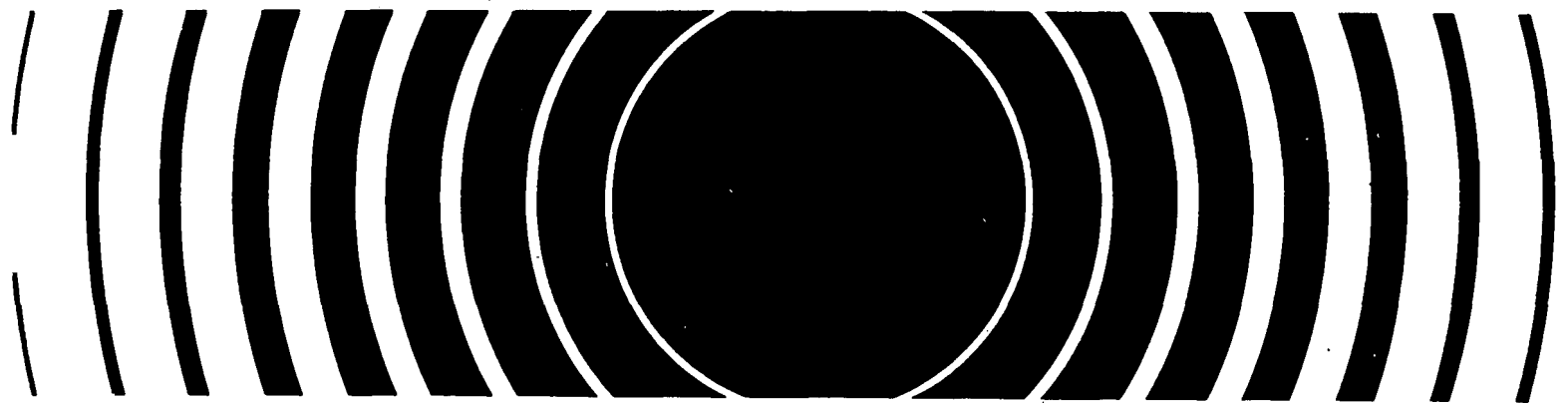

Radiation



United States Environmental Protection Agency Radiological Emergency Response Plan



U.S. Environmental Protection Agency Radiological Emergency Response Plan

December 1986

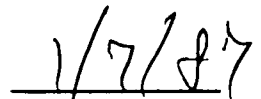
**U.S. Environmental Protection Agency
Office of Radiation Programs
Washington, D.C. 20460**

Foreword

I hereby endorse and commend for use by the Environmental Protection Agency this Radiological Emergency Response Plan. It presents the EPA authorities, organization, responsibilities, and capabilities for responding to radiological emergencies in the environment. This Plan will be used as a guide for maintaining readiness to respond to radiological emergencies in support of EPA responsibilities for protecting the environment and in support of the Federal Radiological Emergency Response Plan coordinated by the Federal Emergency Management Agency.



Administrator



Date

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LIST OF ACRONYMS

AA	Assistant Administrator
DOE	Department of Energy
EERF	Eastern Environmental Radiation Facility
EMSL	Environmental Monitoring Systems Laboratory
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FRERP	Federal Radiological Emergency Response Plan
FRM	Field Response Manager
FRMAC	Federal Radiological Monitoring and Assessment Center
FRMAP	Federal Radiological Monitoring and Assessment Plan
NRC	Nuclear Regulatory Commission
OAR	Office of Air and Radiation
OD	Office Director, Office of Radiation Programs
ODW	Office of Drinking Water
OERR	Office of Emergency and Remedial Response
ORD	Office of Research and Development
ORP	Office of Radiation Programs
ORP/LV	Office of Radiation Programs/Las Vegas Facility
RRC	Radiological Response Coordinator

EPA Radiological Emergency Response Plan

I. Introduction

Radiological emergencies may result from a release of radioactivity from major facilities such as nuclear power plants or other nuclear fuel cycle facilities and from transportation accidents, major research facilities, or nuclear weapons accidents. They may also result from releases from smaller nuclear facilities such as hospitals or facilities using radioisotopes in industrial or research applications.

State and local government officials have the primary responsibility for protecting the public during a radiological emergency. State and local jurisdictions, as well as operators of major nuclear facilities, should have compatible radiological emergency response plans that have been coordinated and tested.

It is not practical for State and local governments to maintain massive emergency response capabilities, but they must be prepared to respond during the first few hours of a radiological emergency. Federal assistance will probably be needed for emergencies that have the potential for significant offsite consequences or for those that extend beyond several hours. This Plan presents the Environmental Protection Agency's (EPA) organization and concept of operations for responding as an independent Agency or as a participant in

the implementation of the Federal Radiological Emergency Response Plan (FRERP) [1]. The Plan identifies the authorities, responsibilities, procedures, and resources of the various EPA components.

A. General Responsibilities

State

As a part of their obligation to protect the public health and welfare, State and local governments assess accident situations and issue instructions or take actions to decrease public exposure to radiation. These actions include evacuating, controlling access, providing shelter, or restricting food and water consumption.

Federal Coordination

The Federal Emergency Management Agency (FEMA) coordinates the overall offsite Federal effort to assist States with radiological emergencies. The Nuclear Regulatory Commission (NRC) monitors actions taken by its licensees during emergencies and provides advice and assistance to the State or licensee as may be required or, in extreme circumstances, directs the licensee to take specific actions. The Department of Energy (DOE) coordinates Federal offsite radiation monitoring activities during the emergency phase (first few days) of an emergency under the FRERP. Then, EPA assumes this responsibility from DOE during the intermediate and long-term phases.

Environmental Protection Agency

Either under its independent authorities or under the provisions of the FRERP, EPA may take a number of actions. The EPA assures the safety of public drinking water supplies in States that have not accepted primacy under the Safe Drinking Water Act or if the States have not taken the necessary actions. Also, EPA may assist State and local governments in monitoring environmental radiation, assessing consequences of accidents, and making protective action decisions. Finally, the Agency's authority may be used to clean up certain releases of radionuclides including sites containing man-made radiation. Certain services may be provided at the request of a State (provisions for such consultation or assistance are usually included in State or local emergency plans), or EPA may respond under existing legislative authorities to an accident without being requested.

B. Authorities and Agreements

Several authorities cover EPA's response to radiological emergencies. These include the President's Reorganization Plan Number 3 [2], the Public Health Service Act [3], the Safe Drinking Water Act [4], and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) [5]. CERCLA response authorities are not applicable to federally permitted releases as defined in the Act nor to releases of source, by-product or special nuclear material from a nuclear incident

if the release has the financial protection as required by the Price Anderson Act. Additionally, EPA has entered into agreements to provide for cooperation with other Federal agencies in carrying out its activities under these authorities. Agreements have been reached with DOE and NRC [6, 7] regarding notification of radiological emergencies; and with FEMA regarding radio communications [8]. The EPA may assist the State in a radiological emergency either as a single Agency under its own authorities or under the provisions of the FRERP in cooperation with other Federal agencies.

The EPA is committed to assist in radiological emergency responses when the FRERP is implemented. The DOE is the lead agency for maintaining and implementing the Federal Radiological Monitoring and Assessment Plan (FRMAP), which is a part of the FRERP. The FRMAP coordinates Federal agency radiological monitoring and assessment activities with those of responsible State and local agencies. It also provides operating guidelines for interagency radiological emergency operations.

II. Functional Responsibilities

Several EPA offices could be involved in responding to a radiological emergency. The following discussion summarizes the respective functional responsibilities of those offices.

A. Office of Air and Radiation

The Office of Air and Radiation (OAR) is the lead EPA office for planning and responding to radiological emergencies. The OAR will designate the Office of Radiation Programs (ORP) as the lead implementing office for directing and coordinating the Agency response. In case of a major emergency, the EPA response directed by ORP might require the mobilization of resources normally outside the control of ORP, e.g., the Las Vegas, Nevada, Environmental Monitoring Systems Laboratory (EMSL) of the EPA Office of Research and Development (ORD). In such a case, the Assistant Administrator (AA) for OAR will consult with the AA for ORD to agree upon the conditions and duration of mobilization of ORD resources.

During any radiological emergency, ORP has the immediate and day-to-day responsibility for directing the EPA response, which includes designation of the EPA Field Response Manager (FRM), and performing the following functions:

1. Assigning resources including personnel, equipment, and laboratory support to assist in monitoring environmental radioactivity levels.
2. Providing guidance on acceptable emergency levels of environmental radioactivity and radiation.
3. Assessing the nature and extent of the environmental radiation hazard.
4. Making recommendations concerning appropriate protective actions to minimize population exposures.

Radiological Assistance Teams and laboratory analyses will be provided from facilities located in Montgomery, Alabama and Las Vegas, Nevada. See Appendix A for a summary of response capabilities of the Radiological Assistance Teams. Dose projection and other technical assistance will be provided by the ORP Washington technical staff and at the Facilities. The ORP "Standard Operating Procedures for Radiological Emergencies" (Appendix B) provides the guidance for implementing these functions in Washington. These Standard Operating Procedures will be implemented by an ORP Washington Radiological Response Coordinator (RRC) designated by the Office Director (OD) for ORP. Each Radiological Assistance Team has its own Radiological Emergency Response Procedures.

B. Office of Research and Development

The ORD has a field and laboratory response capability at its Las Vegas, Nevada laboratory, as shown in Appendix A, which will be used to complement the other responding Agency facilities. It will respond to a radiological emergency upon request from the AA for OAR to the AA for ORD. Once mobilized, the ORD resources in the field will be coordinated by the EPA Field Response Manager and will, upon his request, provide any of the following services:

1. Aerial photography service.

2. Ground level environmental monitoring, including laboratory analyses.
3. Quality assurance (through cross-checks, split samples, and test samples, as appropriate) for laboratory analyses conducted by other radiological emergency monitoring organizations.

C. Office of Drinking Water

Almost all States have accepted primary enforcement authority (primacy) under the Safe Drinking Water Act. During a radiological emergency involving any of the States that have accepted primacy, the Office of Drinking Water (ODW) will maintain awareness and cognizance of State efforts to provide potable drinking water. The Office will take no action unless requested by the State or unless their information indicates that the State is unsuccessful in providing potable water. For States that have not accepted primacy, ODW will coordinate and assist State and local emergency response agencies to ensure the availability of safe drinking water. In the event State agency capabilities are exceeded, the Office will facilitate and coordinate EPA and other Federal assistance.

All activities by ODW related to preventing radiological contamination of water supplies or controlling the use of radiologically contaminated water supplies will be coordinated through the ORP Radiological Response Coordinator. The ODW will, upon request, assist and advise the Field Response Manager for all technical areas within its organizational responsibility, which include:

1. Establishing, in cooperation with ORP, emergency guidance for radioactivity in drinking water.
2. Providing data on public water systems to identify and notify affected licensees and States.
3. Providing technical assistance to States or licensees concerning water treatment techniques, bypass procedures, alternate sources, and other activities related to maintaining drinking water quality and service.
4. Assisting on-the-scene personnel in coordinating activities to minimize the adverse impact of drinking water contamination.
5. Assisting local and State agencies, in non-primacy States, in implementing plans and activities to provide emergency potable water supplies.

The ODW operating procedures for radiological emergencies provide guidance on implementing these activities.

D. Office of Emergency and Remedial Response (OERR)

Since CERCLA response authority may be used to clean up certain releases of radionuclides, including sites containing man-made radiation, OERR may be required to participate in a radiological emergency. This activity could take the form of an immediate emergency response or more long-term remedial action. OERR's involvement need not be requested by the state.

If CERCLA authority is used, then the response action to the radionuclide release will be carried out in accordance with the National Contingency Plan (40 CFR Part 300) [9]. Among the possible OERR response actions are the following:

1. Security and site control precautions
2. Removal of highly contaminated soils
3. Provision of alternative water supply
4. Air emissions controls
5. Surface and ground water controls

All OERR activities, directed by the On-Scene Coordinator when operating under the authority of the National Contingency Plan, will be coordinated with the ORP Radiological Response Coordinator.

E. Office of Public Affairs

The handling of press and public relations will depend on whether EPA is responding as a single Federal agency or as part of a multi-agency response. For a single-agency response, the EPA Regional Office of Public Affairs will assist the Regional Office and the Field Response Manager in arranging and conducting media briefings and preparing any news releases. The Washington Office of Public Affairs will perform similar services for OAR in Washington.

For a multi-agency response to a radiological emergency, FEMA will coordinate all media briefings and news releases concerning the emergency, in accordance with the FRERP. The

EPA Regional and Washington Office of Public Affairs will assist FEMA in understanding the EPA participation and will arrange for EPA participation in media interchanges as directed by FEMA.

F. EPA Regional Offices

All EPA Regions have emergency response plans for accidental environmental releases of oil, toxic chemicals, and hazardous substances. Additional response plans specifically attuned for radiological emergencies are necessary because the States have a major responsibility for protecting the public during radiological emergencies. The EPA role in radiological emergencies generally is to assist States in protecting the public. In the case of a major radiological emergency, with multiple Federal agencies responding, EPA will participate under guidance from FEMA, the lead Federal agency.

The EPA Regional response participants consist of (1) a Duty Officer, (2) an Emergency Response Team, and (3) the Regional Radiation Representative. Their respective functions are:

1. Duty Officer. Each Region has a Duty Officer to provide 24-hour emergency telephone coverage. When a radiological emergency is reported, the Duty Officer will notify the Regional Radiation Representative in addition to the regular notification list.

2. Regional Emergency Response Team. A Regional Emergency Response Team may be established for major radiological emergencies if requested by the OD. The Regional Emergency Response Team will function under the direction of the EPA Field Response Manager. For radiological emergencies involving a combined Federal response, a Federal Radiological Monitoring and Assessment Center (FRMAC) will be established by DOE in accordance with the FRERP. The Regional Emergency Response Team will operate from the FRMAC. In general, the functions of the Regional Emergency Response Team are to:
- a. Provide personnel to perform nonradiological functions in support of EPA field monitoring teams.
 - b. Act as field logistical liaison with the State and other Federal agencies on the scene.
 - c. Request assistance of appropriate State and local officials in support of the EPA response.
 - d. Provide the funding mechanism for emergency field supplies to support EPA activities.
 - e. Provide logistical support for EPA field monitoring teams, arranging for such items as housing, laboratory space, utilities, transportation, and communication.

- f. Secure equipment from Regional resources as needed.
 - g. Recommend, in cooperation with State representatives, actions in the field to assure the provision of safe drinking water and to protect the public from contaminated water supplies.
 - h. Advise the Regional Administrator and the Regional Radiation Representative about problems and progress.
3. Regional Radiation Representative. The Regional Radiation Representative serves in an advisory role to the Regional Administrator and will execute the functions listed below whether or not a Regional Response Team has been activated. The Regional Radiation Representative is primarily a communicator with EPA Headquarters, nearby States, and other Regional Offices. The functions of the Regional Radiation Representatives are to:
- a. Receive notifications of radiological emergencies in the Region.
 - b. Notify appropriate persons in the Regional Office, nearby States, and EPA Headquarters.
 - c. Serve as advisor to the Regional Administrator on radiation matters.

- d. Receive and compile information from the ORP Radiological Response Coordinator concerning progress of the accident and radiological conditions in the environment for use in advising the Regional Administrator, nearby States, and other Regional Offices.

Other available regional participants are the pre-designated On-Scene Coordinators, Regional Response Teams, and other individuals used for emergency and remedial response under the National Contingency Plan.

G. Office of Congressional Liaison

The handling of Congressional contacts will also depend on whether EPA is responding as a single Federal agency or as part of a multi-agency response. For a single-agency response, the Regional Congressional Liaison Contacts will assist the Regional Office and the FRM in contacting appropriate Congressional offices and providing information briefings if necessary. At the same time, the Washington Office of Congressional Liaison will contact key Committee staff and provide information briefings if necessary.

For a multi-agency response to a radiological emergency, FEMA will coordinate all Congressional contacts concerning the emergency in accordance with the FRERP. The EPA Regional and/or Washington Congressional Liaison Office will arrange for EPA participation in Congressional interchanges as directed by FEMA.

III. Notification Procedures

The EPA may receive notification of a radiological emergency from a number of sources. Primary sources will be States, the NRC, FEMA, and DOE, as shown in Figure 1. Other potential sources of notification include private citizens or nuclear or other facility operators where the emergency situation originates. Forty CFR Part 302 sets forth reporting requirements under CERCLA for the release of a radionuclide in a reportable quantity or more. Such releases are to be reported to the National Response Center. CERCLA reporting requirements are not applicable to federally permitted releases as defined in the Act nor to releases of source, by-product or special nuclear material from a nuclear incident if the release has the financial protection as required by the Price Anderson Act. The EPA also has bilateral interagency agreements on notification with NRC and DOE. States are expected to notify the EPA Regional Radiation Representative when a radiological emergency occurs that is not within the jurisdiction of NRC or DOE.

A. EPA/NRC Agreement

The EPA/NRC agreement [7] specifies that NRC regional offices shall notify the appropriate EPA Regional Radiation Representative in a timely manner of any of the following situations:

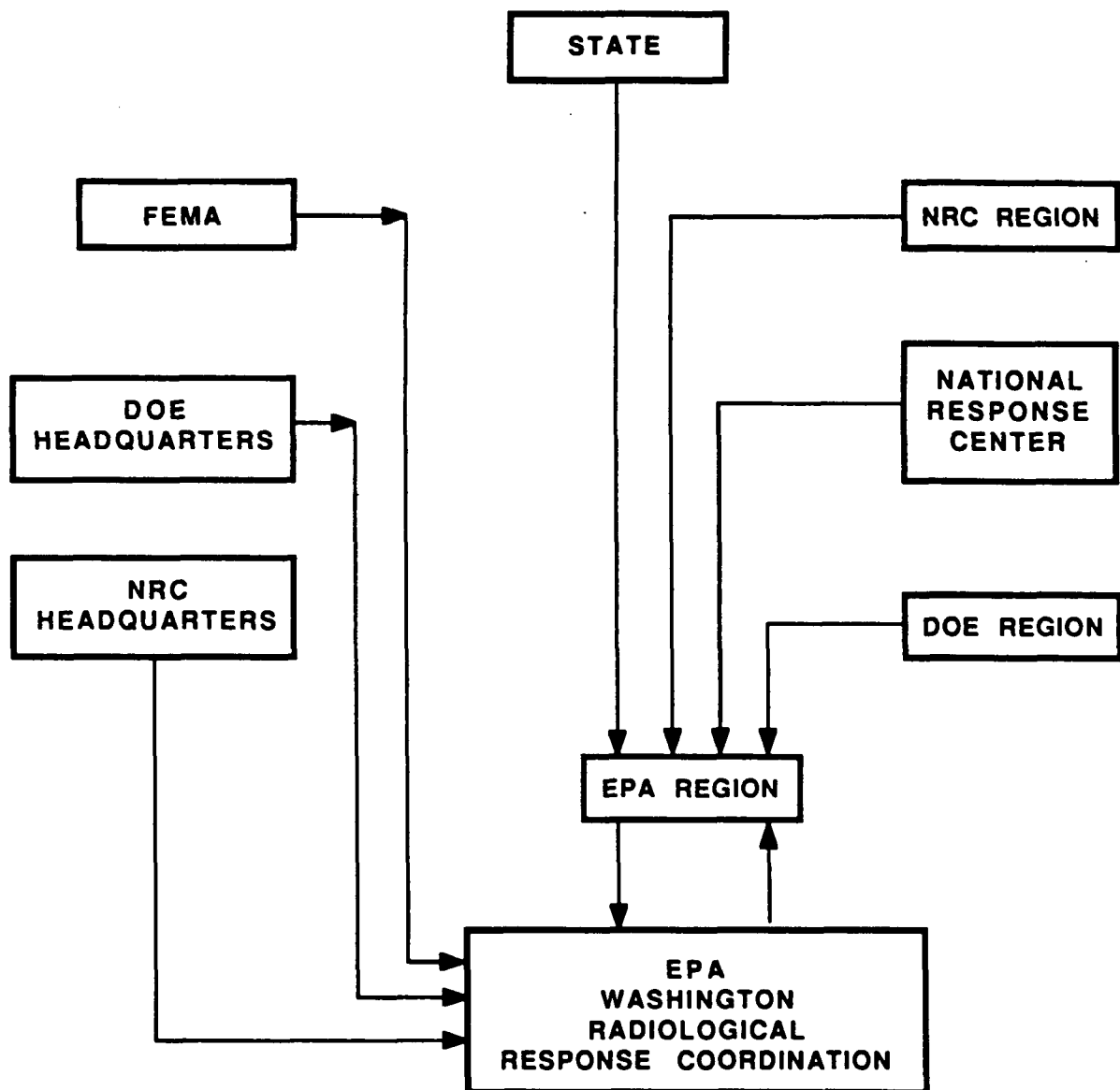


FIGURE 1. PRINCIPAL SOURCES OF NOTIFICATION OF RADIOLOGICAL EMERGENCIES OR REQUESTS FOR ASSISTANCE

1. Any unplanned radiological release to the environment reported to the NRC Operations Center.
2. Any licensee-reported event that is categorized as an Alert, Site Area Emergency, or General Emergency as defined in NUREG-0654, Revision 1 (FEMA REP-1).
3. Anytime the NRC Operations Center is in the Standby or Activation Mode.
4. Anytime the NRC/licensee modes are de-escalated or deactivated from an Alert, Site Area, or General Emergency Classification.

To assure the notification loop is closed, NRC Headquarters has also informally agreed to notify ORP Washington in these instances. The NRC regulations require that licensees promptly notify the NRC regional office of radiological emergencies.

B. EPA/DOE Agreement

The EPA/DOE agreement [6], in summary, requires DOE Headquarters to notify the ORP Washington Office, and DOE Field Offices to notify the appropriate EPA Regional Radiation Representative of radioactive releases at DOE facilities that, under DOE procedures, must be reported immediately to DOE Headquarters.

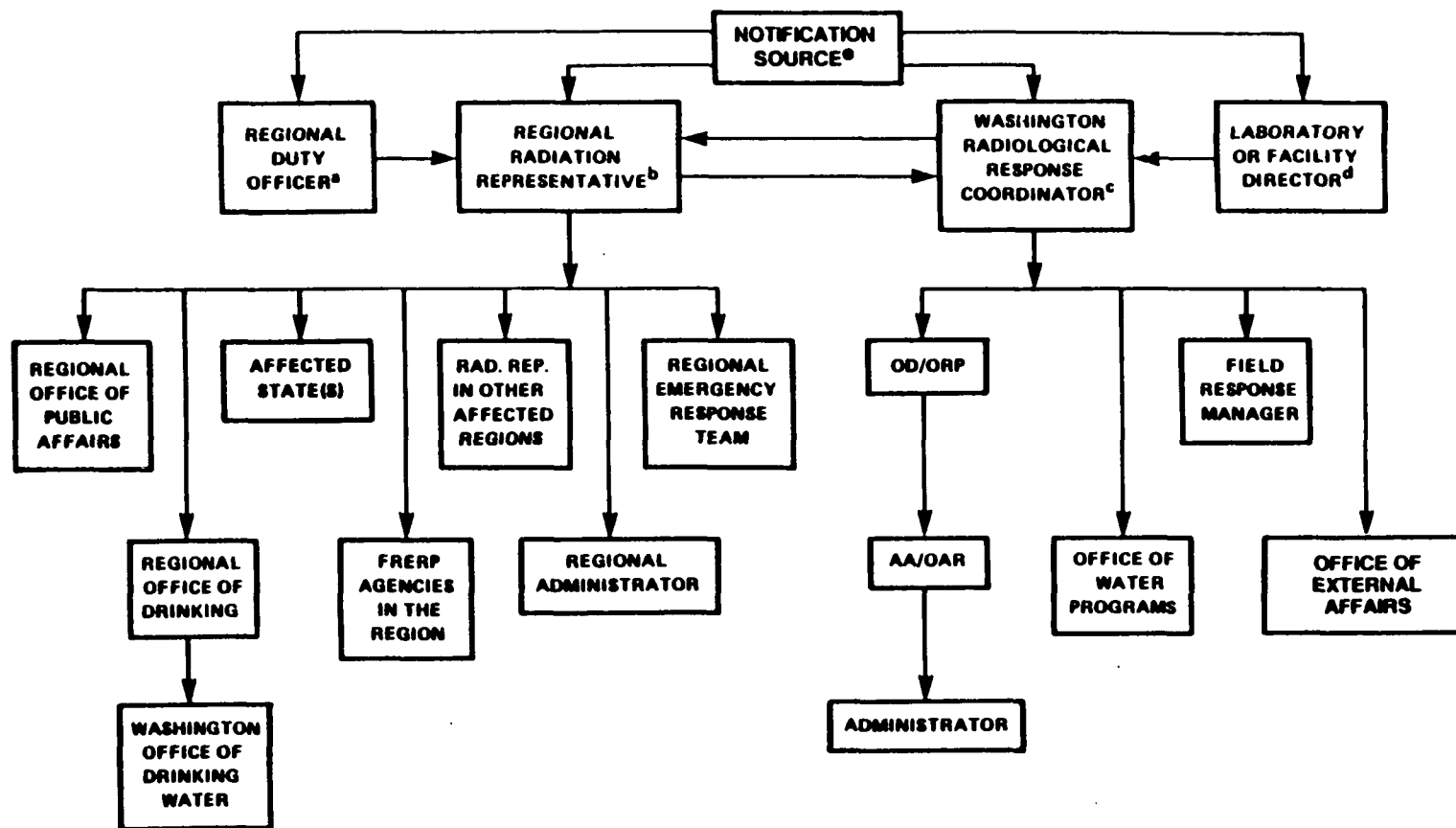
C. Notification by EPA Official

Notification of radiological emergencies or requests for assistance may come to any of a variety of EPA components.

However, all requests are to be channeled to the EPA Regional Radiation Representatives and to the EPA Washington Radiological Response Coordinator for appropriate notifications. Figure 2 shows the EPA plan for notification of organizations in EPA, States, and other Federal agencies. Notifications will be made to individuals, as appropriate, about the nature of the emergency and in accordance with operating procedures of specific EPA organizations.

IV. Criteria for Response

The OD for ORP or his designee determines the appropriate rates and levels of any Agency response to a radiological emergency. If the CERCLA authority is to be used, the CERCLA On-scene Coordinator determines the appropriate level of response; which is carried out in accordance with the provisions of the National Contingency Plan. If the State requests a response and the FRERP has not been implemented, the OD may implement the EPA response under the Agency's own authorities, and the EPA Radiological Response Coordinator will notify the State of the Agency's EPA action. If another Federal agency requests EPA to respond, that agency will be asked to coordinate the request through DOE so that it will be a FRERP response. Requests for response from private citizens or nuclear facility operators will be coordinated through the appropriate State officials.



^a IF THE REGIONAL RADIATION REPRESENTATIVE OR HIS ALTERNATE CANNOT BE REACHED, THE DUTY OFFICER WILL CONTACT THE WASHINGTON RADIOLOGICAL RESPONSE COORDINATOR FOR ADVICE ON OTHER REGIONAL CONTACTS TO BE MADE.

^b IF A WASHINGTON RADIOLOGICAL RESPONSE COORDINATOR CANNOT BE REACHED, THE REGIONAL RADIATION REPRESENTATIVE WILL CONTACT THE OD OR OTHER KEY WASHINGTON RESPONSE PERSON, AS AVAILABLE.

^c IF THE REGIONAL RADIATION REPRESENTATIVE CANNOT BE REACHED, THE WASHINGTON RADIOLOGICAL RESPONSE COORDINATOR WILL MAKE REGIONAL NOTIFICATIONS AS APPROPRIATE.

^d IF A WASHINGTON RADIOLOGICAL RESPONSE COORDINATOR CANNOT BE REACHED, THE OD OR OTHER KEY WASHINGTON RESPONSE PERSONS WILL BE NOTIFIED, AS AVAILABLE.

^e RADIONUCLIDE RELEASES REPORTABLE UNDER CERCLA WILL FOLLOW NOTIFICATION PROCEDURES AS SET FORTH IN 48 CFR PARTS 300 AND 302.

FIGURE 2. EPA PLAN FOR NOTIFICATION OF RADIOLOGICAL EMERGENCIES

The EPA will respond without a request if, in the judgment of the OD, any of the following conditions exist:

1. Conditions at the scene warrant an immediate EPA evaluation of radioactivity in the environment.
2. A release occurs or appears likely to occur that would produce offsite doses exceeding Protective Action Guides*.
3. Press coverage of public anxiety is such that an EPA response is warranted. The OD or his designee will determine the appropriate response team (see Sec. V) based on (a) proximity to the scene of the emergency; (b) response needs versus capability of each team; and (c) availability of personnel and equipment.

EPA also has the authority to respond under CERCLA whenever there is a release or substantial threat of a release into the environment of any hazardous substance (including radionuclides), pollutant or contaminant which may present an imminent and substantial danger to the public health or welfare or the environment. These responses are made in accordance with the National Contingency Plan.

* Protective Action Guide (PAG) is a projected radiation dose to individuals in the population that warrants taking protective action [10].

V. Levels of Response

The States have the primary responsibility for responding to radiological emergencies. The EPA field response will usually be conducted as assistance to a State. Although most radiological emergencies will not require active EPA field response, EPA will maintain cognizance until the emergency is under control. EPA response may include monitoring and assessing or, under CERCLA, actual cleanup activities. If clean up activities are involved, they will be carried out in accordance with the provisions of the National Contingency Plan.

The resources that EPA will commit to a radiological emergency are dependent on the specific request, the characteristics of the emergency, and the resources being provided by others. These resources may range from advice and guidance from the Regional Office to the participation of EPA monitoring teams in a multi-agency Federal effort under the FRERP to site cleanup under CERCLA. The OD or his designee decides and initiates the appropriate response, except when the Regional Office can handle the emergency without assistance. The increasing levels of response that the OD may initiate are outlined in the following discussion.:

A. Radiochemical Analyses by ORP Facilities

A State may require assistance in radiological analyses of environmental samples when responding to a radiological emergency. In such cases the OD or his designee can commit

the Eastern Environmental Radiation Facility (EERF) in Montgomery, Alabama, or the Office of Radiation Programs Facility in Las Vegas, Nevada (ORP/LV) to receive samples and perform the required analyses. He may also obtain the services of the ORD EMSL in Las Vegas, Nevada, in accordance with Section II.B. of this Plan.

B. Radiological Assistance Team

The OD or his designee may select Radiological Assistance Teams from the EERF or ORP/LV. He may also request a team from the EMSL in Las Vegas, Nevada by contacting the AA for ORD. The resources and capabilities of EPA response teams are described in Appendix A.

C. Additional EPA Assistance

The EPA resources that may be called in addition to radiological monitoring assistance are described in the following paragraphs:

1. Aerial Photography - Aerial photography service may be obtained by contacting the OD, who will arrange for support by the ORD OD for Acid Deposition, Environmental Monitoring, and Quality Assurance.
2. Drinking Water - Most drinking water emergencies involving radiation will be handled at the Regional Office level. The Regional Radiation Representative must participate in Regional decisions regarding radioactivity in drinking water. In extreme situations, ODW Washington assistance may be required

to establish an emergency water supply or to establish ad hoc emergency guidance for radioactivity in drinking water. The ODW will advise ORP of its efforts in establishing emergency guidance for radioactivity in drinking water.

3. Emergency Management and Assessment - The OD will, upon request, assign ORP staff to States or assist in performing administrative duties, answering inquiries, or conducting radiochemical analyses, dose assessments, or risk evaluations.

D. Field Response Organization

The EPA field organization to be placed in charge of the EPA response will depend on the resources that EPA commits to the scene of the radiological emergency. In any case, the OD or his designee directs the EPA response. If both a Radiological Assistance Team and a Regional Response Team respond, the OD will designate a FRM to direct the activities of both teams. The FRM will be in charge of all EPA field activities. Figure 3 shows the organization and reporting formats for responses involving Radiological Assistance Teams.

E. Multiple Federal Agency Response

Radiological emergencies with significant potential for environmental releases will need the response of multiple Federal agencies. Under these circumstances, FEMA will be in charge of all emergency response activities by Federal agencies. The DOE will coordinate all radiological monitoring



NOTE: THE NATIONAL CONTINGENCY PLAN (40 CFR 300) OUTLINES THE ORGANIZATION AND PROCEDURES TO BE FOLLOWED IF A CERCLA RESPONSE ACTION IS TAKEN

FIGURE 3. EPA RADIOLOGICAL EMERGENCY RESPONSE ORGANIZATION

and assessment activities for FEMA in accordance with the FRERP. Under this arrangement, EPA field monitoring assistance will be coordinated through DOE.

In multi-agency Federal response, coordination will be needed at the Washington offices of Federal agencies. The lead EPA Policy Officer is the AA for Air and Radiation. The OD for the Office of Radiation Programs or his designee coordinates EPA activities and serves as liaison to other Federal agencies in Washington. On scene, the designated FRM performs this function.

F. CERCLA Cleanup Actions

CERCLA cleanup actions are of two types: removal actions to address emergency-type situations and remedial actions to address long-term cleanup needs. In a removal action, EPA may take any appropriate action to abate, minimize, stabilize, mitigate, or eliminate the release or threat of release. Remedial actions include responses to releases that are consistent with permanent remedy and designed to prevent or minimize the release of hazardous substances or pollutants or contaminants so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment. Either of these response activities may be appropriate in a radiological emergency. These activities, when required, will be carried out by EPA in accordance with the applicable provisions of the National Contingency Plan.

VI. Plan Maintenance and Testing

Each EPA office shall provide its own funds to maintain a state of readiness and to respond to radiological emergencies. This includes the updating and testing of plans and procedures, training of response personnel, and maintaining and upgrading equipment. When a Regional team is deployed to provide onsite administrative support, the team will provide funds for procurement of emergency supplies and services; however, each responding organization will fund the salary and expenses of its personnel. All costs of CERCLA readiness and response will be funded under CERCLA.

The ORP will periodically (approximately once each year) conduct unannounced telephone drills to confirm readiness and competence of each organization to respond. Teams may be periodically deployed to the site of an exercise. All drills and exercises will be timed to correspond to selected exercises of emergency response plans conducted by States and industry.

The ORP will maintain a current copy of implementation procedures and contact lists for each EPA organization covered in this Plan. Each organization should promptly notify ORP of any changes in procedures or phone numbers of key individuals or organizations.

References

1. Federal Radiological Emergency Response Plan, Concurrency by All Twelve Federal Agencies and Publication as an Operational Plan, F.R. Vol. 50, No. 217, Nov. 8, 1985
2. President's Reorganization Plan Number 3, 42 USC 2021(h), 1970
3. Public Health Service Act, 42 USC 201 et seq. (1970)
4. The Safe Drinking Water Act, as Amended, November 1977. Serial No. 95-10. U.S. Government Printing Office, Washington, D.C.
5. The Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. 9601 et seq. (P.L. 96-510, December 11, 1980).
6. Hollister, Hal, Department of Energy, Letter to Dr. W. D. Rowe, EPA, January 18, 1978. Office of Radiation Programs, Environmental Protection Agency, Washington, D.C. 20460.
7. DeYoung, Richard C., Nuclear Regulatory Commission, Letter to Kathleen M. Bennett, July 28, 1982, Office of Air, Noise, and Radiation, Environmental Protection Agency, Washington, D.C. 20460. (Revised May 27, 1986)
8. Memorandum of Understanding Between the Federal Emergency Management Agency and the Environmental Protection Agency Concerning the Use of High Frequency Radio for Radiological Emergency Response. (Dated April 3, 1981). Office of Radiation Programs, Environmental Protection Agency, Washington, D.C. 20460.
9. The National Oil and Hazardous Substances Pollution Contingency Plan, dated November 20, 1985 (40 CFR Part 300).
10. U.S. Environmental Protection Agency. Manual of Protective Action Guides and Protective Actions for Nuclear Incidents. September 1975, Revised June 1980. Office of Radiation Programs, Environmental Protection Agency, Washington, D.C. 20460.

APPENDIX A
SUMMARY OF EPA MONITORING CAPABILITY
FOR RADIOLOGICAL EMERGENCIES

APPENDIX A

Summary of EPA Monitoring Capability for Radiological Emergencies

The EPA has three radiological facilities, each with a team organized and equipped for field and laboratory monitoring assistance during a radiological emergency. Two of these teams are within the Office of Radiation Programs (ORP), with one located at the Eastern Environmental Radiation Facility (EERF) in Montgomery, Alabama, and the other at the ORP/Las Vegas Facility (ORP/LV) in Las Vegas, Nevada. The third team is in the Office of Research and Development at the Environmental Monitoring Systems Laboratory (EMSL) in Las Vegas, Nevada.

Each laboratory has analytical capability to measure all beta-gamma emitting radionuclides anticipated to represent a potential public hazard during an environmental radiological emergency. Some of the beta-gamma analytical equipment from each laboratory can be moved into the field in a mobile laboratory or may be transferred to an established field laboratory. The EERF and ORP/LV have mobile laboratories and have the capability to analyze alpha emitters.

Each laboratory has a Radiological Assistance Team of from 10 to 25 members and field equipment for sampling and radiologically analyzing air, water, and food and for making beta and gamma radiation measurements.

Team response time will vary depending on the travel distance, whether the response is ordered during normal working hours, and the magnitude of the response. Time to respond to the site of the emergency could vary from several hours to one day depending on these variables.

Personnel monitoring equipment for team members is available at all laboratories.

Each team has some radio communication equipment suitable for short range communications at the monitoring sites. The ORP teams at EERF and Las Vegas have high-frequency (high range) radio communication between field sites and the laboratories using frequencies allocated to FEMA and DOE.

The EMSL has contract capabilities for aerial photography and provide quality assurance for laboratory analysis by all monitoring organizations.

The attached table further summarizes the emergency monitoring capability of each Radiological Assistance Team.

TABLE A-1

SUMMARY OF EPA RADIOLOGICAL EMERGENCY MONITORING CAPABILITY

ITEM	EERF Montgomery, Alabama	ORP/LV Las Vegas, Nevada	EMSL Las Vegas, Nevada
<u>Time Frames</u>			
Time to commercial airport	20 minutes	10 minutes	10 minutes
Time to military airport	20 minutes	30 minutes	30 minutes
Time needed to ready equipment and teams	2 hours during worktime 2 to 3 hours during off hours	2 hours for team and hand instrument kits 4-6 hours for readying full response	2 hours for team readiness 4 hours to load cargo containers more time needed for off hours
<u>Team Characteristics</u>			
	20 professional and technical for field and/or lab use 20 technical and non-technical for laboratory operation. Includes 1 certified HP.	10 professional and technical personnel, including 2 laboratory operators for radiochemistry. Also includes certified HP.	About 25 certified monitors which include about 10 technical professionals for field and lab operations.

TABLE A-1

SUMMARY OF EPA RADIOLOGICAL EMERGENCY MONITORING CAPABILITY (continued)

ITEM	EERF Montgomery, Alabama	ORP/LV Las Vegas, Nevada	EMSL Las Vegas, Nevada
<u>Transportation</u>	1 24' mobile lab (air transportable) 2 cargo vans	7 passenger van 1 road scanner (1 ton) 1 24' TRAVCO RV sample preparation van 1 3/4 ton pickup 1 35' self-contained counting facility with tractor (air transportable via C-141)	20 pickup trucks 1 truck for deep well sampling 1 van for whole body screening
<u>Communication</u>			
Portable computer terminals	3	2	
Mobile VHF radios	4	4 in vehicles, 5 portable	20 in pickup trucks (Nevada area only)
Walkie-talkies	13 portable mobile units	10	6 (Nevada area only)
Base Station	2	1	
Repeaters	1	1	
Monitor - receiver	1		
Portable telecopier	1	2	
HF Stations (fixed)	2	1	
<u>Meteorological</u>	2 portable met stations	2 portable met stations	
<u>Electrical Generation</u>	1 mounted in mobile lab 6 portable generators	2 units (2.5 kW) portable 1 (16 kW) on tractor 1 (6 kW) on tractor	20-1.5 kW propane generators

TABLE A-1

SUMMARY OF EPA RADIOLOGICAL EMERGENCY MONITORING CAPABILITY (continued)

ITEM	EERF Montgomery, Alabama	ORP/LV Las Vegas, Nevada	EMSL Las Vegas, Nevada
<u>Analytical Capability</u>			
GeLi detectors	3 lab and 2 field	3 field or lab	6 lab and 2 field
Multi channel analyzer	6 lab and 3 field	2 field	2 lab and 2 field
NaI detectors	5 (4x4) and 1 (4x5 well)	1 field	4 (4x4)
Liquid scintillation	3 lab and 1 field	1 field and 1 lab	5 lab
Noble gas analyzer	1 lab unit		2 lab
Alpha-beta counter	6 proportional counters	1 field and 1 lab	2 lab
Alpha spectrometer	16 lab and 1 field unit	1 lab (16 detectors)	2 lab
Portable swipe counter	2 lab and 2 field	6	none
Single channel analyzer	3 with scalars	2	none
Field lab	1 complete with facilities	1 complete with facilities	
A-4 Road scanner		1 with 4x9 NaI detector	
<u>Personnel Monitoring Equipment</u>			
TLD's	50	200	about 2000
Readers	1 lab and 1 portable	2 lab and 1 portable	2 lab and 1 portable
Self reading dosimeters	35	40	20
<u>Exposure Rate Equipment</u>			
Gamma rate recorders	none	4	50 (0 to 100 mR/hr)
PICs	8 (0 to 0.5 mR/hr)	7 (0-100 mR/hr)	

TABLE A-1

SUMMARY OF EPA RADIOLOGICAL EMERGENCY MONITORING CAPABILITY (continued)

ITEM		EERF Montgomery, Alabama	ORP/LV Las Vegas, Nevada	EMSL Las Vegas, Nevada
Hand held				
	low range	12	26	120
	low range	8	20	50
	high range	6	10	35
	alpha	16	10	22
	Fiddler probes	2	2	none
	Neutron detectors	4	1	none
<u>Air Sampling</u>				
A-5	particulate only	24	16	none
	particulate and iodine	24	18	30
	iodine species samplers	6		none
	gases	3 pumps and 15-20 tanks	2 pumps	6 pumps and 18 tanks
	tritium	4 pumps and plenty of collectors	none	3 or 4 molecular sieves
	alpha activity	several heads	none	none
	cascade impactor	2 field, high volume particle sizing collectors	4 high volume with PM-10 heads	none
	airborne sampling and tracking	none	none	none
<u>Water Sampling</u>				
	integrators	none	none	3 or 4
	proportional	none	none	none

TABLE A-1

SUMMARY OF EPA RADIOLOGICAL EMERGENCY MONITORING CAPABILITY (continued)

ITEM	EERF Montgomery, Alabama	ORP/LV Las Vegas, Nevada	EMSL Las Vegas, Nevada
<u>Liquid Sample Processing</u>		None	None
drying units	6		
ion exchange	50 or more		
wet chemistry	limited capability in field		
filter units	3		

APPENDIX B

STANDARD OPERATING PROCEDURES
FOR RADIOLOGICAL EMERGENCY RESPONSES
BY THE
EPA OFFICE OF AIR AND RADIATION
IN WASHINGTON

APPENDIX B
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I. Introduction

The U.S. Environmental Protection Agency Radiological Emergency Response Plan [1] identifies the responsibilities of specific EPA organizations for providing emergency assistance to State and local agencies responding to radiological emergencies. It indicates that such assistance may be under EPA legislative authorities or may be under the authorities of the Federal Radiological Emergency Response Plan (FRERP) [2]. These Standard Operating Procedures (SOPs) apply regardless of the response authority.

A. Purpose and Scope

These SOPs set forth the Office of Air and Radiation (OAR) Washington procedures for maintaining readiness to respond and for actually responding to a radiological emergency. The OAR responsibilities set forth in the EPA Plan [1] form the basis for these procedures.

B. Resources for Response

The resources at OAR in Washington for response to radiological emergencies consist of:

1. Management personnel for decisions regarding expenditure of funds and assignments of field and laboratory teams.
2. Technical personnel for assessment of radiological conditions and their potential consequences and for recommendations on appropriate actions.
3. An Emergency Operations Center (EOC) for communications, information compilation, and briefings. Maps and technical information on fixed nuclear facilities are maintained with the EOC.

In addition to Washington resources, OAR has access to and is responsible for authorizing deployment of monitoring teams with field monitoring equipment from Office of Radiation Programs (ORP) facilities at Montgomery, Alabama, and Las Vegas, Nevada, and an Office of Research and Development (ORD) Team from its laboratory in Las Vegas, Nevada. Laboratory analytical capabilities at these facilities and Regional Emergency Response Teams for logistic support are also available for emergency assignment. These response organizations each have their own response procedures in accordance with the EPA Plan [1].

C. Policy for Response

The States have the primary responsibility for responding to radiological emergencies. EPA field response, i.e., actual monitoring and assessment, will usually be conducted as assistance to a State and other Federal agency. Although most radiological emergencies will not require active EPA field response, EPA will be notified and kept informed of them.

The OAR response to a radiological emergency will be triggered by either notification of a radiological emergency or a request for response by a Federal or State agency. These notifications or requests for response will be channeled to a Radiological Response Coordinator (RRC) at ORP as designated in Figure B-1.

The Office Director (OD) or his designee determines the appropriate times and levels of the Agency response. The OD will implement the EPA response if requested by State authorities or another Federal agency. The EPA will respond without a request if conditions warrant.

II. Responsibilities and Procedures

The specified responsibilities and procedures are for planning purposes, but because of unpredictable conditions and influences, many of them are subject to judgment of the responder during the emergency. For these procedures, "must" indicates a mandatory action and "will" indicates an expected action subject to the judgment of the responder.

Most reported radiological emergencies will be of such low magnitude that no EPA response will be needed. Reports of radiological emergencies received by the Regions will be reported to the RRC who will decide whether they should be reported to management in Washington for consideration on EPA response. Requests for radiological assistance must always be reported to the OD. If the RRC cannot be reached immediately, the Regional Radiation Representative will use his own judgment regarding notification of the OD or other higher EPA officials.

Figure B-2 summarizes the response activities at Headquarters following notification of a radiological emergency or a request for radiological assistance. The following sections detail the responsibilities and provide procedures as needed to implement them.

A. Assistant Administrator for Air and Radiation (AA-OAR)

1. Responsibilities

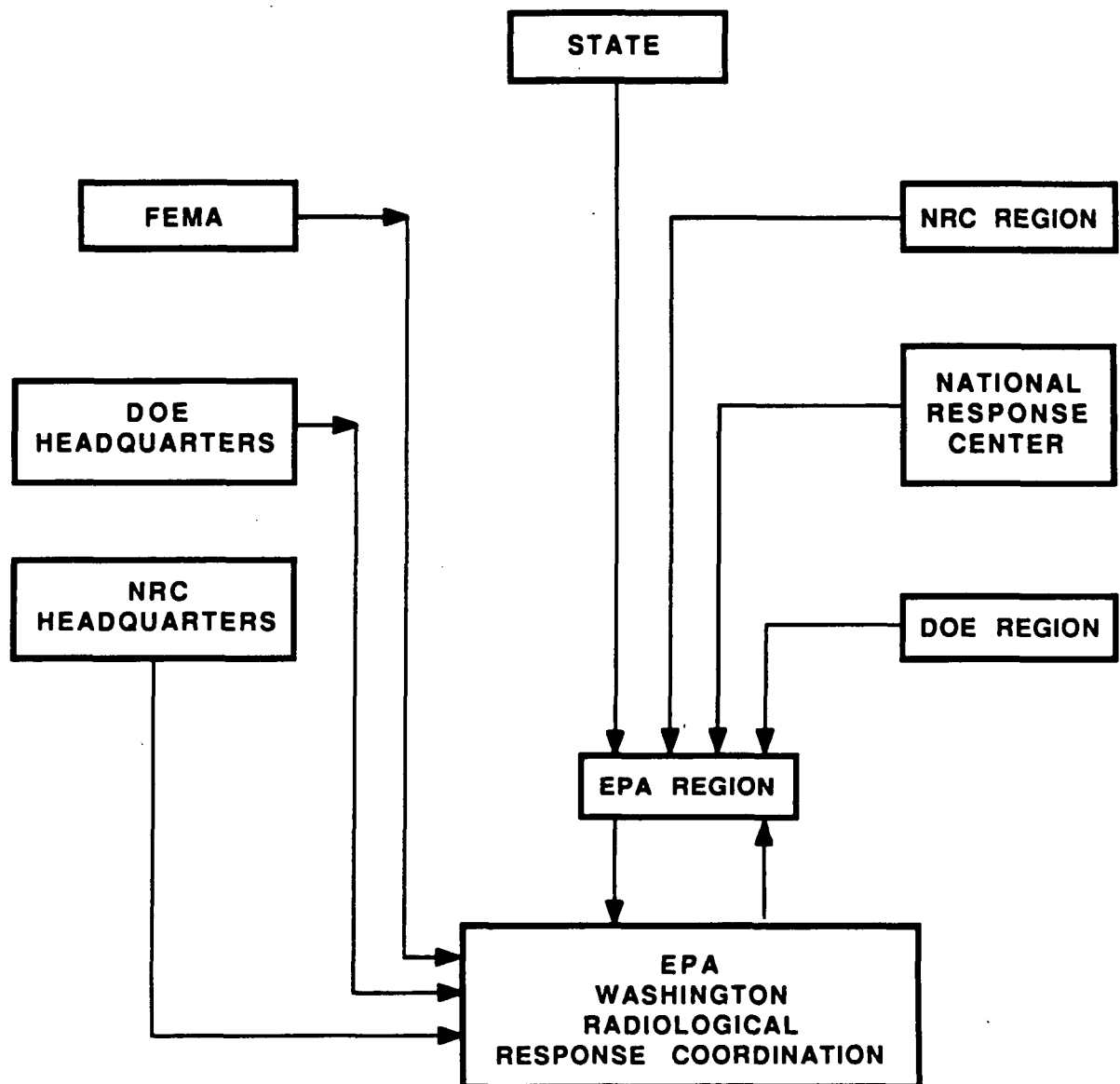
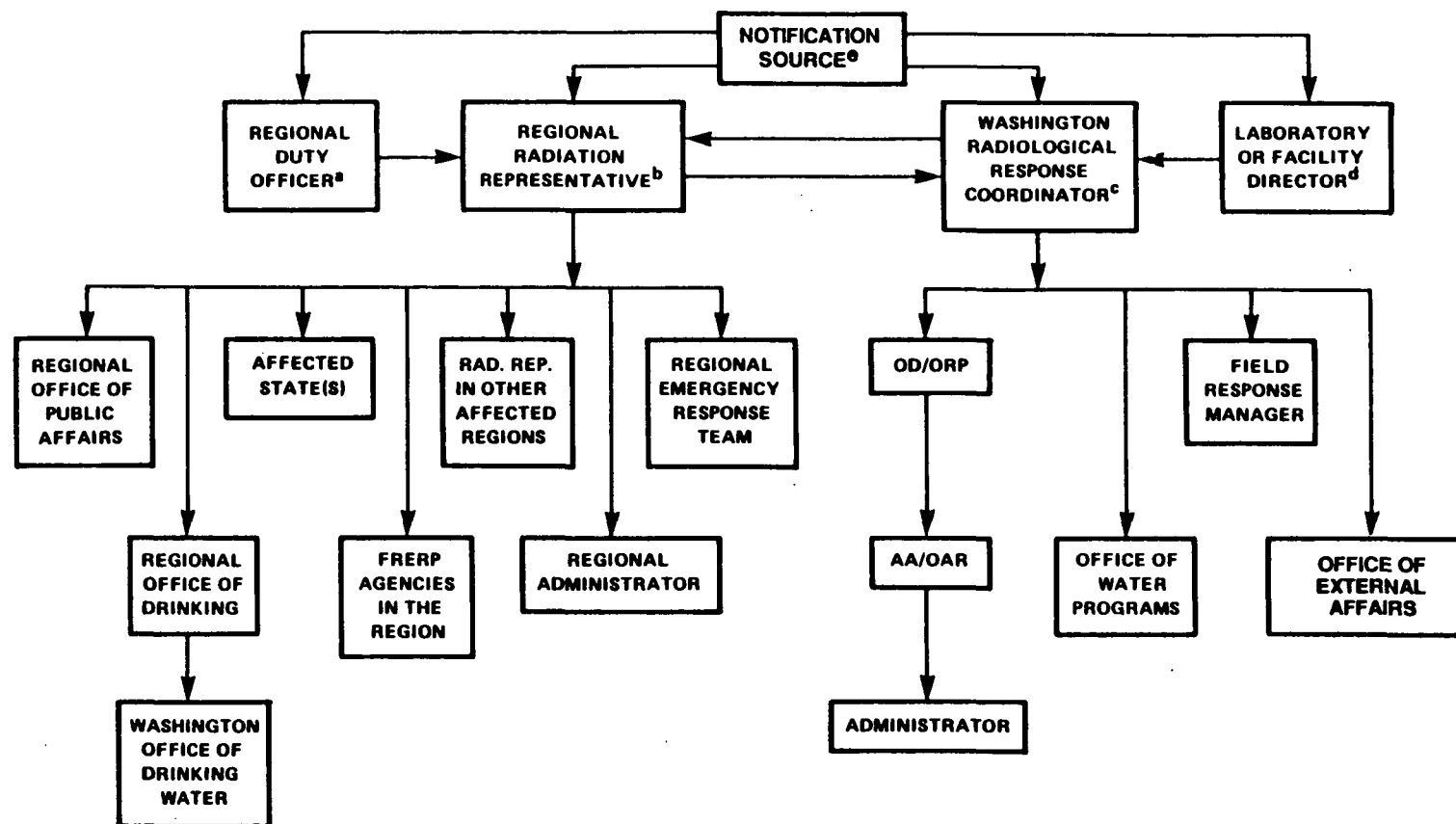


FIGURE B-1. PRINCIPAL SOURCES OF NOTIFICATION OF RADIOLOGICAL EMERGENCIES OR REQUESTS FOR ASSISTANCE



^a IF THE REGIONAL RADIATION REPRESENTATIVE OR HIS ALTERNATE CANNOT BE REACHED, THE DUTY OFFICER WILL CONTACT THE WASHINGTON RADIOLOGICAL RESPONSE COORDINATOR FOR ADVICE ON OTHER REGIONAL CONTACTS TO BE MADE.

^b IF A WASHINGTON RADIOLOGICAL RESPONSE COORDINATOR CANNOT BE REACHED, THE REGIONAL RADIATION REPRESENTATIVE WILL CONTACT THE OD OR OTHER KEY WASHINGTON RESPONSE PERSON, AS AVAILABLE.

^c IF THE REGIONAL RADIATION REPRESENTATIVE CANNOT BE REACHED, THE WASHINGTON RADIOLOGICAL RESPONSE COORDINATOR WILL MAKE REGIONAL NOTIFICATIONS AS APPROPRIATE.

^d IF A WASHINGTON RADIOLOGICAL RESPONSE COORDINATOR CANNOT BE REACHED, THE OD OR OTHER KEY WASHINGTON RESPONSE PERSONS WILL BE NOTIFIED, AS AVAILABLE.

^e RADIONUCLIDE RELEASES REPORTABLE UNDER CERCLA WILL FOLLOW NOTIFICATION PROCEDURES AS SET FORTH IN 40 CFR PARTS 300 AND 302.

FIGURE B-2. EPA PLAN FOR NOTIFICATIONS OF RADIOLOGICAL EMERGENCIES

functions: The AA-OAR is responsible for the following

- a. Authorizing budget to support these procedures.
- b. Participating in telephone drills.
- c. Representing EPA before other Federal agencies, Congress, and at the White House.
- d. Resolving any intra-agency problems on funding or priority.

2. Procedures (none required)

B. Director of the Office of Radiation Programs

1. Responsibilities

- a. Budgeting for emergency preparedness activities, equipment, and supplies.
- b. Assuring availability of space for emergency equipment and an EOC.
- c. Participating in drills.
- d. Designating a RRC and two or more Assistant RRC's.
- e. Supporting EPA participation in the FRERP [2].
- f. Determining the appropriate level of EPA response and the source of that response.
- g. Assigning field and/or laboratory response.
- h. Notifying the AA-OAR of the emergency and our response.
- i. Preparing Headquarters press releases and conducting briefings in cooperation with FEMA or the State.
- j. Providing liaison with other responding Federal agencies.
- k. Transmitting EPA response recommendations to State and Federal officials.

2. Procedures

a. Emergency Operations Center

The EOC will consist of a conference-room-type arrangement that may be used for other ad hoc purposes when an EOC is not needed. Equipment in the room will consist of:

- (1) Radio and television receiver.
- (2) Video and voice recorder.
- (3) Speaker telephone with conference capability.
- (4) Chalkboard or equivalent.
- (5) Wall space for local, State, Regional, and national maps.
- (6) Projection screen.
- (7) Conference table and chairs.
- (8) Supply cabinet with lock.

Additional equipment available to the EOC must include:

- (1) Reference file of EPA Radiological Emergency Response Plan and associated procedures.
- (2) Reference file of key information on major nuclear facilities and their environments.
- (3) Reference file of State maps, a national map, and maps of local areas around major nuclear facilities.

b. Drills

The RRC will conduct periodic telephone drills to check the ability of EPA to respond effectively. The OD of the Office of Radiation Programs will participate in these drills as appropriate.

c. FRERP

The OD will designate an EPA representative to participate in FRERP planning activities and to maintain EPA response procedures and capabilities in accordance with FRERP agreements.

d. Response Decisions

The OD decides and initiates the appropriate response when a radiological emergency occurs. Response will normally be initiated as a result of a request from a State or Federal agency. A response will be implemented without a request if, in the judgment of the OD, any of the following conditions exist:

- (1) Conditions at the scene warrant an immediate EPA evaluation of environmental conditions;
- (2) A release has occurred or appears likely to occur that would produce offsite doses exceeding the Protective Action Guides; or
- (3) Public anxiety is such that EPA's response is warranted.

Field response must not be implemented in a State without the knowledge of State officials and the EPA Region.

The response may range from advice to State officials to sending monitoring teams in a multi-agency Federal effort. Recommendations of the RRC and others, as appropriate, will be considered in deciding the appropriate response rate and level. The response will depend on (1) the resources that EPA can commit to a radiological emergency, (2) the specific request, (3) characteristics of the emergency, and (4) the resources being provided by others.

e. Assignment of Field Response

The OD will determine the appropriate radiological assistance team based on

- (1) proximity to the accident; (2) response needs versus capability of each team; and
- (3) availability of personnel and equipment.

The OD will appoint a FRM who will be either an ORP Washington staff person or a member of the Radiological Assistance Team. If the FRM indicates that he needs logistical assistance in the field, the OD will arrange for a Regional Response Team. Names and phone numbers of Regional contacts are listed in Section III.

f. Notifications

If field response or emergency laboratory services are to be implemented by EPA, the OD must notify the AA for the Office of Air and Radiation. Section III provides names and phone numbers of those contacts.

C. Radiological Response Coordinator

The RRC is a Washington staff member designated by the OD, with responsibilities and functions as listed below.

1. Responsibilities

Receiving notification of radiological emergencies or requests for assistance and for directing the OAR response effort until that responsibility shifts to the field through designation of a FRM. They are responsible for the following functions:

- a. Maintaining OAR response procedures, equipment, and supplies in a state of readiness to respond to a radiological emergency.
- b. Evaluating through drills and plan tests the readiness of EPA to respond to a radiological emergency.
- c. Conducting training and briefing sessions for Radiological Assistance Teams and other

QAR response persons concerning the EPA Response Plan and procedures.

- d. Maintaining technical and map files in support of the EOC.
- e. Receiving emergency notification, assessing the need for response, and making response recommendations to the OD. Implementing recommendations if directed by the OD.
- f. Notifying appropriate persons.
- g. Directing operations at the EOC.
- h. Maintaining cognizance of accident conditions and responses.
- i. Documenting the accident and the EPA response.
- j. Functioning as FRM if so directed by the OD.

2. Procedures

a. Updates

Update radiological procedures annually or as needed to incorporate revised plans or changes in personnel and phone numbers.

b. Inventory

Evaluate annually the need for equipment, supplies, and services to support the monitoring team and the EOC and submit procurement requests as needed.

c. Drills and Plan Tests

Participate routinely in telephone drills and tests of radiological emergency plans initiated by States. Annually, expand a telephone drill associated with the test of a State plan to include all of the responding components of the EPA Plan [1], except to include only the Region(s) in which the initiating test is involved.

The drills should be fashioned to determine whether:

- (1) Response persons or alternates can be contacted by telephone.
- (2) Response persons or alternates know their functions.
- (3) Response persons or alternates can carry out their functions. Consider funding, authorizations, and knowledge.
- (4) Response would be timely.
- (5) Needed equipment and supplies are available and functional.

Following the drill, prepare a report and indicate the adequate responses and those areas of response needing improvement. Distribute copies of the report to all participants in the drill.

d. File Maintenance

Maintain files of local and State maps showing the location of each major nuclear facility.

Maintain an up-to-date copy of the EPA Plan and associated implementation procedures and review any changes to assure compatibility with other parts of the Plan or procedures.

e. Training

Based on changes to response plans, procedures, or equipment, and on evaluations of responses to telephone drills, conduct training and/or briefing sessions for OAR Washington staff as needed.

f. Assessments and Recommendations for Response

The RRC will receive radiological emergency notifications or requests for assistance. The following is a guide for obtaining initial information:

- (1) Who is calling? (name, affiliation, area code, phone number, time, and date)
- (2) Was the call made to request assistance or to deliver information?
- (3)
 - (a) What happened?
 - (b) Location?
 - (c) When?
- (4)
 - (a) What radioactive materials are involved?
 - (b) How much?
 - (c) What happened to them?
- (5) What is being done now and who is doing it?
- (6) Who is in charge at the scene?
- (7) Is the situation under control?
- (8) What is the extent of danger to people or to the environment?
- (9)
 - (a) Who else has been notified?
 - (b) By whom?
 - (c) When?
- (10) Does the emergency involve military aircraft or military equipment?
- (11) Is a news release planned?
- (12) What is the caller going to do next? (i.e., Who else is he going to call?)
- (13) What assistance is requested of EPA?

Most notifications will be for emergencies of such low consequence that no EPA response will be required other than to prepare a

brief report acknowledging receipt of the notification and a statement as to why field response was not considered necessary. As a general rule, field response will not be necessary if there is no request for response from a State or a Federal agency and if conditions stated in Section II.B.2.d for response without a request are not met.

If field response is recommended to the OD, the recommended level of response will be a judgment of the RRC based on (1) the request, (2) the accident conditions, and (3) the availability of EPA field response teams and equipment in the time frame needed. The teams and equipment available for response and their normal lead time are included in Appendix A to the EPA Plan [1].

g. Notification Procedures

The RRC, at the first opportunity, will notify the OD of any requests for radiological assistance or any reported radiological emergency having the potential for offsite releases or for which a press release is planned.

If the RRC recommends field response by EPA, he will notify the affected EPA organizations to go on standby alert. If field response is ordered, the RRC will also notify the Regional Radiation Representative and the Washington Office of Public Affairs. During the process of accident response, the RRC will keep abreast of field activities and accident conditions through contacts with the NRC EOC, the Federal Radiological Monitoring and Assessment Center (FRMAC), the EPA Regional Radiation Representative, and the EPA FRM.

h. Emergency Operations Center (EOC)

The EOC will be operated, if needed, by the RRC. This involves posting and maintaining maps of the response area, manning the telephone, and maintaining a log of communications and associated information.

i. Documentation

The RRC will document requests for assistance and notifications of radiological emergencies. Copies of these reports will be distributed to participating organizations in EPA, and a copy will be maintained in the ORP Analysis and Support Division file.

Reports for which no response is recommended should include the source and time of the notification or request, the pertinent facts about the emergency, and the reason for not recommending response.

Reports of response activities should include a summary of EPA responses and the findings. Details of monitoring results or data analyses should be contained in reports of organizations performing those activities.

D. Field Response Manager (FRM)

The FRM is designated by the OD.

1. Responsibilities

The basic responsibilities of the FRM are to:

- a. Direct and coordinate all the activities of EPA personnel in the field in accordance with the EPA Radiological Emergency Response Plan and the FRERP.
- b. Represent EPA in all phases of the on-scene response. If the FRM is anyone other than the OD of ORP and policy decisions or commitment of additional resources are involved, such decisions will be made only with the prior approval of the OD. Policy decisions would include such things as recommendations on protective actions and cleanup standards, etc. OD approval is not necessary for routine operations of the Radiological Assistance Team. For example, the authority to assign, deploy, and return EPA staff and equipment committed to the

response is delegated to the FRM for the duration of the emergency, in whatever manner he deems appropriate consistent with Agency and Federal plans specified above.

- c. Designate a Radiological Assistance Team captain.
- d. Maintain awareness of the emergency conditions and responses and any changes in them.
- e. Represent EPA at the scene in relationships with the State and other Federal agencies.
- f. If the Federal Emergency Management Agency (FEMA) is not present, the FRM will arrange for media briefings on EPA activities only. If FEMA is present, FEMA will provide briefings on all Federal activities. The FRM will be required to provide input to the FEMA briefings on EPA activities.
- g. Provide frequent (not less than daily) status reports to the Washington RRC and to the Regional Radiation Representative. These reports should be directed at defining the consequences of the emergency for purposes of determining appropriate protective action recommendations.

2. Procedures

None required.

E. Technical Staff

The OD may assign ORP staff to assist State agencies in organizing and interpreting monitoring data. Such staff will be under the direction of the State agency and will follow their procedures.

III. Key Contacts for Radiological Emergencies

	<u>Office (FTS)</u>	<u>Office (Comm.)</u>	<u>Home</u>
<u>EPA HEADQUARTERS</u>			
Harry W. Calley*	475-9626	(202) 475-9626	(301) 926-4279
Joe E. Logsdon*	475-9620	(202) 475-9620	(301) 762-3192
David E. Janes*	475-9626	(202) 475-9626	(301) 251-6682
Sheldon Meyers, ORP/OD	475-9600	(202) 475-9600	(301) 986-8621
Lee M. Thomas	382-4700	(202) 382-4700	(202) 456-1414
J. Craig Potter, AA/A&R	382-7400	(202) 382-7400	(703) 768-7294
Vaun Newill, AA/R&D	382-7676	(202) 382-7676	(703) 848-2568
Erich W. Bretthauer, EMSL/LV	545-2525	(702) 798-2525	(702) 457-4964
David Cohen, OPA	382-5589	(202) 382-5589	(202) 965-3144
Edward Ohanian, ODW	382-7571	(202) 382-7571	(301) 963-7794
Richard Cothorn, ODW	382-7584	(202) 382-7584	(703) 524-7640
Dona de Leon, OCL	382-5660	(202) 382-5660	(703) 451-8744
Linda Strachan, OIL	382-4454	(202) 382-4454	(202) 965-5491
<u>EPA RESPONSE TEAMS</u>			
<u>EERF, Montgomery, AL</u>			
Charles R. Porter	534-7615	(205) 272-3402	(205) 272-4714
**Charles Phillips	534-7615	(205) 272-3402	(205) 277-8213
<u>ORP, Las Vegas</u>			
Wayne Bliss	545-2476	(702) 798-2476	(702) 736-4182
**William E. Moore	545-2464	(702) 798-2464	(702) 451-7190
<u>ORD, Las Vegas</u>			
Charles F. Costa	545-2305	(702) 798-2305	(702) 435-8928
<u>REGIONS</u>			
Byron Keene, Region 1	835-3234	(617) 565-3234	(617) 729-8356
**Paul Bedrosian	223-1915	(617) 223-1915	(617) 475-2668
24-hour Emergency Number	223-7265	(617) 223-7265	
Paul Giardina, Region 2	264-4418	(212) 264-4418	(212) 741-0137
24-hour Emergency Number		(201) 548-8730	(516) 324-6694
			(Weekends)
William Belanger, Region 3	597-4084	(215) 597-4084	(215) 565-0899
**Lewis Felleisen	597-8326	(215) 597-8326	(215) 687-0763
24-hour Emergency Number	597-9898	(215) 597-9898	

* Designated EPA Radiological Response Coordinator

** Alternate

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III. Key Contacts for Radiological Emergencies (Continued)

	<u>Office (FTS)</u>	<u>Office (Comm.)</u>	<u>Home</u>
H. Richard Payne, Region 4	257-3776	(404) 347-3776	(404) 447-9480
**Charles Wakamo	257-7259	(404) 347-7259	(404) 373-6403
24-hour Emergency Number	257-4062	(404) 347-4062	
Larry Jensen, Region 5	886-6175	(312) 886-6175	(312) 791-0064
**Les Johnson	886-3299	(312) 886-3299	(312) 560-0700
24-hour Emergency Number		(312) 353-2318	(800) 424-8802
Henry D. May, Region 6	729-5319	(214) 767-5319	(214) 239-4614
24-hour Emergency Number	729-2666	(214) 767-2666	
William L. Brinck, Region 7	757-2893	(913) 236-2893	(816) 455-0205
**Frank Tyler	757-2893	(913) 236-2893	(816) 236-2946
24-hour Emergency Number	236-3778	(913) 236-3778	
Milton Lammering, Region 8	564-1648	(303) 293-1648	(303) 979-7346
24-hour Emergency Number		(303) 293-1788	
David L. Duncan, Region 9	454-8378	(415) 974-8378	(415) 820-5713
24-hour Emergency Number	454-8131	(415) 974-8131	
Jerry Leitch, Region 10	399-7660	(206) 442-7660	(206) 776-9523
24-hour Emergency Number	399-1263	(206) 442-1263	

OPERATIONS CENTERS

NRC	(202) 951-0550
	(301) 492-8893
DOE	(202) 586-8100
FEMA	(202) 646-2400

(Revised 10/86)

IV. References

1. U.S. Environmental Protection Agency Radiological Emergency Response Plan. Environmental Protection Agency, Office of Radiation Programs, Washington, D.C. 20460, Jan. 30, 1981.
2. Federal Radiological Emergency Response Plan, Concurrence by All Twelve Federal Agencies and Publication as an Operational Plan, F.R. Vol. 50, No. 217, Nov. 8, 1985