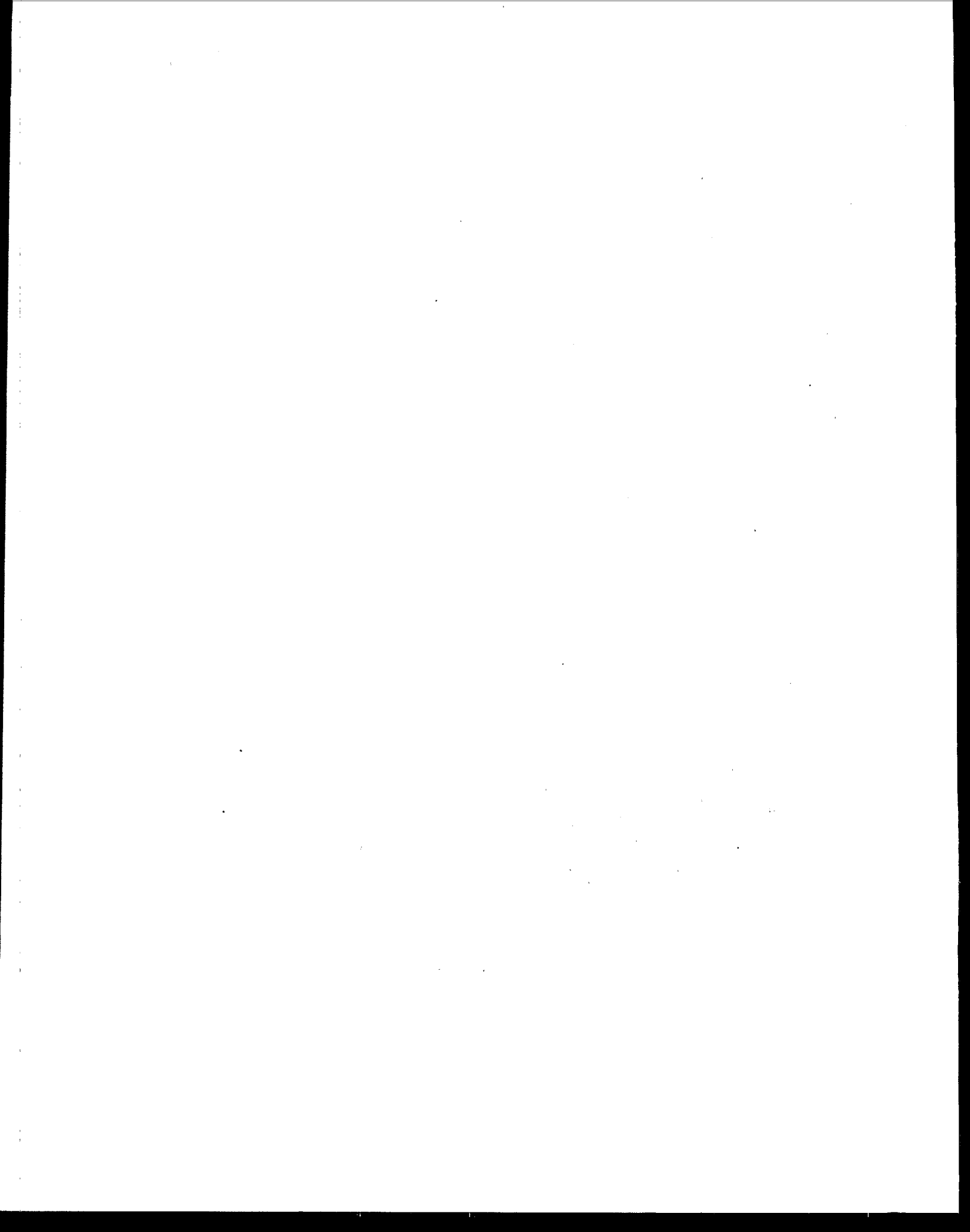




Guidelines For Catastrophic Emergency Situations Involving Asbestos



**Guidelines for Catastrophic Emergency Situations
Involving Asbestos**

**U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Stationary Source Compliance Division
Washington, DC 20460**

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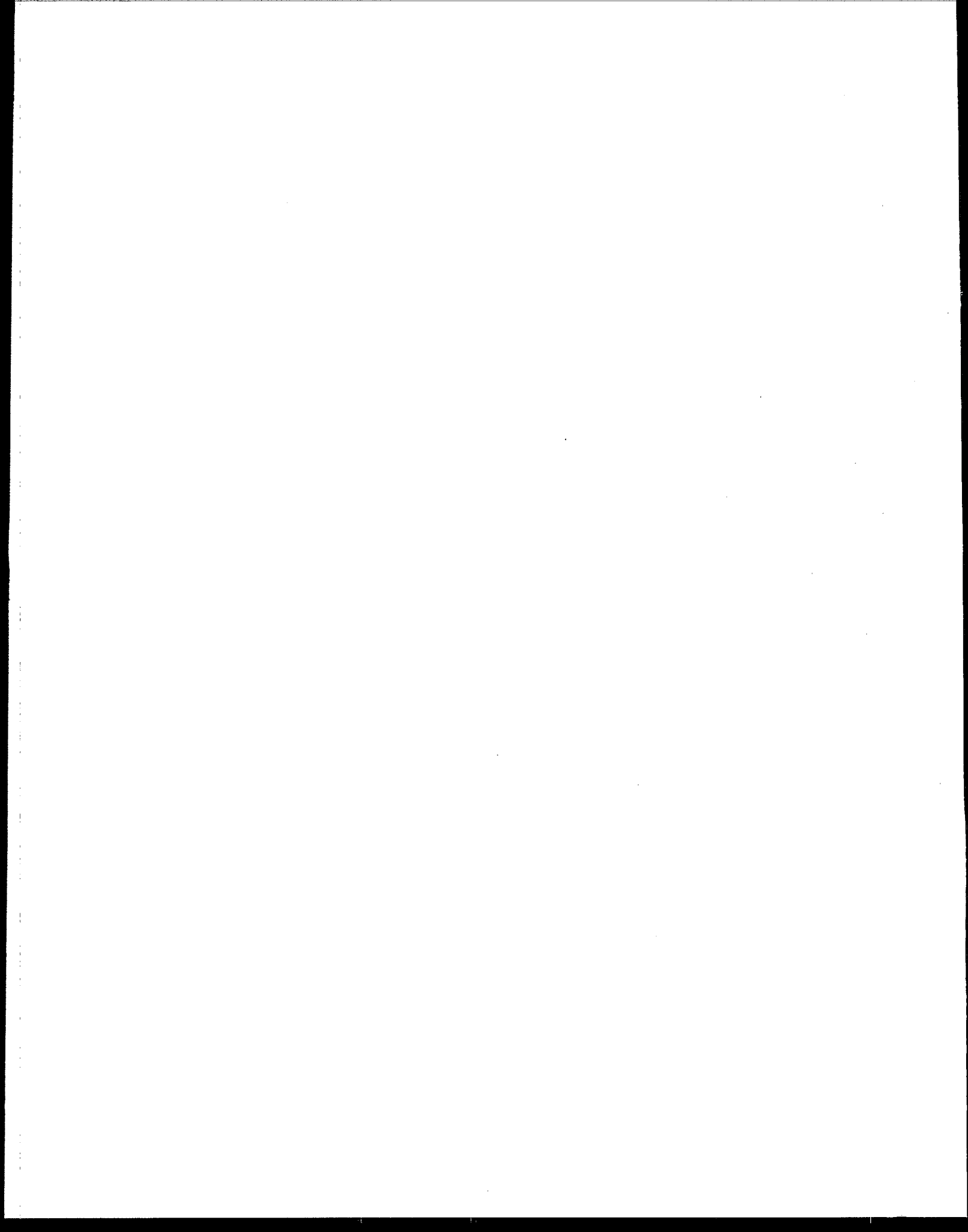


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GUIDELINES FOR CATASTROPHIC EMERGENCY SITUATIONS INVOLVING ASBESTOS

I. INTRODUCTION

A. Background

In 1989, the California earthquake and Hurricane Hugo resulted in the destruction of or damage to numerous buildings, many of which contained asbestos. Badly damaged or destroyed structures had to be demolished quickly to reduce the threat of injuries from the damaged structures and to aid in restoring the affected areas. In the same year, a steam pipe explosion in Gramercy Park, NY spread asbestos over a wide area with the potential to expose a large number of people to asbestos.

These recent natural and man-made disasters and others that have damaged or destroyed structures containing asbestos have served to focus attention on the need to consider asbestos along with other emergency response activities. Understandably, the emphasis in an emergency or disaster situation is on efforts to mitigate the immediate threats to public health and safety and to return the stricken area to its former condition as quickly as possible. Also, the organizations that typically respond to emergency or disaster situations, such as fire departments and emergency management agencies, do not deal with asbestos as part of their normal duties. As a result, there may be a tendency to overlook potential public health threats like asbestos, which do not pose an immediate, life-threatening hazard.

B. Purpose

These guidelines are intended to assist Regional, state, and local agencies in managing potential asbestos hazards resulting from a catastrophic accident or disaster. The guidelines may be used as a reference for advanced planning or, once the emergency presents

itself, to help ensure that, to the extent feasible and compatible with other emergency measures, all appropriate steps are taken to safely handle and dispose of all asbestos, while avoiding unnecessary exposures to asbestos. The guidelines provide information that may be helpful to EPA Regional offices and delegated NESHAP agencies that must respond to emergencies involving asbestos.

The guidelines review the experiences of EPA Regional and state enforcement agencies in dealing with asbestos during recent emergencies. Information is included on statutes and regulations that may be applicable in emergency situations, including the emergency provisions of the asbestos NESHAP. Lines of communication within EPA and between EPA and emergency management agencies are discussed. A list of contacts responsible at the state level for emergency and disaster activities is provided, as is a protocol for coordinating asbestos NESHAP activities with local fire and building departments. Information is provided to help identify potential sources of asbestos releases, and factors are identified that should be considered in planning for the cleanup and disposal of asbestos.

II. RECENT EMERGENCIES

Three emergencies occurred in 1989 that focused EPA's attention on the handling of asbestos. One was a technological failure--a Consolidated Edison steam pipe explosion at Gramercy Park in N.Y. City; the other two were natural phenomena--Hurricane Hugo and the San Francisco earthquake. These emergencies are reviewed here for lessons that may help plan for and deal with similar problems in the future.

A. Gramercy Park

On August 19, 1989, an underground Consolidated Edison steam pipe exploded in Gramercy Park in New York City, discharging 400°F steam, asbestos and mud into the air and onto and into nearby buildings. The explosion killed three people, injured 24, and forced the evacuation of 200 residents. Two-hundred pounds of asbestos from pipe insulation were released with the explosion. The cleanup and decontamination of the contaminated structures required several months. The asbestos-contaminated waste was collected and transported to the Meadowfill Landfill, Clarksburg, West Virginia for disposal. The cleanup was supervised by the New York City Department of Environmental Protection, with oversight by EPA. This cleanup effort was not regulated under the asbestos NESHAP, because it was neither a demolition nor a renovation.

B. Hurricane Hugo

In September 1989, Hurricane Hugo made a landfall on the South Carolina coast at Charleston destroying many buildings, damaging many others, and creating vast amounts of debris, some of it contaminated by asbestos. The City of Charleston was declared a disaster area and the South Carolina Department of Health and Environmental Control (SCDHEC) was asked to assist with the cleanup of debris. To deal with a problem of such great magnitude, SCDHEC adopted the following procedures:

- Buildings destroyed by Hugo were considered to be demolished by natural causes and notification requirements were waived. Removal contractors were not required for the cleanup; however, wetting and proper disposal of asbestos-containing material were required.
- Remaining, uncontaminated building debris was disposed of in accordance with solid waste regulations.
- Open burning was permitted in the disaster area to clear it of trees and wood products without using landfills.
- Partially destroyed buildings could be demolished without notifications after asbestos materials were removed by abatement contractors.

A problem that emerged in South Carolina was that of unscrupulous contractors preying on unsuspecting home owners by telling them that they were subject to \$25,000 a day in fines unless their roofs were repaired by licensed asbestos contractors, when, in fact, SCDHEC regulations did not apply to private residences unless the homeowner selected a licensed asbestos contractor. A one-page Guidelines for Homeowners with Damaged Asbestos Roofing was issued by SCDHEC to outline requirements for homeowners.

Emergency preparedness representatives, presumably unaware of the presence of asbestos, complicated asbestos NESHAP enforcement by instructing people to go ahead and knock down damaged buildings.

C. San Francisco Earthquake

On October 17, 1989, an earthquake registering 7.1 on the Richter scale shook San Francisco. According to the Region 9 asbestos NESHAP coordinator, many demolition contractors thought the NESHAP regulations did not apply following the earthquake and many buildings were demolished without regard to asbestos. At a minimum, the NESHAP coordinator feels that wetting should be employed and the debris disposed of properly. Based on the Region 9 experience, the NESHAP coordinator suggested the following to prepare for emergencies:

- Create an emergency phone list
- Coordinate with nearby Regions
- Tie into existing emergency communication plans
- Set up an emergency protocol for buildings and fire departments
- Set up emergency protocols with delegated agencies
- Prepare and pre-position press releases regarding NESHAP and asbestos risks
- Contact the Federal Emergency Management Agency (FEMA) regarding asbestos risks and NESHAP
- Contact state emergency planners
- Set up an informal network of volunteer inspectors.

The NESHAP coordinator also noted that there was a shortage of inspectors available to determine whether asbestos was present in the damaged buildings and that obtaining additional help was a problem.

III. OTHER APPLICABLE STATUTES

In addition to the asbestos NESHAP, there are other Federal statutes that provide planning information and/or cleanup authority applicable to catastrophic emergencies involving asbestos. They include the Asbestos Hazard Emergency Response Act (AHERA); the Emergency Planning and Community Right-to-Know Act (EPCRA); the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA); and the Occupational Safety and Health Act (OSHA).

A. AHERA

Regulations promulgated under the authority of AHERA require the preparation of management plans for asbestos in school buildings (40 CFR 763.93). Plans must be prepared by an accredited management planner and include:

- The name and address of each school building and whether it contains friable asbestos.
- A blueprint, diagram or written description that identifies the location and approximate square or linear feet of asbestos.

Thus, a data base on asbestos in school buildings already exists in the administrative offices of school systems in many communities. This data base is potentially useful either for emergency response planning or for identifying asbestos-containing structures following the occurrence of a catastrophic emergency.

B. EPCRA

Since asbestos is not listed as an extremely hazardous substance, emergency plans developed under EPCRA do not address asbestos. However, the Act also requires routine toxic chemical release reporting and friable asbestos is a reportable emission (40 CFR 372.65). Information collected in this way is entered into a computer file known as the Toxic Release Inventory System (TRIS) which can be accessed to identify asbestos sources in SIC

codes 20 through 39. TRIS would seem to be a useful database for either emergency response planning or identifying facilities where friable asbestos might be expected following an emergency.

C. CERCLA

Hazardous air pollutants regulated under the Clean Air Act (CAA) are also regulated as hazardous substances under CERCLA. CERCLA provides the authority and funds for emergency government response to hazardous substance releases into the environment, including the ambient air and allows the federal government to recover the costs of responding to and cleaning up hazardous substance releases.

Emissions of reportable quantities (RQs) of listed substances must be reported to the National Response Center in Washington. The RQ for asbestos is 1 lb. (0.454 kg) of pure asbestos (40 CFR 302.4).

As noted earlier, the Gramercy Park response was conducted under New York City law and was not regulated under the asbestos NESHAP. A federal response could have been carried out under CERCLA, however, if that had been needed.

D. OSHA

The OSHA rules on asbestos (29 CFR 1910.1001 and 29 CFR 1926) are applicable in catastrophic emergencies. OSHA rules specify a permissible exposure limit for asbestos, respiratory protection, work practices, and engineering controls for worker protection. There are no exemptions for emergencies in the Act.

IV. ASBESTOS NESHAP APPLICABILITY

The applicability of the asbestos NESHAP (40 CFR Part 61, Subpart M) in emergency situations is discussed here. Whenever asbestos will be damaged or disturbed as part of a demolition or renovation and a threshold amount (160 square feet, or 260 linear feet, or 35 cubic feet) is exceeded, or whenever a building is demolished, the asbestos NESHAP applies. There are no provisions that stay the applicability of the NESHAP as a result of disaster, although there are emergency-related provisions. The relevant sections of the NESHAP include Definitions (61.141), Standard for Demolition and Renovation (61.145), Standard for Waste Disposal for Manufacturing, Fabricating, Demolition, Renovations, and Spraying Operations (61.150), and Active Disposal Sites (61.154).

A. Definitions (61.141)

The only definition that is specifically applicable to emergencies is "emergency renovation operation." The NESHAP defines the term as follows:

"Emergency renovation operation" means a renovation operation that was not planned but results from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard, is necessary to protect equipment from damage, or is necessary to avoid imposing an unreasonable financial burden. This term includes operations necessitated by nonroutine failures of equipment.

The repair or replacement of an apartment building's asbestos-insulated boiler that fails during the winter may be considered an emergency renovation, since to delay repair or replacement could expose residents of the apartment building to dangerously cold temperatures. Or, the repair of asbestos-insulated equipment that suddenly fails at a power plant could result in prolonged power outages and affect many essential services if not attended to immediately. These are examples of asbestos removal operations that might be considered emergency renovations. It is usually the responsibility of the building owner or

operator to demonstrate that the renovation was an emergency. The implications for an emergency renovation in the context of the NESHAP requirements are discussed below.

B. Demolition and Renovation Provisions (61.145)

The demolition and renovation provisions of the NESHAP contain specific requirements that may apply in certain emergency situations and include the provisions for emergency renovation operations and government-ordered demolitions.

1. Emergency Renovation Operations

In order for a renovation to be considered an emergency renovation operation and be subject to the NESHAP, it must satisfy the definitional requirements of an emergency renovation operation and it must also meet the applicability requirements of Section 61.145 (a)(4)(iv). Section 61.145 (a)(4)(iv) specifies that for an emergency renovation to be subject to the notification and control provisions of the NESHAP, the combined amount of regulated asbestos-containing material (RACM) that is to be stripped or removed as a result of the emergency, must equal or exceed 260 linear feet of asbestos on pipes or 160 square feet on other facility components, or 35 cubic feet if the asbestos material is already off the facility component and the length or area could not be determined previously.

Notifications for emergency renovation operations that are subject to the NESHAP must be given as early as possible before the renovation begins, but no later than the next working day following the day the emergency renovation begins (61.145 (b)(3)(iii)). As for all notices, they must be in writing and may be delivered by U.S. Postal Service, commercial delivery service, or hand delivery. The NESHAP does not permit notification by telephone or telephone facsimile (fax) machines. The information contained in the notice for an emergency renovation is the same as that required for all notices, except that the following additional information is also required:

- The date and the hour that the emergency occurred,
- A description of the sudden, unexpected event, and
- An explanation of how the event caused an unsafe condition, or would cause equipment damage or an unreasonable financial burden (61.145 (b)(4)(xv)).

Emergency renovation operations are subject to the emission control procedures of section 61.145 (c). These procedures include removal of asbestos from the facility before any activity that would disturb or break up the asbestos, wetting the asbestos during stripping, keeping the asbestos that has been removed or stripped wet until collected or contained for disposal, and having an individual on-site who is trained in the provisions of the NESHAP. There are no exemptions from emission control procedures for emergency renovation operations.

2. Government-Ordered Demolitions

The NESHAP exempts certain types of demolitions from some of the notification and emission control requirements. The applicability provisions in section 61.145 (a)(3) state that a facility that is being demolished as a result of a government order that is issued because the facility is structurally unsound and in danger of imminent collapse, is exempt from the following:

- Notification requirement to provide 10 working days advance notice. Notice for such demolitions must be provided as early as possible before demolition and not later than the following working day.
- Notification requirement to include the scheduled starting and completion dates of asbestos removal.

All other notification requirements apply. In addition, the notice for government-ordered demolitions must include the name, title, and authority of the State or local government

representative who ordered the demolition, the date the order was issued, and the date on which the demolition is ordered to begin.

As specified in the applicability provisions of 61.145 (a)(3), government-ordered demolitions are exempt from all but the following emission control procedures:

- The requirement to strip or place in leak-tight wrapping all asbestos covered or coated facility components that were removed in sections or units (61.145 (c)(4)).
- The requirements for large facility components to be removed where the asbestos will not be disturbed (61.145 (c)(5)).
- The requirements for RACM that has been stripped or removed (61.145 (c)(6)).
- The requirements during periods of freezing temperatures (61.145 (c)(7)).
- The requirement for a person trained in the provisions of the NESHAP to be on site (61.145 (c)(8)).
- The requirement that all government-ordered demolitions adequately wet the portion of the facility that contains RACM during the wrecking operation (61.145 (c)(9)).

C. Waste Disposal (61.150)

For facilities that have been demolished in response to government orders, Section 61.150 (a)(3) requires that the resulting asbestos-containing waste be adequately wetted at all times after demolition and kept wet during the handling and loading for transport to a disposal site. Such waste may be transported and disposed of in bulk. All the rest of the waste disposal provisions in section 61.150 apply, including the requirements to dispose of the waste as soon as practical at an appropriate site, to properly mark vehicles used to transport the waste, to maintain waste shipment records, to provide a copy of the waste shipment record to the disposal site, and to report any waste for which a copy of the waste shipment record signed by the disposal site owner or operator is not received from the disposal site within the prescribed amount of time.

D. Active Waste Disposal Sites (61.154)

There are no special provisions or exemptions from the NESHAP for any asbestos-containing waste material that is subject to the asbestos NESHAP.

Asbestos-containing waste from emergency renovations, government-ordered demolitions, or from any source covered by the NESHAP must be disposed of in compliance with all the provisions of 61.154.

V. PRE-EMERGENCY PLANNING

In advance of a catastrophic emergency, Regional, state and local NESHAP coordinators should take certain steps to ensure that potential asbestos hazards can be adequately managed and asbestos exposures minimized. The following sections identify activities that, if performed prior to an emergency, should help to ensure an adequate response in the event of a catastrophic emergency.

A. Emergency Response Organization

Each Regional office should prepare a flow chart for their Region (similar to Figure 1) with the names and telephone numbers of contact persons and backups. Copies of the completed flow chart should be provided to neighboring Regions.

An organizational flow chart showing in parallel the levels of government engaged in enforcing the asbestos NESHAP and responding to catastrophic emergencies is given in Figure 1. Normal channels for the flow of information, requests for assistance, etc. are shown as solid lines connecting the government agencies, while channels that need to be established in order to plan for and respond to asbestos encountered in forced demolitions resulting from emergencies are shown as dashed lines. Example emergency telephone lists for Regional, state, and local asbestos NESHAP coordinators are presented in Figures 2, 3, and 4. The lists are presented for illustrative purposes only; they are not intended to be comprehensive. The telephone lists needed by a NESHAP coordinator will depend on several factors including, for example, the extent to which NESHAP authority has been delegated.

B. Coordination With Local Emergency and Related Organizations

The responsible NESHAP coordinators should establish contact with responsible emergency agencies and inform them of the NESHAP requirements.

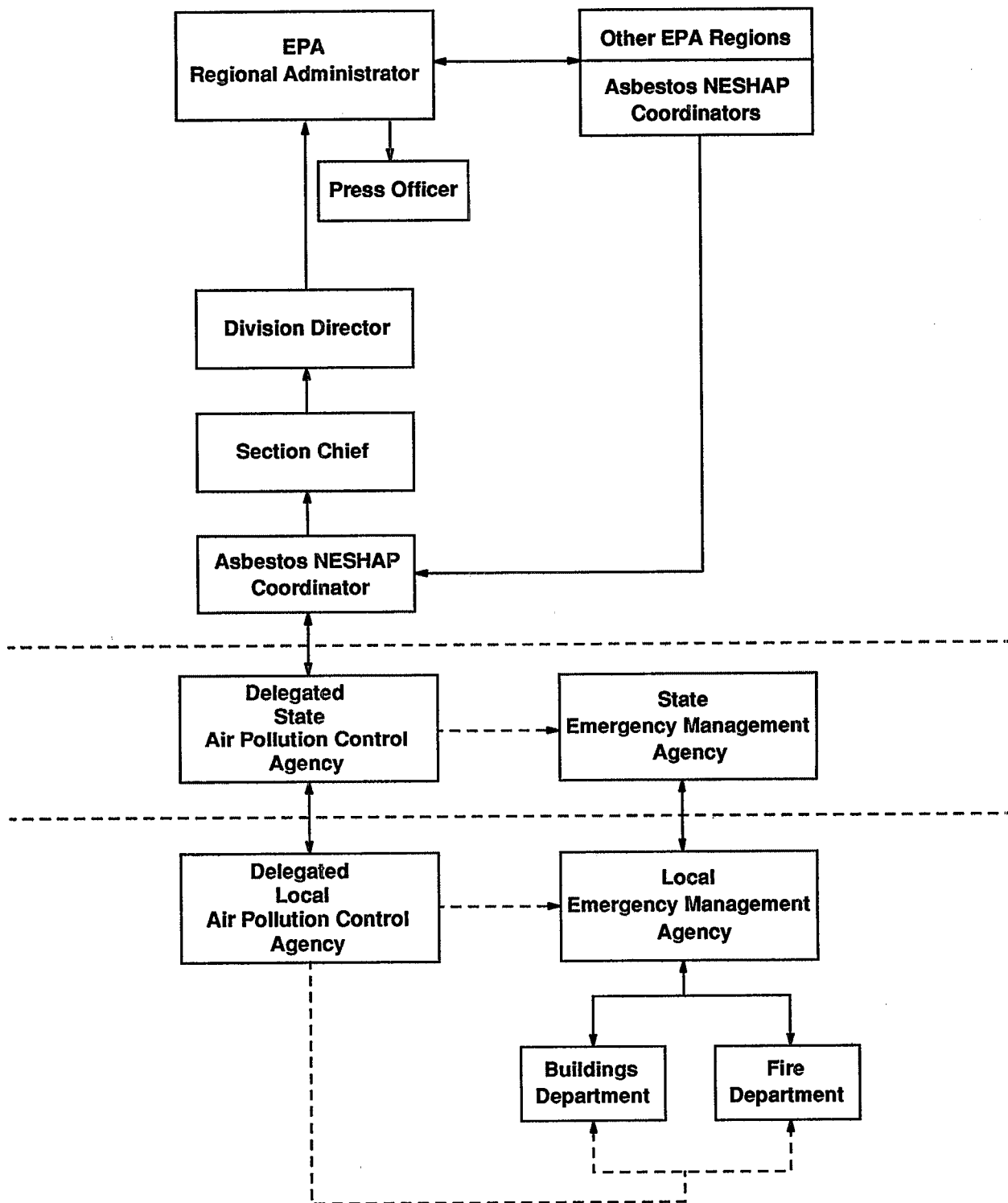


Figure 1. Emergency response structure.

Contact	Telephone number
Other EPA Regional asbestos NESHAP coordinators	_____ _____
State asbestos NESHAP coordinators	_____ _____ _____

Figure 2. Example emergency telephone list for Regional asbestos NESHAP coordinator.

Contact	Telephone number
Regional asbestos NESHAP coordinator	_____
Asbestos NESHAP coordinators of adjacent states	_____ _____ _____
Local asbestos NESHAP coordinators	_____ _____ _____
Local air pollution control agencies	_____ _____ _____
State emergency management agency	_____
Landfill operators	_____ _____ _____
Laboratories	_____ _____ _____
Emergency response organizations	_____ _____ _____

Figure 3. Example emergency telephone list for state asbestos NESHAP coordinator.

Contact	Telephone number
State asbestos NESHAP coordinator	_____
Other local asbestos NESHAP coordinators	_____ _____ _____
Local emergency management agency	_____
Building department	_____
Fire department	_____
Landfill operators	_____ _____
Laboratories	_____ _____
Emergency response organization	_____

Figure 4. Example emergency telephone list for local asbestos NESHAP coordinator.

1. The Problem

In the aftermath of catastrophic events that result in significant structural damage to buildings, fire and buildings departments personnel typically are called upon to identify those structures that are in imminent danger of collapse. Recent experience with Hurricane Hugo and the San Francisco earthquake indicates that these personnel are often not conscious of the presence of asbestos and the hazard it represents. Nor are they aware that the NESHAP prescribes minimum work practices that must be followed even in an ordered demolition resulting from a catastrophic emergency. The first part of the problem then is one of a lack of awareness of the applicable asbestos regulations on the parts of some local government personnel. It can be remedied by a conscious effort to inform them of the NESHAP. The second part of the problem is that local emergency personnel, even if they are aware of asbestos and the NESHAP, may not be qualified to determine whether asbestos is present in a structure. Accordingly, an asbestos NESHAP inspector needs to be on the scene.

2. Strategy

As a courtesy, Regional asbestos NESHAP coordinators should contact the FEMA Regional Directors to explain EPA's interest in asbestos, the NESHAP requirements applicable to catastrophes, and EPA's plan to inform state and local emergency preparedness agencies of the NESHAP requirements. Copies of the regulation and A Guide to the Asbestos NESHAP, As Revised November 1990 with the relevant portions highlighted should be made available to FEMA. Names, addresses, and telephone numbers of FEMA Regional Directors are given in Appendix B.

Then the Regional asbestos NESHAP coordinators should recommend that the state air pollution control agencies in their regions contact their counterpart state emergency preparedness agencies to inform them of the NESHAP requirements. Again, copies of the

regulation and Guide should be provided. The state emergency preparedness agency should be asked to inform local emergency preparedness agencies that they will be contacted by their local air pollution control agency, as appropriate. The state air pollution control agency should then contact local air pollution control agencies and recommend that they contact the appropriate local emergency preparedness agencies. Names, addresses, and telephone numbers of state officials responsible for disaster operations are given in Appendix C.

By working through the local emergency preparedness agency, the local air pollution control agency can reach fire and building department personnel and share the message with them. The asbestos NESHAP coordinator should discuss with heads of fire and building departments their procedures for identifying buildings that need to be demolished and develop procedures whereby the NESHAP agency can be kept apprised of the location of buildings that are ordered demolished during emergency situations.

Many state and local emergency preparedness agencies utilize emergency operations centers to coordinate emergency response and relief activities in times of disaster. These operations centers frequently have communications systems designed to remain intact during disasters when normal systems, such as telephone lines, may be inoperative. In their contacts with state and local emergency preparedness agencies, NESHAP coordinators should discuss the possibility of having access to these systems if their normal communication links are disrupted in an emergency.

At the local level, plans can be prepared that provide for making asbestos NESHAP inspectors available to assist in evaluating asbestos problems in buildings following disasters. State and Regional NESHAP enforcement agencies should plan to respond by providing additional inspectors if requested and public information services. A checklist is provided in Appendix A summarizing suggested lines of communications along with other planning aids.

C. Mapping Asbestos Locations

State and local NESHAP coordinators should, to the extent feasible, determine the presence and location of asbestos-containing facilities before a catastrophic emergency occurs.

During an emergency, knowing which structures in the community contain asbestos and which do not could save time, reduce the risk associated with entering unsafe structures, and avoid the unnecessary cost of treating the building as though it contained asbestos when in fact it did not. Even at the facility level, knowing what equipment, for example, is insulated with asbestos could be useful in responding to an accident involving that equipment. Sources of location information are discussed below and are separated into those for asbestos milling, manufacturing, and fabricating; and demolition and renovation.

1. Asbestos Milling, Manufacturing, and Fabricating

The most obvious source of information on the location of asbestos mills, manufacturers, and fabricators is EPA's own compliance inspection records for these sources. Where enforcement of the NESHAP has been delegated, the responsible state or local government should have in its files the names and locations of these sources.

Additional information on asbestos sources may be available from agencies responsible for enforcement of occupational safety and health regulations. OSHA enforcement agencies will have information on many of the same sources covered by asbestos air pollution regulations. Typically, however, OSHA rules cover a much wider range of sources than those covered by the asbestos NESHAP. Many of these additional sources may not be of as great a concern because they frequently include sources that handle small amounts of asbestos or asbestos-containing products, such as automobile brake servicing shops and the field fabrication of asbestos products for construction.

Another source of information on asbestos milling, manufacturing, and fabricating facilities is the Toxic Chemical Release Inventory System (TRIS), a computer system designed by EPA to track the annual emission of toxic chemicals into the environment. TRIS compiles toxic emissions information submitted by facilities, including asbestos processing facilities, regulated under the Superfund Amendments and Reauthorization Act (SARA). TRIS can be accessed by the name of the pollutant and provide a list of the names and locations of sources in the data base. Facilities are required to report under TRIS if they release above a certain amount of the toxic pollutant. If the estimated emissions fall below a certain level, a facility is not required to submit information and will not be picked up by TRIS. TRIS can be accessed by EPA employees and other Federal, state, and local government officials on EPA's National Computer Center (NCC) in Research Triangle Park, North Carolina. The user must have an NCC user ID and authorization to access the system. To obtain a user ID, contact TRIS User Support at (202) 475-9419.

2. Asbestos in Facilities

Facility refers to any institutional, commercial, public, industrial, or residential structure, installation, or building (excluding residential buildings having four or fewer dwelling units). There are several potential sources of information that may be used to help locate asbestos-containing structures within a community.

a. Surveys of Buildings for Asbestos

The results of an EPA survey of buildings for the presence of asbestos may be helpful in identifying asbestos-containing facilities.^{1,2} In addition to estimating the number of buildings that contained asbestos, the survey also looked at the presence of asbestos in relation to various building characteristics, including height and age of the building. The findings of the EPA survey represent the situation on a national basis. The presence of

asbestos in buildings may vary from these national averages from one part of the country to another for various reasons, such as climate and age of cities.

Overall, the survey found that 20 percent of all buildings contained asbestos-containing friable material, either in the form of sprayed- or trowelled-on asbestos, asbestos ceiling tile, asbestos pipe and boiler insulation, or a combination of two or all three types. Pipe and boiler insulation was more common (found in 16 percent of the buildings) than sprayed- or trowelled-on asbestos (found in 5 percent of the buildings). Asbestos ceiling tile was rarely found. Pipe and boiler insulation was generally limited to machine rooms, while sprayed- or trowelled-on material was usually found exposed to areas of public use rather than behind drop ceilings or otherwise concealed.

Relative to the age of buildings, the study found that in buildings built prior to 1960, most of the asbestos was found as boiler and pipe insulation; after 1960, most of the friable asbestos was sprayed or trowelled onto ceilings and steel beams, a practice which continued until 1973 when most sprayed-on uses of asbestos were banned by EPA. Decorative sprayed-on asbestos was banned in 1978.

The study also found that taller buildings are more likely to have asbestos-containing friable material. Of the 19 high-rise buildings (8 or more floors) surveyed, all contained asbestos pipe and boiler wrap and 41 percent contained sprayed- or trowelled-on asbestos material.

As stated above, the EPA survey results represent national averages of asbestos-containing buildings. The results may be significantly different in different parts of the country. For example, in a survey of buildings in New York City for the presence of asbestos, the results varied significantly from the national averages presented in the EPA study.³ Overall, 68 percent of buildings in New York City have some form of asbestos. The

New York City survey showed that tall office buildings most frequently contained asbestos and also contained the greatest amount of asbestos. Table 1 presents a summary of the survey results regarding the percent of buildings with asbestos and the amount of asbestos per building.

b. Schools

Information on asbestos in schools is available at the local level as well as at the state level. Under AHERA, schools are required to inspect their facilities for the presence of asbestos, document the location of the asbestos and keep this information on site as well as forward a copy to the responsible state agency. In some states, the state department of education will retain copies of this information, while in other states, the state agency responsible for asbestos programs is the designated state agency responsible under AHERA. Each school must also keep a copy of the inspection results in its files. The Regional Asbestos Coordinators for each region can provide information on state contacts for information on asbestos in schools. A list of the addresses and telephone numbers for the Regional Asbestos Coordinators is given in Appendix D.

c. Local Building Permit Agencies

In most communities, a building permit is required prior to any new construction. As part of the application for a building permit, the building plans are reviewed by the permitting agency to determine that the structure is designed and will be constructed in accordance with applicable building codes. Building plans usually specify that a particular code or standard will be met which, for example, relates to a certain fire rating. The specifications which accompany the building plans state what materials are to be used to meet the code specified in the plans. If asbestos was recommended for a certain application in order to meet the relevant codes, the specifications would contain that information. A copy

Table 1. New York City Survey Results -- Percentage
of Buildings Containing Asbestos and Average
Amount of Asbestos Per Building

Building Category	Percent of Buildings with Asbestos	Average Amount of Asbestos per Building with Asbestos (sq. ft.)
Tall office buildings	84	64,341
Educational structures	83	3,233
Hotels	78	3,802
Walk-up apartments	74	457
Hospitals	72	6,929
Elevator apartments	72	4,832
Churches	71	919
One and two family	68	167
Outdoor recreation	64	969
Short office buildings	64	2,109
Stores	62	363
Factories	61	1,759
Theaters	57	4,438
Govt./transportation	43	8,282
Warehouses/lofts	40	2,393
Garages/gas stations	17	419

Source: City of New York Department of Environmental
Protection. Final Report. Assessment of the Public's
Risk of Exposure to In-Place Asbestos. New York, New
York. December 1, 1988.

of approved building plans is usually kept by building permit agencies. Where a copy of the specifications is also kept by the permitting agency, it could be used to help identify buildings that contain asbestos.

d. Notifications

A number of large industrial facilities, such as petroleum refineries and chemical plants, contain large amounts of asbestos in the form of thermal insulation. Many of these facilities remove asbestos as part of nonscheduled renovation operations in addition to scheduled renovations and demolitions. Nonscheduled renovations are typically maintenance-related or repair-related renovations for which the exact date of occurrence cannot be predicted, but based on previous experience, are likely to occur. Because the dates of these renovations cannot be predicted, facilities where these operations occur often submit annual, semiannual, or quarterly notices to EPA or its delegated authority describing how these nonscheduled renovations will be handled to control asbestos emissions. Notices of nonscheduled renovations and scheduled renovations and demolitions received from large industrial facilities identify where asbestos is to be found and in what amounts.

D. Cleanup and Disposal

The responsible NESHAP coordinator should identify critical activities and resources and develop contingency plans for augmenting or replacing them in an emergency.

Operations to clean up and dispose of asbestos during emergencies may be hampered by unusual conditions resulting from the disaster. Often during disaster-related emergencies, the normal provider/supplier relationships are disrupted so that business as usual is difficult, if not impossible. Identified below are some circumstances that could complicate cleanup and disposal operations and some suggested approaches to planning for such contingencies. The

list of considerations is not intended to be complete since any number of complications could arise.

1. Water Supply

Water supplies may be disrupted during disasters making it difficult to wet asbestos during the demolition or abatement of asbestos-containing structures. This is likely to be more of a problem where relatively large quantities of water are needed, for example, when a building is being demolished upon a government order and the asbestos cannot be removed prior to demolition. Large quantities of water will be needed to keep the debris wet during demolition and during the loading for transport to a disposal site. However, during an emergency, adequate water may not be readily available. If possible, such demolitions should be delayed until the water supply can be restored or until an alternate supply can be obtained.

2. Chemical Contamination

Where accidents or emergencies involve industrial facilities, there is the possibility that any asbestos that is involved may be contaminated with process chemicals. In some instances, the chemicals may be hazardous. Where asbestos is contaminated with toxic chemicals, other regulations may also apply to their handling and disposal. For hazardous chemicals regulated under RCRA, for example, the disposal site requirements are more stringent than those for asbestos. In some instances, it may not be advisable to apply water to the contaminated asbestos waste. Usually the emergency response teams that deal with accidents involving hazardous chemicals will know the best procedures for handling those chemicals. Coordination with emergency response teams in these situations should help ensure that the hazards associated with asbestos are adequately addressed.

3. Waste Disposal

Where a large number of asbestos-contaminated facilities are damaged and need to be demolished without prior removal of the asbestos, a large amount of asbestos-contaminated waste will be generated. The existing capacity of the landfills that are available to accept asbestos waste may be inadequate. Another problem may arise if the landfill is not accessible as a result of the disaster. Under these conditions, alternative disposal sites would be needed. In some cases, it may be possible to arrange with another local landfill to accept the waste, or it may be necessary to transport the waste to more distant sites. Alternative sites should be identified in advance, if possible. To the extent possible, uncontaminated demolition waste should be segregated from the asbestos-contaminated debris to reduce the volume that has to be disposed of in accordance with the NESHAP. NESHAP coordinators should establish emergency contacts for landfills and agree on emergency procedures in advance for accepting and handling asbestos-containing waste.

4. Backup Personnel

It may be necessary to have additional enforcement personnel available to oversee asbestos cleanup and disposal operations, since decisions may have to be made at the same time at numerous locations regarding appropriate actions to take. Cleanup operations that go on around the clock may require inspections after normal working hours to make sure work is being done properly. Additional NESHAP inspectors may be available from other NESHAP delegated local agencies, the state, the Region, or from other states.

5. Laboratory Capabilities

Large numbers of bulk samples may require quick analysis before NESHAP enforcement personnel can make decisions on appropriate actions to take. Arrangements should be made for additional laboratory support to handle a potentially large number of

samples. In addition, consideration should be given to arranging for overnight analysis of bulk samples. This would allow for the results from the analysis of samples collected one day to be available to enforcement personnel at the beginning of the next day.

6. Emergency Exemptions

Although the NESHAP contains provisions for emergency renovations and ordered demolitions, the nature of the emergency may require some flexibility in enforcing the NESHAP. For example, the NESHAP requires a written notice beforehand, but in no case later than the following working day, for ordered demolitions. It is conceivable that, under catastrophic emergency conditions, normal mail delivery services and transportation systems would be so disrupted as to make it impossible to deliver a written notice in the time period specified by the NESHAP. The responsible NESHAP coordinator should be aware that situations may arise that make strict application of the NESHAP difficult, if not impossible. While it is not possible to know in advance all the scenarios that may require flexibility in applying the NESHAP, it would be advisable to discuss predictable problems with agency management as well as with other NESHAP enforcement agencies at the appropriate Regional, state, or local level.

VI. EMERGENCY PERIOD

When a catastrophic emergency occurs, the responsible NESHAP coordinator should implement those plans developed prior to the emergency. Listed below are some of the more significant actions to be taken. Specific actions to be taken will, of course, depend on the nature of the emergency.

- Contact those agencies listed in the emergency response structure (see Figure 1).
- Assess the need to issue press release(s).
- Through contact with building and fire departments, determine magnitude of the problem, i.e., number of damaged structures.
- Activate previously established procedures with fire and building departments to be kept informed of buildings that are ordered to be demolished.
- Assess need for additional resources, e.g., inspectors, laboratory capabilities, etc. and take steps, as necessary, to augment existing resources.
- Provide guidance to delegated agencies, as appropriate.
- Assess need to allow selected exemptions to the NESHAP requirements.
- Make periodic contacts with agencies listed in the emergency response structure, as needed.

VII. CONCLUSIONS

Efforts to restore the damaged areas to their predisaster condition often involve removing or repairing damaged structures. There may be a natural tendency at this stage to overlook certain hazards, such as asbestos, that are not immediately life threatening. However, such hazards are serious and may manifest themselves many years from the time of exposure and should be taken into consideration. Given the health hazards associated with asbestos exposure, it is reasonable that adequate measures be taken during emergency situations to minimize exposure to asbestos from the demolition or renovation of buildings. The applicability of the asbestos NESHAP is not altered as the result of a disaster. With a few exceptions for emergency renovations and government-ordered demolitions, all of the NESHAP requirements are applicable in emergency situations.

One of the key factors in effectively dealing with asbestos in emergency situations is communications. Communications are needed between the asbestos NESHAP coordinator and the other emergency response agencies and related agencies. The first step is for the Regional asbestos NESHAP coordinator to discuss this matter with Regional FEMA personnel and assure them of EPA's desire to cooperate with FEMA and other emergency response agencies. The next step is for the Regional EPA offices to inform their respective state NESHAP enforcement agencies of the need to coordinate efforts. The delegated state NESHAP agency should then contact the state emergency preparedness office to discuss the need to consider asbestos in emergency situations. Finally, the same communications should occur at the local level.

This guidance document is intended to assist asbestos NESHAP coordinators in dealing with asbestos during catastrophic emergency situations. It provides suggestions for coordinating with other local and state emergency-related agencies, information on applicable

statutes and regulations, possible sources of information to help locate asbestos in a community, and special considerations relevant to clean up and disposal. This document will be most useful for advanced planning for emergency situations, although it will still find use when a disaster strikes.

REFERENCES

1. U.S. Environmental Protection Agency. Asbestos in Buildings: A National Survey of Asbestos-Containing Friable Materials. EPA 560/5-84-006. Washington, DC. June 1984. 260 p.
2. U.S. Environmental Protection Agency. Additional Analysis of EPA's 1984 Asbestos Survey Data. EPA 560/5-88-010. Washington, DC. September 1988. 87 p.
3. New York City Department of Environmental Protection. Assessment of the Public's Risk of Exposure to In-place Asbestos. New York, NY. December 1, 1988.

APPENDIX A

**ASBESTOS NESHAP CHECKLIST FOR
CATASTROPHIC EMERGENCY SITUATIONS**

Appendix A

ASBESTOS NESHAP CHECKLIST FOR CATASTROPHIC EMERGENCY SITUATIONS

1. Regional Coordination Activities

Regional FEMA
Other regional NESHAP coordinators
Delegated state NESHAP agencies

2. State Coordination Activities

State emergency preparedness agencies
Delegated local NESHAP agencies

3. Local Coordination Activities

Local emergency preparedness agencies
Local building departments
Local fire departments

4. Link with Emergency Communication System

5. Emergency Telephone List

6. Alternate Water Supplies

7. Coordination with Emergency Response Agency for Hazardous Chemical Contamination

8. Alternate Waste Disposal Sites

9. Additional Asbestos Inspectors

10. Laboratory Support

11. Press Releases

APPENDIX B

FEMA REGIONAL DIRECTORS

Appendix B
FEMA REGIONAL DIRECTORS

Region I

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Region II

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Federal Emergency Management Agency
26 Federal Plaza, Room 1338
New York, New York 10278

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Region III

Mr. Paul Giordano
Regional Director
Federal Emergency Management Agency
Liberty Square Building (Second Floor)
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Philadelphia, Pennsylvania 19106

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Region IV

Mr. Major P. May
Regional Director
Federal Emergency Management Agency
1371 Peachtree Street, N.E., Suite 700
Atlanta, Georgia 30309

FTS: 230-4200; Commercial: (404) 853-4200; FAX: 230-4230

Region V

Mr. Arlyn F. Brower
Regional Director
Federal Emergency Management Agency
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Source: Directory of Governors, State Officials and Adjutants General Responsible for Disaster Operations and Emergency Planning, FEMA-9. Washington, D.C.: Federal Emergency Management Agency, July 1990.

APPENDIX C

STATE OFFICIAL RESPONSIBLE FOR DISASTER OPERATIONS

Appendix C

STATE OFFICIAL RESPONSIBLE FOR DISASTER OPERATIONS

<u>STATE</u>	<u>STATE EMERGENCY DIRECTOR</u>	<u>RESPONSIBLE SENIOR OFFICIAL</u>
ALABAMA	Mr. William O. Brock Director, Alabama Emergency Management Agency 520 South Court Street Montgomery, Alabama 36130 (205) 834-1375	same
ALASKA	Mr. Ervin P. Martin Director, Division of Emergency Services, Dept. of Military and Veterans Affairs 3501 E. Bogard Road Wasilla, Alaska 99687-2689 (907) 376-2337	Maj. Gen. John W. Schaeffer The Adjutant General Dept. of Military Veterans Affairs 1800 E. Dimond Boulevard Suite 3-450 Anchorage, Alaska 99515-2097 (907) 249-1565
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ARIZONA	Mr. William D. Lockwood Director, Arizona Division of Emergency Services National Guard Building 5636 East McDowell Road Phoenix, Arizona 85008 (602) 244-0504	Maj. Gen. Donald L. Owens The Adjutant General National Guard Building 5636 East McDowell Road Phoenix, Arizona 85008 (602) 273-9710

ARKANSAS	<p>Mr. James Lee Witt Director, Office of Emergency Services P.O. Box 758 Conway, Arkansas 72032</p> <p>(501) 329-5601, Ext. 201 (501) 374-1201 (Little Rock)</p>	Same
CALIFORNIA	<p>Mr. Donald R. Irwin Director, Office of Emergency Services, State of California 2800 Meadowview Road Sacramento, California 95832-1499</p> <p>(916) 427-4201</p>	Same
COLORADO	<p>Mr. Richard E. Hatten Director, Disaster Emergency Services EOC, Camp George West Golden, Colorado 80401</p> <p>(303) 273-1624</p>	<p>Mr. David J. Thomas Executive Director Colorado Department of Public Safety 700 Kipling Street Suite 3000 Lakewood, Colorado 80215-5865</p> <p>(303) 239-4398</p>
CONNECTICUT	<p>Mr. Frank Mancusco State Director, Office of Emergency Management 360 Broad Street Hartford, Connecticut 06105</p> <p>(203) 566-3180/4338 FAX (203) 247-0664</p>	Same
DELAWARE	<p>Mr. James W. Hoffman Director, Division of Emergency Planning and Operations P.O. Box 527 Delaware City, Delaware 19706</p> <p>(302) 834-4531</p>	<p>Mr. Patrick W. Murray Secretary of Public Safety Department of Public Safety Highway Administration Building Dover, Delaware 19901 (302) 736-4321</p>

DISTRICT OF COLUMBIA	Mr. Joseph P. Yeldell Director, Office of Emergency Preparedness 2000 14th Street, NW, Eighth FL. Washington, DC 20009 (202) 727-6161	Same
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GUAM	Mr. Jose T. Terlaje Director, Civil Defense/Guam Emergency Services Office Territory of Guam P.O. Box 2877 Agana, Guam 96910 011-671-477-9841	Same
HAWAII	Mr. Roy C. Price, Sr. Vice Director of Civil Defense Department of Defense 3949 Diamond Head Road Honolulu, Hawaii 96816 (808) 734-2161	*Maj. Gen. Alexis T. Lum The Adjutant General of the National Guard and Director of Civil Defense Department of Defense 3949 Diamond Head Road Honolulu, Hawaii 96816 (808) 734-2195

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ILLINOIS	Mr. John Plunk, Acting Director Illinois Emergency Services and Disaster Agency 110 East Adams Street Springfield, Illinois 62706 (217) 782-6818 - FTS 372-7851	Same
INDIANA	Mr. Jerome Hauer, Director Indiana State Emergency Management Agency State Office Building, Room 315 100 North Senate Avenue Indianapolis, Indiana 46204 (317) 232-3830 - FTS 372-7852	Same
IOWA	Ms. Ellen Gordon Administrator, Disaster Services Division Hoover State Office Bldg. Level A, Room 29 Des Moines, Iowa 50319 (515) 272-5211	Maj. Gen. Warren G. Lawson The Adjutant General and Executive Director Department of Public Defense Camp Dodge 7700 N.W. Beaver Drive Johnston, Iowa 50131-1902 (515) 278-9211
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MARSHALL ISLAND	<p>Mr. Phil Kabua Disaster Control Officer, Republic of the Marshall Islands Majuro, Marshall Islands 96960</p> <p>93-011-692-9-3234</p>	<p>Mr. Phil Kabua Republic of the Marshall Islands Majuro, Marshall Islands 96960</p>

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MASSACHUSETTS	<p>Mr. Robert J. Boulay Director, Massachusetts Civil Defense Agency and Office of Emergency Preparedness 400 Worcester Road Framingham, Massachusetts 01701</p> <p>(508) 820-2000</p>	<p>Mr. Charles V. Barry Secretary, Department of Public Safety One Ashburton Place, Room 2133 Boston, Massachusetts 02108</p> <p>(617) 727-7775</p>
MICHIGAN	<p>Dave Charney State Director Emergency Management Division Michigan State Police 300 S. Washington Square, Suite 300 Lansing, Michigan 48913</p> <p>(517) 373-6271 - FTS 372-7853</p>	<p>Col. R. T. Davis Acting Director, Department of State Police and State Division of Emergency Services 714 S. Harrison Road East Lansing, Michigan 48823</p> <p>(517) 337-6157</p>
MICRONESIA	<p>Mr. Ehson D. Johnson Director, Disaster Control Officer The Federated States of Micronesia 96941</p> <p>(011) 691-9228</p>	<p>Same</p>

MINNESOTA	<p>Mr. Thomas Motherway Director, Division of Emergency Services Department of Public Safety State Capitol, B-5 St. Paul, Minnesota 55155</p> <p>(612) 296-2233 - FTS 372-7854</p>	<p>Mr. Paul Tschida Commissioner, Department of Public Safety 211 Transportation Bldg. St. Paul, Minnesota 55155</p> <p>(612) 296-6642</p>
MISSISSIPPI	<p>Mr. James E. Maher Director, Emergency Management Agency P.O. Box 4501, Fondren Station Jackson, Mississippi 39216</p> <p>(601) 352-9100</p>	<p>Same</p>
MISSOURI	<p>Mr. Richard D. Ross Director, State Emergency Management Agency P.O. Box 116 Jefferson City, Missouri 65102</p> <p>(314) 751-9571</p>	<p>Maj. Gen. Charles Kiefner The Adjutant General 1717 Industrial Drive Jefferson City, Missouri 65101</p> <p>(314) 751-9710</p>
MONTANA	<p>Mr. F. Guy Youngblood Administrator, Disaster and Emergency Services Division Department of Military Affairs P.O. Box 4789 Helena, Montana 59604-4789</p> <p>(406) 444-6911</p>	<p>Maj. Gen. James W. Duffy The Adjutant General Department of Military Affairs P.O. Box 4789 Helena, Montana 59604</p> <p>(406) 444-6910</p>
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Cheyenne, Wyoming 82003

(307) 772-6233

Source:

Directory of Governors, State Officials and Adjutants General Responsible for Disaster Operations and Emergency Planning, FEMA-9. Washington, DC: Federal Emergency Management Agency, July 1990.

APPENDIX D

REGIONAL ASBESTOS COORDINATORS

Appendix D

REGIONAL ASBESTOS COORDINATORS

Regional Asbestos Coordinator
US EPA, Region I
JFK Federal Building
Boston, MA 02203
(617) 565-3835

Regional Asbestos Coordinator
US EPA, Region 2
Woodbridge Avenue
Edison, NJ 08837
(201) 321-6671

Regional Asbestos Coordinator
US EPA, Region 3
841 Chestnut Street
Philadelphia, PA 19107
(215) 597-3160

Regional Asbestos Coordinator
US EPA, Region 4
345 Courtland Street
Atlanta, GA 30365
(404) 347-5014

Regional Asbestos Coordinator
US EPA, Region 5
230 South Dearborn Street
Chicago, IL 60604
(312) 353-6003

Regional Asbestos Coordinator
US EPA, Region 6
Allied Bank Tower
1445 Ross Avenue
Suite 1200
Dallas, TX 75720
(214) 655-7244

Regional Asbestos Coordinator
US EPA, Region 7
726 Minnesota Avenue
Kansas City, KS 66101
(913) 551-7381

Regional Asbestos Coordinator
US EPA, Region 8
One Denver Place
999 18th Street
Suite 500
Denver, CO 80202-2405
(303) 293-1442

Regional Asbestos Coordinator
US EPA, Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 556-5406

Regional Asbestos Coordinator
US EPA, Region 10
1200 6th Avenue
Seattle, WA 98101
(206) 442-4762

