRC did not routinely request, or receive, interim findings from FEMA on operating plants. Only in a few cases of special interest or circumstances, such as Indian Point, did the NRC request interim findings for an operating plant. Findings are normally only requested by the NRC for plants in the operating license review stage where they are used to support the NRC staff's judgments regarding the issuance of a license to operate. For all plants licensed to operate since November 3, 1980, NRC has received from FEMA findings and determinations that offsite plans and preparedness are adequate and capable of implementation, prior to full power operation.

Final FEMA findings, as discussed above, were provided as the result of a FEMA administrative process and are not considered to be a requirement for the purposes of NRC licensing reviews either for operating plants or plants being licensed. The fact that a final FEMA finding, that is, formal FEMA approval, was not received for a particular facility does not mean that an inadequate level of emergency preparedness exists, as alleged in the GAO report

3. Inadequate preparedness exists where FEMA has not formally approved State and local emergency plans

The report states that FEMA has identified deficiencies in offsite planning and preparedness for communities where plans have not been approved and that as a result, emergency preparedness in the communities is questionable. Further, the report indicates that these deficiencies exist without the awareness of the NRC.

ENCLOSURE 1

The process followed by the NRC to verify that an adequate level of preparedness has been established at an operating reactor site includes the conduct of a full-scale exercise to test licensee, State and local plans. It is expected that significant deficiencies which may exist in preparedness will be identified as the result of these exercises since they are closely scrutinized by NRC and FEMA personnel.

To date, all operating plants have conducted at least one full-scale exercise involving the participation of State and local response organizations and most plants have conducted a second and third exercise involving various levels of offsite participation. The FEMA exercise report is the accepted mechanism for FEMA to document deficiencies in offsite preparedness. Correction of the deficiencies is a cooperative effort involving all of the concerned parties. In some cases, following a review of the issues and the schedule for corrective actions, the NRC has issued a letter to the licensee notifying them that if the deficiencies are not corrected within a four-month time period, other enforcement action may be taken.

The NRC maintains a close working relationship with FEMA and there is daily contact between the agencies both at the regional and headquarters level. The NRC is confident that appropriate action has been taken to resolve significant deficiencies involving offsite preparedness identified as the result of FEMA's observation of exercises at operating nuclear power plants.

The NRC does not require formal FEMA approval as a condition of licensing. Deficiencies, or inadequacies, identified as the result of FEMA's ongoing review of offsite emergency plans pursuant to the requirements of 44 CFR 350, are resolved by FEMA as part of their review process.

4. Offsite emergency preparedness has been removed from the consideration of NRC licensing boards

The report states that by deferring consideration of offsite emergency preparedness to just prior to full power operation, issues related to the adequacy of offsite planning and preparedness are effectively removed from the domain of NRC licensing boards, thereby precluding early consideration of these issues and public participation in their review. This is an incorrect interpretation of the Commission's regulations. Emergency planning issues are fully litigated in operating license hearings. The degree to which an applicant satisfies the sixteen planning standards specified in the final rule on emergency planning is an issue which may be and has been raised and litigated in hearings. In cases where emergency planning issues are in contention, both FEMA and NRC witnesses appear as required before licensing boards at the public hearings. Offsite plans must be sufficiently developed and available for examination in the

ENCLOSURE 1

hearing process in order for FEMA to prepare responses to the issues. One need only examine some current licensing cases, such as Shoreham and Seabrook, to understand the full scope of inquiry into emergency preparedness issues during the hearing process. What has been deferred by an amendment to the NRC regulations effective July 13, 1982, is the necessity for the NRC or FEMA to make a finding concerning the state or adequacy of offsite preparedness, or for an emergency preparedness exercise to be conducted, for issuance of an operating license authorizing only fuel loading and low power operation (up to 5% of rated power). (See GAO note)

5. The Federal response plan for nuclear power plant emergencies is incomplete and untested

In several places in the report, the comment is made that the FRERP does not provide for any one agency to direct the offsite radiological response to a radiological emergency. The conclusion from this observation is that Congress should consider stronger central control of the Federal response to a nuclear power plant emergency. It is our view that the appropriate response is for each agency to be coordinated in an emergency in order to meet their legal responsibilities and authorities. The report fails to recognize that the Federal agencies are supportive of the State and local offsite authorities and the decisionmaker is the Governor. Furthermore, we believe that the organization described in the Master Plan and the FRERP Planning Guidance is reasonable, practical, and effective. The involved agencies have agreed to this formulation and we do not believe that an additional management layer would enhance the effectiveness and efficiency of the Federal response.

While it is true that all responding Federal agencies have not participated together in a single exercise, there has been considerable involvement by individual agencies exercising their own plans during licensee, State, and local exercises. The Federal Field Exercise in early CY 1984 which will involve all appropriate Federal agencies has been in planning for some time and could not take place until the Planning Guidance had been agreed to. This has been done.

GAO note: This section was deleted in the final report.

ENCLOSURE 1

SPECIFIC COMMENTS ON GAO REPORT

1. Page 3 - The statement is made that after an offsite release, nuclear power plant operators estimate the amount of radiation exposure to the population and if the estimate indicates a potential health hazard, they must notify State and local officials. In fact, nuclear power plant operators are required to notify offsite authorities within 15 minutes of the declaration of an emergency regardless of the severity of the incident with the objective being to initiate protective actions for the public, if necessary, based on plant conditions before a release has occurred.

2. Page 4 - The report discusses possible protective measures in response to a radiological emergency, namely evacuation, sheltering, and administering potassium iodide. The report ignores a most effective protective measure for severe core damage accidents which is relocation of the population following plume passage from affected areas with high levels of ground contamination. Studies have shown that a substantial part of the dose received by individuals in postulated accidents is from ground contamination.

3. Page 7 - The report states that FEMA provides NRC interim findings on the status of offsite emergency preparedness at plants already operating. In fact, the NRC does not routinely request, or receive, FEMA interim findings for operating plants. Only in cases of special interest or circumstances does the NRC request interim findings for an operating plant. In some few cases, FEMA has provided interim findings without a specific NRC request. The NRC relies upon the performance of a full-scale exercise involving both onsite and offsite organizations and FEMA's exercise report to verify the adequacy of offsite preparedness at an operating plant.

4. Page 7 - The report states that the NRC might authorize an Atomic Safety Licensing Board to make a special inquiry regarding offsite emergency preparedness conditions as part of an enforcement action. This would only be done in extraordinary circumstances. The special Board established for Indian Point was the first time such action was taken and the safety issues considered were much broader than just those concerning offsite emergency preparedness.

5. Page 4 - In the discussion of NUREG-0654, it should be noted that 15 of the 16 planning standards relate to both onsite and offsite emergency preparedness (not just offsite) and one planning standard relates only to onsite preparedness. This section of the report also refers to State and site-specific plans. State plans usually contain site-specific annexes and address the State emergency role within the 10-mile radius plume exposure pathway EPZ not just in the 50-mile radius ingestion exposure pathway EPZ as implied in this section of the report. The last sentence in this section should be corrected to state that the plans are tested annually when the plant (not the NRC) conducts onsite exercises and that State and local organizations may participate depending on the scale of the exercise.

GAO note: Page numbers have been changed to refer to the final report.

ENCLOSURE 2

6. Page 8 - The report implies that the FRPCC reviews interim reports before submission to NRC. This is not the case since only proposed final reports where FEMA approval of a plan is anticipated are reviewed by the FRPCC.

7. Page 10 - The report states that the level of offsite preparedness is questionable because significant deficiencies exist where plans have not been approved. The NRC has determined that for all operating nuclear power plants, adequate protective measures can and will be taken to protect the health and safety of the public. This determination is the result of a comprehensive emergency preparedness appraisal conducted at each site during 1981 and 1982 and the evaluation of an exercise involving the plant and State and local governmental organizations. Subsequent yearly exercises validate this determination of adequacy. Any significant deficiencies identified by the NRC or FEMA are brought to the attention of the appropriate organization for resolution and correction.

The approval process is a separate administrative function of FEMA under their recently published rule, 44 CFR 350 (48FR44322 dated September 23, 1983), "Review and Approval" of State and Local Radiological Emergency Plans and Preparedness. The fact that some State and local governments have not received final approval by FEMA under their rule does not imply that the state of offsite preparedness is inadequate or that the public health and safety is in jeopardy.

8. Page 10 - The first summary statement regarding the lack of funding is an inaccurate representation of the material on page 14-15. The statement should be revised to indicate that a uniform approach for obtaining funding does not exist.

9. Page 11 - The report states that the NRC Commissioners decided on June 10, 1983, to allow the Indian Point site to operate despite continued significant deficiencies in offsite preparedness. This characterization of the Commission's decision is misleading. The Indian Point case involved the persistence of two major deficiencies: the availability of buses and drivers in one county and the non-participation of another county in the planning process. After a careful consideration of the issues including oral and written presentations of the interested parties and information provided by FEMA, the Commission concluded "that adequate interim compensatory actions have been taken or will be taken promptly, and therefore the Indian Point plants should not be shut down at this time."

10. (See GAO note) - The report states that current NRC policy since July 1982 allows issuance of licenses without a FEMA review of offsite preparedness, early consideration of offsite preparedness is precluded,

GAO note: This section was deleted in the final report.

ENCLOSURE 2

and issues related to the adequacy of offsite planning and preparedness are effectively removed from the domain of NRC licensing boards. This conclusion is an erroneous interpretation of the Commission's guidance and regulations. Emergency planning issues are fully litigated in adjudicatory proceedings before hearing boards where NRC and FEMA witnesses provide testimony in response to the admitted contentions. Offsite plans must be sufficiently developed and available for examination in the hearing process in order for contentions to be prepared by potential intervenors and for FEMA to respond to the issues. A board decision is required before the Commission will take action on the issuance of a license. In an amendment to the emergency planning regulations in July 1982, the Commission deferred the necessity of findings on offsite emergency preparedness being produced, or for an exercise to be conducted, prior to the issuance of operating licenses authorizing only fuel loading and low power operation (up to 5% of rated power).

11. Page 17 - The report states that FEMA and the NRC have not agreed on the minimum requirements that must be met before a finding can be made that offsite emergency planning and preparedness are adequate. The basic requirements to be met to establish that an acceptable level of emergency preparedness exists are the sixteen planning standards specified in 10 CFR 50.47(b) of the NRC's regulations and in 44 CFR 350.5 of FEMA's regulations. Guidance and acceptance criteria for use in determining the adequacy of State, local and nuclear power plant licensee emergency plans in meeting the planning standards are found in the joint NRC/FEMA document NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," dated November 1980.

12. Page 17 - The report states that the requirements under which FEMA provides interim and final findings differ. While there may be differences in FEMA administrative procedures in producing interim and final findings, there should be no differences in the basic emergency planning requirements (discussed in response number 11) which must be met in either case.

13. Page 18 - The report notes that exercises have been conducted at all operating plants but that a number of FEMA exercise reports have not been provided to the NRC. The conclusion is drawn in the report that the lack of an exercise report has prevented the NRC from acting on possible significant deficiencies in offsite preparedness at these plants. The NRC position is that the successful performance of a full-scale exercise involving the joint participation of licensee and State and local response organizations, and conducted with plans which have been upgraded to meet the new emergency planning regulations, was an acceptable demonstration that the integrated level of onsite and offsite emergency preparedness had been improved.

ENCLOSURE 2

Recognizing the complex and dynamic nature of emergency preparedness and the expanded involvement of licensee, State and local response organizations, it was expected that deficiencies would be observed in these exercises. An exercise was not thought of in terms of "pass" or "fail." The exercises were understood to be basically a learning and training experience for those involved. Identified deficiencies were to be corrected in a cooperative and persuasive manner. If the actual conduct of an exercise at a particular site did identify fundamental defects in the way that the emergency plans were conceived or implemented such that it called into question whether the regulatory requirements could be met, it was expected that follow-up corrective actions would be immediately undertaken. Such an occurrence would be apparent and made known to all participants and observers including the NRC through post-exercise critiques and meetings. It was through this mechanism that the NRC maintained an awareness of the status of offsite preparedness. Experience to date in observing more than 100 exercises involving various levels of participation by licensee and State and local governmental organizations has demonstrated that the overall level of emergency preparedness at operating nuclear power plants has been substantially improved.

14. Page 31 - Reference is made to the necessity for State and local governments to comply with the elements in NUREG-0654. NUREG-0654 is a guidance document which provides evaluation criteria, or elements, which are used by reviewers in determining the adequacy of State, local and licensee emergency plans and preparedness. The criteria in NUREG-0654 represent an acceptable method for demonstrating compliance with the planning standards in the regulations but the criteria themselves are not binding legal requirements.

15. Page 26 - The report states that even though regulations and an inter-agency agreement state that FEMA and the NRC will prepare exercise scenarios which States and utilities may use in testing emergency plans, they have not done so. While the NRC/FEMA MOU does address this issue, there is no regulatory requirement for the NRC and FEMA to prepare exercise scenarios. The regulations do contain requirements regarding the scope, participation and frequency of exercises. Experience has shown that utilities and States have more specific knowledge of plant systems and site characteristics and thus are better able to develop more comprehensive scenarios. The NRC is developing guidance in the preparation of exercise scenarios to ensure that the various emergency response functions and organizations are adequately tested during an exercise.

16. Page 37, Conclusion - The report concludes that as a result of weaknesses in the exercise process, FEMA has approved offsite preparedness and the NRC has licensed plants "when a large number of planning elements have not been verified as in compliance with NUREG-0654 and significant deficiencies have not been corrected." The documentation presented in the report does not substantiate or justify this conclusion. The NRC's finding of reasonable assurance that

ENCLOSURE 2

adequate protective measures can and will be taken in the event of an emergency is based on a review of FEMA findings and determinations as to whether State and local plans are adequate and capable of being implemented and on the NRC assessment of onsite preparedness. The adequacy of State and local plans is determined by FEMA by a review against the evaluation criteria of NUREG-0654. An exercise is conducted to verify the implementability of the plans. Deficiencies identified during the review and exercise process are corrected on a schedule commensurate with the significance of the deficiencies and the licensing schedule for the plant. The Commission is not aware of any plant which has been licensed with significant deficiencies in emergency preparedness, based on the NRC staff's overall assessment of the adequacy of onsite and offsite preparedness.

17. Page 44 - The statement that the "NRC is delaying final action on the [draft Federal policy] statement pending the results of a potassium iodide study" does not accurately describe the NRC's efforts to evaluate potassium iodide. The NRC recently has completed a cost/benefit analysis that shows that the use of potassium iodide as a planned emergency protective measure for the general public offers an extremely small benefit in relation to its cost and thus is not considered a cost effective procedure. This analysis has been reviewed and comments have been received from the Advisory Committee on Reactor Safeguards (ACRS) and from outside peer groups. This analysis and the results of the ACRS and peer reviews are before the Commission for their consideration along with the staff recommendation that potassium iodide not be stockpiled or predistribututed to the general public.

18. Page 45 - The statement that "FEMA discovered that the method of measuring radioactive iodine prescribed in the guidance might not provide accurate reading under realistic field conditions" should be viewed from the perspective that the FRPCC subcommittee attempted to develop a simple, low cost, field technique for measuring airborne radioiodine in the presence of radioactive noble gases and particulates. Very few systems of this type exist, they are quite expensive, and some of them provide unreliable results under certain field conditions. The work of Brookhaven National Laboratory under the direction of the subcommittee was a pioneering effort in application development. To ensure that the developed system would perform properly under all field and radiological conditions, NRC sponsored a design validation contract with Idaho National Engineering Laboratories. The results of these tests showed that the system could not be used where the ratio of radioactive noble gases to radioiodines is high. This condition is expected to be prevalent for many types of postulated nuclear power plant accidents.

19. Page 45 - The statement that "the document's guidance on measuring radioactive exposure of emergency workers is technically inaccurate and conflicts with NUREG-0654" is erroneous The personnel dosimetry system recommended in

ENCLOSURE 2

FEMA-REP-2 is a well devised and technically sound system. While it is more prescriptive than the criteria provided in NUREG-0654, it is not in technical opposition.

20. Page 53 last sentence - This sentence is in error with regard to the NRC. Since the publication of the Master Plan in December 1980, the NRC has published a revision to the NRC Incident Response Plan (NUREG-0728) and Agency Procedures for the NRC Incident Response Plan (NUREG-0845). In addition, each NRC regional office and headquarters have developed and put in place detailed notification and operating procedures which govern essentially all aspects of responding to a radiological emergency. In addition, since TMI, the NRC has had a vigorous program for exercising both its headquarters and regional response teams. Each regional office is required to conduct a full-scale response in conjunction with a licensee full-scale exercise at least once each year. Most of the regional offices also conduct numerous smaller scale exercises or drills for the purpose of training and procedure development. Over the past three years, the NRC headquarters has conducted more than 15 exercises, many of which were in conjunction with NRC regional exercises.

21. Page 53, paragraph 2 - It should be noted that the FRPCC agreed that the FRERP should be developed for all radiological emergencies as an expansion of the Master Plan. The FRERP Planning Guidance did maintain the primary concepts developed in the Master Plan. Therefore, the second sentence should be deleted since it implies that there is a significant difference between the Master Plan and the FRERP or a statement added which indicates that the FRERP is an expansion of the Master Plan.

22. Page 53, third paragraph, last sentence - One of the NRC's primary roles in an emergency is to monitor the licensee to ensure that appropriate protective action is being taken with respect to offsite recommendations. In addition, the NRC will provide support to offsite authorities by confirming or commenting on the licensee's recommendation to these offsite authorities. The subject sentence implies that NRC will be developing separate and independent protective action recommendations. It is suggested that the last part of the sentence be changed to "and evaluate with input from their Federal agencies, as required, licensee protective action recommendations for the offsite authorities."

23. Page 47, Limited Progress - (See GAO note)

24. (See GAO note) - Federal agencies that have public health and safety statutory authority have a responsibility to respond when a threatening event takes place. This is not "intervention." Rather, it is a responsibility to support the State authorities and assist in the protection of the public health and safety. In addition, in essentially all cases, there is coordination

GAO note. This section was deleted in the final report.

ENCLOSURE 2

with the State authorities through State counterparts. In a serious and fast moving event, a protocol delay as implied in this report, could be disastrous. Federal agencies each know their own capabilities and responsibilities best and in conjunction with their State counterparts are best able to respond to these emergency situations.

25. Page 55, first paragraph - This statement of the notification problems during the Headquarters Interface Exercise is taken out of context and is inaccurate and misleading. NRC did follow its notification procedures throughout the exercise. The declaration of a General Emergency was made directly to the FEMA Federal Coordinating Officer (FCO) who was speaking to the Chairman at the time of declaration and to the FEMA Liaison Officer who was at the NRC Operations Center. NRC believes that this was sufficient notification to FEMA.

26. Page 55, last paragraph - Any delay in scheduling the large-scale Federal response exercise was due to delays in finalizing the planning guidance. The development of a scenario was not a factor in the delay.

27. Page 56, Regional response exercise have uncovered problems - The discussion of the 1982 Trojan exercise provides some misleading information. The breakdown in communications between NRC and FEMA headquarters offices occurred on the day prior to the exercise. FEMA was to test their deployment on the day before the exercise to assure that they would be available on the exercise day. The failure to communicate prior to the exercise in no way delays development of Federal resources during the exercise.

NRC regulatory requirements with respect to FEMA for nuclear power plant licensees is to provide one space for an agency representative. This NRC requirement is consistent with FEMA agency policies and procedures.

28. (See GAO note) - The implication that there is a general lack of cooperation by power plant utilities should be corrected. One FEMA regional evaluation concluded that the subject utility was uncooperative in spite of the fact that the utility went further than required by NRC or FEMA policy in accommodating FEMA and other Federal agencies. This is an overstatement of the situation reported and certainly cannot be used to generally characterize other utilities operating nuclear power plants.

29. (See GAO note) - This sentence suggesting further Federal response exercises is not consistent with the comments at the bottom of page 46 that Federal agency "plans were not exercised." In addition, we believe that the Federal agencies should be given due credit for upcoming FRERP Field Exercise (FFE) in March 1984. This is a large and ambitious cooperative effort among at least 11 Federal agencies, several State agencies, two local authorities and a utility. Lack of a specific reference to this endeavor is a glaring omission.

GAO note: This paragraph has been deleted from the final report.

ENCLOSURE 2

APPENDIX V

Department of Energy
Washington, D.C. 20585

Mr. J. Dexter Peach
Director, Resources, Community
and Economic Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

The Department of Energy (DOE) appreciates the opportunity to review and comment upon the draft of a proposed report, Emergency Preparedness Around Nuclear Powerplants: Further Action Needed. DOE has provided substantial data and information to your staff over the past 18 months during the preparation of the draft report, and we hope our efforts have provided useful assistance. The Department believes that State and local governments should be prepared to protect public health and safety in the event of a nuclear emergency and strongly supports efforts to improve the effectiveness of emergency planning and preparedness.

The DOE believes there are a number of important points that require further clarification. Accordingly, we are providing you with an expression of five central concerns.

First of all, the relationship between governmental bodies and private utilities in cooperatively developing and implementing a workable emergency plan in the event of a serious accident at a nuclear powerplant has become a significant issue which this draft report does not fully address. No legal authorities exist which can require local participation and no substantive regulatory criteria have been established to specify limits to the offsite financial or operational responsibilities of nuclear powerplant operators. For example, it is possible for a State or local government to withhold participation in emergency response planning until an affected operator agrees to purchase unrelated equipment or to fund unrelated capital improvements.

Second, the draft report suggests at several points (e.g., page 4, first title heading) that FEMA has ultimate responsibility for assessing offsite safety. Although the NRC has delegated to FEMA the responsibility for making an initial assessment, neither FEMA's statutory authorities nor its November 1980 Memorandum of Understanding with NRC call for FEMA to exercise ultimate authority in this regard. Instead, the NRC makes its own determination, based on its review of FEMA's findings and determinations as to "whether state and

local emergency plans are adequate and whether there is reasonable assurance that they can be implemented." NRC retains overall responsibility for determining whether licenses should be issued or operations suspended.

Third, the draft report recommends a stronger central authority for managing the Federal response to a radiological emergency. DOE believes that such action is not necessary, since FEMA has already dealt with this problem in its guidance for the Federal Radiological Emergency Response Plan (FRERP). The Federal agency that owns, authorizes, regulates, or is otherwise deemed responsible for the affected facilities or transportation vehicles in a radiological emergency, under the FRERP, would have considerable authority to coordinate and direct Federal activities. In the case of a commercial nuclear powerplant accident, the NRC will have most of the Federal responsibility for such activities. It would be inappropriate to designate FEMA as the controlling Federal agency for all radiological emergencies.

Fourth, the draft report does not assess the technical basis of the rules for emergency planning around commercial nuclear powerplants. Specifically, there is no technical basis for the 10 mile Emergency Planning Zone (EPZ), or the specified time limit of 15 minutes for notification and communication to the public. These two planning assumptions create substantial difficulty in preparing and successfully exercising emergency plans and impose serious constraints on emergency planners. The draft report appears to have accepted the magnitude of the effort as unalterable. The position of DOE, which was documented during the NRC rulemaking process in 1980, is that the risk embedded in those rules is overstated and not based on scientific data.

Finally, although the draft report addresses many of the problems associated with emergency preparedness around nuclear powerplants, some of the recommendations of the draft report, particularly those in Chapter 3, could unnecessarily exacerbate the problem of regulatory delay in the nuclear powerplant licensing process. Both the Administration and this Department are committed to the reform of the licensing process, not only to reduce the time involved, but more importantly to emphasize the protection of the public health and safety and to eliminate as many regulatory uncertainties as possible. The Department feels that the report's recommendations can be crafted to provide for the same constructive improvement in emergency preparedness, without creating further delays in the licensing process.

The Department recommends that the draft report clarify one point with respect to the interpretation of an Oak Ridge National Laboratory study. Enclosed is a suggested change, with supporting comments.

APPENDIX V

U.S. Department of Energy
Correction of Interpretation in
Draft of a Proposed Report

Emergency Preparedness Around Nuclear Powerplants: Further Action Needed

The first paragraph on page 2 of the draft report does not accurately characterize the referenced Oak Ridge National Laboratory (ORNL) study, particularly when such reference is used in connection with the 1983 Salem incidents. Each nuclear powerplant is designed with the philosophy of "defense in depth," that is, there must be multiple failures, many in proper sequence, for a given event to occur which could create a potential for a public hazard. In the case of TMI, there were several failures in the accident sequence, but there were still sufficient design features incorporated in the reactor and containment structure which in fact prevented the release of any radioactivity beyond the boundary of the facility. The ORNL study found that during the eleven year period 1969-79, involving a total of 432 years of commercial reactor operation, 169 events occurred which, if the succeeding parts of the accident sequence also had failed, could have resulted in core damage and the potential for harmful releases of radioactivity. Obviously, no such releases have ever occurred, although enough of the accident sequence at TMI did progress to the point of serious core damage.

In the case of the Salem incidents, there was indeed a failure of the automatic reactor shutdown system, but even if there were not the so-called "alert operators," there were many other backup systems in the accident sequence which would have prevented core damage or hazardous releases. It should also be noted that the "alert operator" in the first incident actually acted a few seconds after the reactor shutdown system was supposed to react. Because the manual action occurred at about the same time the automatic action should have, no one realized that the mechanism was faulty. When the second incident occurred, that same faulty mechanism did not work, but because the operator was doing his job, which among other things requires him to be alert, he took the action he is trained to take, preventing failure of that particular part of an accident sequence.

It is therefore recommended that the first paragraph on page 2 of the draft report be reworded as follows:

> "A June 1982 Oak Ridge National Laboratory study[2] concluded that between 1969 and 1979, 169 mishaps occurred at nuclear powerplants which involved parts of accident sequences leading to possible reactor core damage. In only one of these events (Three Mile Island), core damage and a localized radiation release occurred. More recently, a mechanism designed to shut down the reactor was involved in two incidents at the Salem plant in New Jersey. Although operators carried out procedures which prevented further progression of the incidents and no other failures in the in-depth design protection system occurred, some Nuclear Regulatory Commission officials agreed there could have been a major incident if additional failures had occurred which required a faster shutdown than the operators were capable of implementing."

APPENDIX V

Thank you for the opportunity to comment on the draft report. The Department hopes these comments will be helpful in preparing the final report.

Sincerely,

Martha O. Hesse
Assistant Secretary
Management and Administration

Enclosure

APPENDIX VI

DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of Inspector General

Washington, D C 20201

NOV 17 198-

Mr. Philip A. Bernstein
Director, Human Resources
Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Bernstein:

The Secretary asked that I respond to your request for our comments on your draft of a proposed report "Emergency Preparedness Around Nuclear Powerplants: Further Actions Needed." The enclosed comments represent the tentative position of the Department and are subject to reevaluation when the final version of this report is received.

We appreciate the opportunity to comment on this draft report before its publication.

Sincerely yours,

For Richard P. Kusserow
Inspector General

Enclosure

COMMENTS OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES (DHHS) ON THE GENERAL ACCOUNTING OFFICE DRAFT REPORT "EMERGENCY PREPAREDNESS AROUND NUCLEAR POWERPLANTS: FURTHER ACTIONS NEEDED," DATED OCTOBER 13, 1983 (CODE 301586)

General Comments

Although the General Accounting Office (GAO) draft report does not address any recommendations to DHHS, the report contains comments which directly impact U.S. Public health Service activities. Therefore, the comments below are provided for GAO's consideration in preparing the final report. The GAO report examines specific nuclear power plant emergency plans and exercises and compares them to various planning documents and individual statements as to perceived needs. The report correctly assumes that State and local governments are the first line of defense for off-site effects of nuclear power plant emergencies, and that the Federal Government is the second line of defense. However, we must point out that the first line of defense for on-site effects of nuclear power plant emergencies rests with the licensee.

The report presents no clear evidence that States and local communities are not adequately prepared to respond to nuclear power plant emergencies. The key word is "adequately" -- what constitutes an "adequate" response to a situation which has not thus far occurred and may never occur? The report correctly points out that serious nuclear power plant accidents are unlikely, "but possible," and cites the Three Mile Island accident as an example. However, the Three Mile Island accident did not result in the release of radioactive materials which posed any significant threat to public health.

We believe that the adequacy of nuclear power plant emergency plans can only be assessed by taking into consideration the likelihood of such accidents and by placing radiological emergency planning in perspective with other emergency planning (e.g., for natural disasters, toxic chemical spills and releases, etc.) that the Federal Government, States, and local communities must do. Such planning must seek to ameliorate any adverse effects on the public of accidents that may occur even after all reasonable efforts have been taken to prevent them. With regard to nuclear power plants, such efforts include assuring that the plant, based on design, construction, and operation, presents no danger to the surrounding community. In view of the comprehensive Federal regulation of nuclear power plant design, construction and operation, and the numerous safety mechanisms and procedures incorporated therein, we believe that the risk of power plant accidents is extremely low.

We note the draft GAO report addresses only the health responsibilities of DHHS. It does not mention the responsibilities of the Department to assure the provision of emergency social services (emergency welfare services) by its support of State and local government emergency operations. These services include the provision of temporary lodging, assisting the aged and handicapped, the provision of financial assistance, aid to welfare institutions when needed, feeding and clothing when required, etc.

Page 2

The provision of emergency human or social services is an integral element of emergency planning and should be so recognized by GAO in its final report. Among other Federal agencies having social services responsibilities are the Departments of Housing and Urban Development and Agriculture.

GAO Comment (Page 49)

"--expand Federal guidance on the use of potassium iodide by the general public, including information on when the drug should be used and how distribution decisions should be made,"

DHHS Comment

The Food and Drug Administration (FDA) has provided guidance to States under 44 CFR 351 and its precursor documents on the efficacy of potassium iodide (KI) as a thyroid blocking radioprotective drug and projected thyroid doses at which its use should be considered. However, KI is not a panacea. It does not, in particular, offer protection against radiation exposure from other radionuclides, particularly radioactive inert gases that invariably would be released concurrently with radioactive iodine.

Distribution of KI to the population near nuclear power plants is a complex issue that involves judgments of the risk potentials, the actual use of KI if distributed, and the expense not only of distribution, but of periodic replacement of KI supplies when they have aged beyond their expiration date. The guidance of DHHS, in consultation with Federal Emergency Management Agency (FEMA), is to present to States and local governments the technical considerations related to use of KI, but to leave decisions on distribution to the State and local authorities.

An issue that is undergoing current evaluation, and may have a significant bearing on KI distribution, is that current assumptions overestimate the amount of radioactive iodine released during a nuclear power plant accident. If the amounts of radioactive iodine are much less than previously thought, then the use of KI may be seen in a different perspective in view of the relatively larger projected whole body dose that would be incurred by the associated releases of inert radioactive gases.

GAO Comment (Page 49)

"--update and expand emergency instrumentation guidance,..."

DHHS Comment

FDA represents DHHS on the Federal Radiological Preparedness Coordinating Committee (FRPCC) Subcommittee on Emergency Instrumentation and offers the following observations on the delay of development of guidance documents on radiation instruments for use in the field following radiological accidents:

1. There is a lack of directly relevant studies of field instrumentation techniques for measurement of radioiodine in air. Thus, the Subcommittee is, to some extent, covering new ground in making its recommendations. It is only to be expected that a few States might disagree with some of the recommendations. A revised version of FEMA-REP-2 (Radiological Emergency Preparedness) (Guidance on Offsite Emergency Radiation Measurement Systems, Phase I, Airborne Release) is in process. A qualifier is being added to the effect that use of instrument systems discussed in the report is only suggested, is not mandatory, and States are free to develop or modify suitable existing systems of their own choosing.

2. Priorities and resource allocations of the participating Federal departments/agencies with regard to this task have been variable. FEMA, for example, has reassigned its principal contractor for writing the reports, Idaho National Engineering Laboratory (INEL), from writing the guidance to observing exercises. On two occasions of at least a year's duration each, the Environmental Protection Agency (EPA) has failed to provide representation to the Emergency Instrumentation Subcommitee.

3. We are not aware of the alleged technical inaccuracies between the Instrumentation Subcommittee guidance and NUREG-0654 (Nuclear Regulatory Commission Regulation-0654), but would appreciate being fully informed, so that corrective measures may be taken.

4. Two of the remaining instrumentation guidance documents are presently in final draft.

Technical Comments

1. Page 4, line 4: For completeness, note that even in the case of predistribution of potassium iodide (KI) one would not expect 100 percent use by the public in the event of a nuclear emergency.

2. Page 43, paragraph 3: This paragraph is in error. Although Federal guidance does not specify when KI should be used or distributed, it does provide considerable information useful in making these decisions.

3. Page 45, paragraph 2: The FRPCC Instrumentation Subcommittee has been developing guidance for nearly 10 years rather than 4 years as indicated.

4. Page 45, paragraph 3: The criticism by the Conference of Radiation Control Program Directors (CRCPD) Committee (consisting of representatives from 50 States) largely involves a philosophical difference with one member of the committee and a narrow interpretation of the guidance published in FEMA REP-2. The reference to one FEMA official's views should be either specified fully or deleted as it appears to be an unsubstantiated allegation.

5. Page 46 : It should be noted that guidance on Protective Action Guides for Food was assigned to FDA and draft guidance was published December 15, 1978 (43 FR 58790) and final guidance was published in the FEDERAL REGISTER (47 FR 47073) October 22, 1982.

   The issue of establishing site restoration criteria for decontamination is not actually a part of guidance for emergency action. Site restoration criteria, which are being developed by EPA, are not needed until after emergency action has been completed. At that time, relatively more time will be available for measurement of the contamination, estimation of long term doses, and decisions regarding restoration and reentry criteria. Further, such decisions must necessarily consider aspects specific to that situation including area involved, value of contaminated property, costs, feasibility of decontamination, political, social and economic factors. While preexisting guidance may facilitate such restoration decisions, such specific guidance is not essential.

6. Page 48 paragraph 2: The statement regarding inadequacy of protective action guidance is in error since the uncompleted guidance does not involve emergency decisions to protect the public health.

7. (See GAO note): The report states (page 46, top paragraph) that the DHHS (and FDA) off-site radiological monitoring activities at Three Mile Island (TMI) were not coordinated with State and Federal agencies, under terms of the Interagency Radiological Assistance Plan (IRAP). The Department of Energy (DOE), which manages IRAP, did send a team of radiological experts to TMI on the first day of the accident. It was not until two days later, after the IRAP team had departed, that concerns over inert gas releases developed. Since both DHHS (FDA) and EPA had additional technical expertise to offer and because both agencies are full participants in IRAP, they sent teams of radiological experts to the scene with full knowledge of the other involved agencies. DOE was also present on-site to coordinate the off-site environmental monitoring data.

   IRAP is currently being revised as the Federal Radiological Monitoring and Assistance Plan and thus will become an operating entity, under DOE, of the entire Federal Radiological Emergency Response Plan, which is scheduled for draft publication in the FEDERAL REGISTER in December 1983.

   GAO note: This paragraph has been deleted from the final report.

8. Pages 52-57 : Although various groups and agencies have made specific recommendations or findings indicating deficiencies, no data or evidence have been presented that shows the inability of the Federal agencies to provide assistance to States and local agencies.

   One point that needs to be made regarding Federal agency emergency response is that such resources are almost never located near the nuclear power plant site. Thus, such Federal assistance is not likely to arrive at the site for at least 12 hours or more (except perhaps for small teams). Hence, at the immediate onset of a radiological emergency Federal assistance will be by telephone consultation in assessing the situation and making preliminary recommendations regarding protective actions.

9. Page 56, paragraph 2: The fundamental principle of good emergency response is to put emergency response in the hands of those technically qualified to make decisions and implement emergency actions. The role of FEMA should be that of a facilitator: removing any red tape and road blocks and providing resources when and where needed.

APPENDIX VII

U S Department of
Transportation

NOV 25 1983

Mr J Dexter Peach
Director, Resources, Community
and Economic Development Division
U S General Accounting Office
Washington, D C 20548

Dear Mr Peach

We have enclosed two copies of the Department of Transportation's (DOT) reply to the General Accounting Office (GAO) draft report, "Emergency Preparedness Around Nuclear Powerplants Further Actions Needed (Code 301586) "

Although the GAO report represents a broad review of Federal, State and local emergency planning and preparedness to determine their respective adequacy for mitigating the consequences of a nuclear powerplant accident, Chapter 5 - "Limited Progress Has Been Made In Revising Some Agency Plans," makes the following observations concerning DOT in particular (See GAO note)

- o In accordance with current Federal Emergency Management Agency (FEMA) guidance DOT has not revised its Federal Radiological Emergency Response Plan, which FEMA determined to be inadequate, and,

- o DOT headquarters intends to assign important coordinating roles to its regions relative to the implementation of the Federal Radiological Emergency Response Plan for Non-Defense Emergencies, but regional plans have not been developed for Regions II and V

The DOT Federal Radiological Emergency Response Plan that FEMA considered inadequate was prepared well before the FEMA Planning Guidance Document of April 1983 was finalized As of October 31, 1983, the DOT response plan has been completely revised to conform with FEMA's instructions

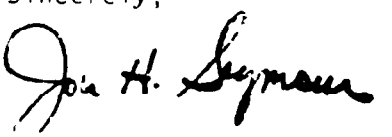
GAO note: This section has been deleted in the final report.

APPENDIX VII

With regard to regional coordinating roles for implementing the DOT Radiological Emergency Response Plan for Non-Defense Emergencies, the current DOT response plan fully prepares headquarters and regional personnel to carryout their respective coordinating roles

If I can be of further assistance, please let me know

Sincerely,



Robert L Fairman

Enclosures - (See GAO note)

GAO note: Enclosures not included since they refer to section deleted in final report.

APPENDIX VIII

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Administration
Washington D C 20230

NOV 21 1983

Mr. J. Dexter Peach
Director
United States General Accounting Office
Washington, D. C. 20548

Dear Mr. Peach:

The draft report: "Emergency Preparedness Around Nuclear Powerplants: Further Actions Needed, Code 301586" prepared by the staff of the U.S. General Accounting Office has been reviewed by the staff of National Weather Service, NOAA Emergency Coordinator and the DOC Emergency Coordinator. We find the report to be an accurate assessment of the planning process. Our specific comments are limited to the following three paragraphs concerning DOC involvement.

1. (See GAO note) "Department of Commerce (DOC) officials decided to complete and publish a plan prepared under FEMA's 1980 planning guidance rather than prepare one based on the current guidance."

The FEMA 1980 guidance was followed by the Federal Coordinator for Meteorology in developing the multiagency plan titled: National Plan for Radiological Emergencies at Commercial Power Plants. When FEMA broadened the 1980 guidance to include all nuclear accidents, the decision was made to leave the plan for power plant accidents as it was and place planning for meteorological support for the broad spectrum of nuclear accidents in the Federal Radiological Monitoring and Assessment Plan (FRMAP) which is now near publication by FEMA.

2. (See GAO note) "DOC has assigned its National Weather Service regions a role in providing meteorological support during a nuclear powerplant emergency. The Central region has developed a plan for this function, but the Eastern region has not. Other than FDA, HHS agencies have not developed plans in regions II and V."

The Eastern region of the National Weather Service developed their plan for this function soon after the visit by the GAO.

GAO note: These sections have been deleted from the final report.

3. Page 54, paragraph two reads: "DOC officials said they would send a weather support team to the scene of an accident if requested by DOE, NRC, or FEMA, but they might also send the team even if a request was not received."

Our intent in this statement was to say that we might dispatch a National Weather Service team in anticipation of a request from one of the other agencies. This would be most likely to happen in an emergency.

Sincerely,

Arlene Triplett
Assistant Secretary
for Administration

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D C 20240

Mr. J. Dexter Peach
Director
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

Thank you for your letter of October 13, 1983, transmitting copies of the draft report entitled Emergency Preparedness Around Nuclear Powerplants: Further Actions Needed (Code 301586).

We have reviewed the draft report insofar as it relates to the interests of the Department of the Interior and concur with the findings in the report.

We appreciate the opportunity to review the proposed report in its draft form.

Sincerely,

Richard R. Hite
Deputy Assistant Secretary,
Policy, Budget and Administration

APPENDIX X

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C 20460

OFFICE OF
POLICY, PLANNING AND EVALUATION

NOV 16 1983

Mr. J. Dexter Peach
Director
Resources, Community and Economic
Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

On October 13, 1983, the General Accounting Office issued to the Environmental Protection Agency its draft report, "Emergency Preparedness Around Nuclear Powerplants: Further Action Needed". The draft report was sent so that the Agency may review and comment on the report according to P.L. 96-226.

We believe that the Agency adequately supports the efforts of the Federal Emergency Management Agency and the Nuclear Regulatory Commission in assuring radiological preparedness around nuclear powerplants. The report supports this view in its comments.

We appreciate the opportunity to review and comment on this draft report.

Sincerely yours,

John M Campbell Jr

John M. Campbell, Jr.
Acting Assistant Administrator
for Policy, Planning and Evaluation

APPENDIX XI

DEPARTMENT OF AGRICULTURE
THE SECRETARY
WASHINGTON, D.C. 20250

21 NOV 1983

Mr. J Dexter Peach
Director, Resources, Community and Economic
Development Division, GAO
4th and G Streets, NW
Washington, DC 20548

Dear Mr. Peach:

Thank you for the opportunity to review the recent GAO draft report entitled Emergency Preparedness Around Nuclear Powerplants Further Actions Needed.

We have no substantive comments to make at this time However, we look forward to receiving a copy of the final report.

Sincerely,

Richard E. Lyng

Richard E Lyng
Acting Secretary

APPENDIX XII

PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY
P O BOX 3321
HARRISBURG, PENNSYLVANIA 17105

October 28, 1983

Mr. J. Dexter Peach
Director
United States General
Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

The GAO Report, "Emergency Preparedness Around Nuclear Power Plants Further Actions Needed (Code #301586)," cites the Pennsylvania-Beaver Valley exercise held on February 17, 1982 included as participants one risk county (Beaver), four risk municipalities, three support counties, and Duquesne Light Company's Beaver Valley Power Station. The FEMA report was sent to PEMA under dateline of April 23, 1982 and PEMA's reply was dated June 22, 1982.

The following comments on the topics indicated are submitted:

1. GAO Report, p. 17, 2nd paragraph

In nine interim findings on operating sites, FEMA reported to the NRC staff that offsite safety was adequate, but later reported to the NRC Atomic Safety Licensing Board studying Indian Point that the emergency preparedness plans for these same nine sites were inadequate. In 1982, FEMA Region III concluded that planning and preparedness were adequate at the Beaver Valley site in Pennsylvania even though the exercise surfaced 20 significant and 45 minor deficiencies. At least one RAC member questioned the reasonableness of this conclusion. After reviewing the exercise report, FEMA headquarters reversed the Region's finding.

PEMA Comment

The author seems to have confused another report with the Beaver Valley report. Our FEMA report shows "81 recommendations which call for improvements in training, resources (personnel and material), plan development or operational readiness" (FEMA Report cover letter dated April 23, 1982). Further, the exercise was judged adequate, except for three areas - notification and alerting the public (Recommendations 7 and 8), coordination (R17, R21, R23), and protective actions (R52, R55, R57). A remedial tabletop exercise for these three areas was held on August 24, 1982.

The identity of the RAC member is unknown.

This Agency has no record of the Region's finding, quoted above, being reversed.

GAO note: Page numbers have been changed to refer to the final report.

7. GAO Report, p. 20, 1st paragraph

We found that NRC was not informed of deficiencies in the February 1982 Beaver Valley exercise until November 1982, at which time FEMA concluded that emergency preparedness was not adequate to protect public health and safety. FEMA records show that regional FEMA officials were reluctant to even hold the exercise because they believed State and local governments would not be able to demonstrate required capabilities. The regional RAC chairman recommended the exercise be considered a training session rather than serve as an official qualifying exercise for which an NRC 120 day notice could be given. He cited as precedent the 1980 exercises at Three Mile Island and Calvert Cliffs (Maryland). Exercise deficiencies at Beaver Valley included

> One county used radio operators who were unfamiliar with technical data and as a result, passed it along inaccurately to decisionmakers.
>
> - Another county inaccurately relayed evacuation messages, resulting in some communities not receiving the evacuation order.
>
> -One state did not demonstrate capability to assess the seriousness of the accident data in order to decide what protective response should be ordered, such as evacuation or sheltering.
>
> Two states had monitoring and decontamination teams at mass care centers that lacked knowledge of their functions.

Also, one county's performance was still inadequate after a July 1982 retest. Among the deficiencies noted were the failure of 12 of 13 sirens to sound and lack of radiological monitoring equipment at the decontamination and relocation centers.

FEMA Comment

FEMA has no record of FEMA's conclusion that Beaver Valley preparedness was not adequate, nor have we had access to FEMA's internal discussions. We did receive the FEMA report on the exercise dated February 17, 1982 as discussed above. When the tabletop to remedy deficiencies noted in three areas was completed, the Region III RAC Chairman, Jim Asher, sent us a copy of his September 30, 1982 report which stated in its conclusion that the exercise achieved the required objectives and that it effectively drilled the appropriate reactors in the proper responses. The discussions that followed the solution to each situation cleared up the misunderstandings and clarified channels of communications.

Both the federal and state personnel felt the exercise demonstrated the enhanced proficiency that was necessary to resolve the previously mentioned deficiencies.

Since the four deficiencies cited as examples were taken out of context and their sources not cited, identification, and therefore comment, is not possible. Note that West Virginia comments are not separated from Pennsylvania comments, of concern to us since West Virginia did experience considerably more difficulty in all phases than Pennsylvania did.

3. GAO Report, p. 29, 3rd paragraph

Since FEMA and NRC rely on states and utilities to prepare scenarios, FEMA has developed milestones providing for states to submit offsite scenarios for review 45 days before exercises. We reviewed the timeliness of scenario submission for 17 exercises and noted that 7, or 41 percent, did not meet the 45-day submission deadline. For example, FEMA did not receive part of the scenario for the 1982 Beaver Valley site exercise until 4 days before the exercise.

FEMA Comment

It should be first noted that the 45-day scenario submission date was contained in a FEMA in-house guidance memorandum #17. FEMA was not requested to submit any scenario 45 days in advance until after the Beaver Valley exercise when Mr. Brucker requested the submission of the scenario for the exercise with Peach Bottom be submitted 45 days prior to the exercise date.

FEMA records indicate the entire Beaver Valley scenario was mailed on/about January 18, 1982 except that the Action Locations section as submitted was not the complete list. The FEMA cover leter further stated that the information needed to complete the list would be forwarded as soon as possible. The last change to the action list was probably submitted four days before the exercise as alleged since several additions to the list were forwarded as the information became available.

4. GAO Report, p. 30, 5th paragraph

Public notification was simulated in many exercises, including the 1982 exercise at Beaver Valley. In the 1982 Peach Bottom exercise in Pennsylvania, FEMA reported in its evaluation that numerous simulated elements should have been exercised, such as protective actions and exposure control, and in the future, more demonstration and less simulation should occur.

PEMA Comment

In the Beaver Valley exercise, sirens were simulated. However, the backup route alerting was performed although the FEMA observers failed to observe it. They so noted, and further commented that they had checked the logs, etc. Their recommendations were based on that procedure.

The Peach Bottom comments are as quoted by GAO.

5. GAO Report, p. 34, 2nd paragraph

In 1982 FEMA concluded that planning and preparedness were not adequate at the Beaver Valley site, but concluded after the 1983 exercise that they were adequate to protect public health and safety. However, we found that the 1982 Beaver Valley exercise evaluation noted deficiencies that were not addressed in the 1983 exercise, including lack of police authority to close roads and control traffic, participation by the Hancock County Commissioners, training of monitoring and decontamination personnel, and demonstration of state public information functions.

PEMA Comment

The issue of the FEMA finding for the 1982 exercise has been discussed above, and PEMA does not agree with the accuracy of the GAO statement.

Since the FEMA 1983 Beaver Valley exercise did not make any observations on deficiencies in the police authority to close roads and control traffic and since the same standard operating procedure for establishing and operating access control and traffic control points was used in both exercises, it is obvious that the corrective actions taken after the first exercise were effective.

Again, training of monitoring teams is an ongoing process, and since the 1983 report does not recommend any correction of deficiencies noted in this area, the deficiency no longer existed.

In 1982 the state public information office exercised on a limited basis, but the FEMA observer's comments were directed to a full scale participation. In 1983 the FEMA comments about IO participation were most satisfactory (see pp. 11 and 12 of the report). It can, therefore, be deduced that the GAO report writer did not take into account all the facts upon which the FEMA observations and recommendations were based.

6. General Comments

Chapter III devoted itself to arguing that FEMA and NRC should prepare the scenarios for annual exercises of state and local plans and/or state and utilities plans. GAO further recommends no more testing until adequate scenario are available.

FEMA vetos the concept. The whole recommendation is predicated on a federal view toward centralizing the exercise process. FEMA contends that the present system of states and plants preparing a scenario jointly and then submitting it to FEMA and NRC for review, comment and approval is practical and workable provided the two federal agencies establish minimum requirements and do their homework in reviewing the scenarios when submitted. Surprise elements thrown into the exercise have no place in a scenario which is jammed with activity in a compressed time frame.

Cordially,

C. A. Williamson
Deputy Director

CAW.ss (Tel 717/783-8150)

APPENDIX XIII

State of Wisconsin
Department of Administration
DIVISION OF EMERGENCY GOVERNMENT
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Anthony S. Earl
Governor
Doris J. Hanson
Secretary
Mailing Address
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Madison WI 53707
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November 15, 1983

Mr. J. Dexter Peach, Director
Resource Consulting & Economic Development Division
U.S. General Accounting Office - Room 4915
441 G Street
Washington, D.C. 20548

ATTENTION: Bill McGee

Dear Mr. Peach.

We have reviewed the General Accounting Office (GAO) draft report entitled Emergency Preparedness Around Nuclear Power Plants: Further Actions Needed (Code 301586). Although neither the State of Wisconsin nor any of its affected local governments have been directly referenced in this report, I wish to offer the following comments:

1. I do not agree with the statement in the initial paragraph on page ii of the report, that ". . .emergency preparedness in communities where plans have not been approved is questionable". Approved state and county emergency response plans offer no guarantee of emergency preparedness. This can only be tested through the exercise process. In our state, the Wisconsin Peacetime Radiological Emergency Response Plan has not yet received final federal approval. However, extensive discussions on the plan have occurred with the Federal Emergency Management Agency (FEMA)-Region V and with the Regional Assistance Committee (RAC). The draft plan has been revised to incorporate federally suggested changes and while under final federal review, the plan is now being used as the basis for all state and county emergency response activities. Two or more exercises have been conducted with each of the nuclear power plants affecting this state with favorable results. Comments made by federal observers of these exercises have led to further improvements in both plans and exercise procedures. FEMA and the State of Wisconsin are in general agreement as to the plan content even though final approval has not yet been obtained. I am confident that Wisconsin is prepared to deal effectively with a nuclear power plant incident, if it should ever occur.

2. In regard to the GAO comment on page iii, questioning the reliability of state and local response due to weaknesses in exercise procedures, I would like to state that we are noting a substantial improvement by FEMA-Region V, in its administration of this program. Increased frequency of exercising throughout the region is resulting in a better trained and more perceptive core of federal observers. To date FEMA has not participated in

GAO note: Page numbers have been changed to refer to the final report.

the development of the off-site scenarios, but FEMA representatives have attended pre-exercise scenario planning meetings and have provided necessary feedback at that time. Further, FEMA comments have been selectively provided on both exercise objectives (submitted 75 days in advance of the exercise) and exercise scenarios (submitted 75 days in advance) as appropriate.

3. I strongly disagree with the recommendation (page 38) that FEMA and NRC be made entirely responsible for the development of exercise scenarios. To date, at least, participation of state and county governments in these exercises has been a voluntary and cooperative effort to protect the public from the potential hazards associated with a nuclear power plant incident. In Wisconsin, as elsewhere, local government will be the essential first responder to a nuclear plant incident. They, and to a lesser degree, the state, have the best understanding of the strengths and weaknesses in their own response capability. The federal government sitting in Washington (or in Chicago) is clearly in no position to adequately discern or to test these capabilities. A "surprise" exercise with a federally dictated scenario which insensitively disrupts state and local government operations and which could have the potential of embarrassing those institutions in the eyes of the media and the public, serves no useful purpose in improving state and local government support of nuclear power and the development of effective response capabilities. I continue to support the current practice of joint state/utility preparation of the exercise scenarios, with provision of adequate opportunity for federal agencies to review, comment, and suggest changes necessary to fully exercise the plans based on federal guidance.

4. In reference to comments on page iv regarding FEMA's verification of plan element compliance with federal criteria (i.e., NUREG 0654), I would suggest that while this may have been a problem in the past, our recent experience with the RAC review of our State Plan would indicate that this is an area where substantial progress is being made.

5. Regarding FEMA follow-up on correction of deficiencies noted in previous exercises (page iv), our feeling is that state and local actions to correct significant deficiencies have been adequately monitored. However, the past several exercises in this state have not uncovered any significant deficiencies in state or local plans and/or preparedness.

6. As indicated on page iv, federal guidance on public alerting, potassium iodide, and instrumentation have been slow in coming. This entire area is in need of considerable attention.

APPENDIX XIII

7. We support your position (page v) that the federal response plan needs to be completed at an early date. Although both FEMA-Region V and the Nuclear Regulatory Commission (NRC)-Region III have developed regional response plans, in Wisconsin, these have not been adequately tested through federal agency participation in nuclear power plant exercises.

8. Finally, we agree with the conclusion on pages v and vi that a more definitive posture on coordination/control of the federal response is needed in order that Wisconsin can coordinate its response appropriately with federal government agencies.

Thank you for the opportunity to review and comment on the GAO draft report. I will be most interested in the congressional response to it.

Sincerely,

Carol L. Hemersbach
Administrator

CZH:GN:sr

cc: Edward J. Roche, FEMA-Region V, Chicago
E. Erie Jones, Illinois ESDA
Thomas Motherway, Minnesota DES
David Speerschneider, DEG

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