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**EPA**

# **The Asbestos Informer**

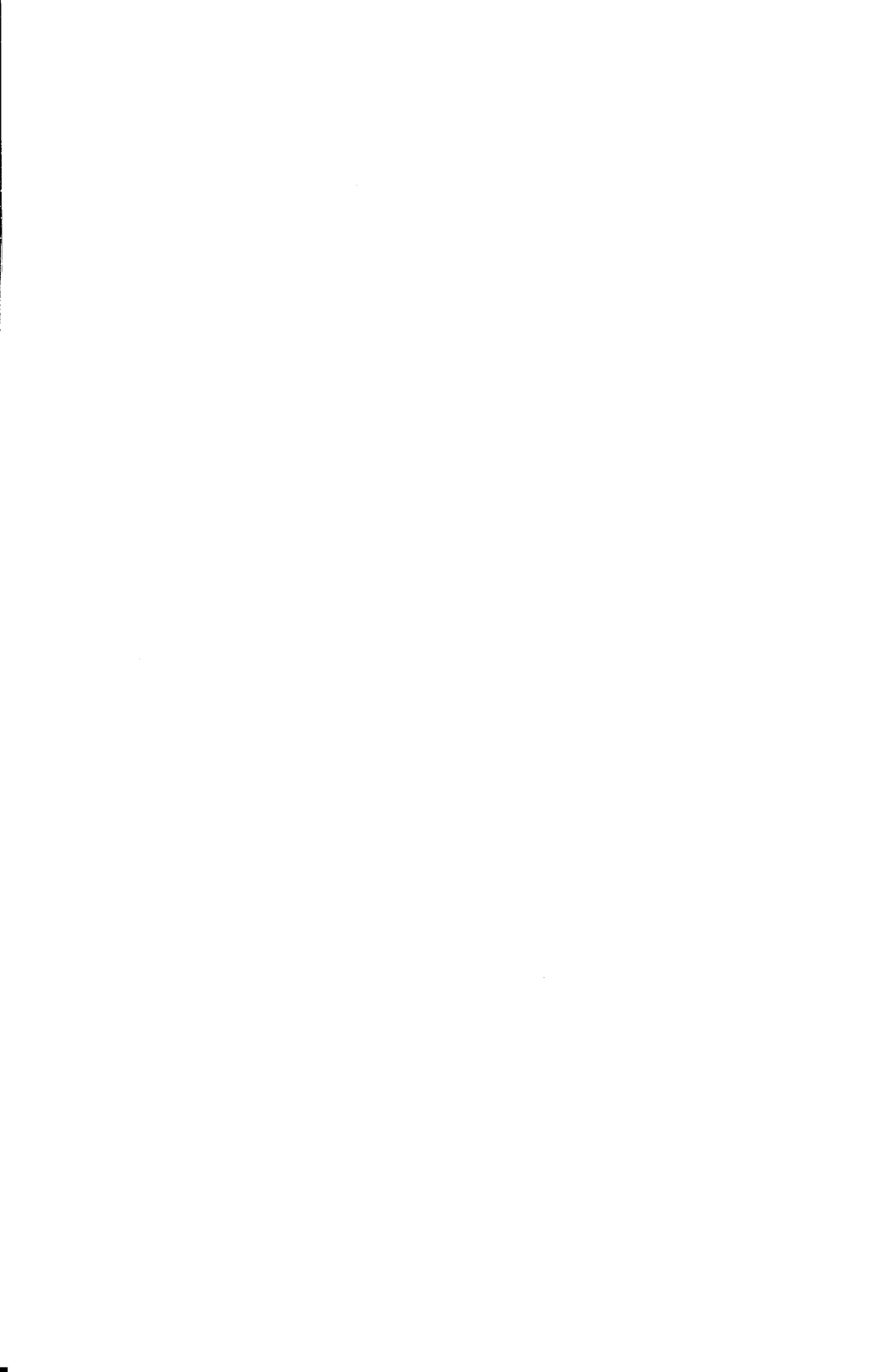
## DISCLAIMER

This manual was prepared by Entropy Environmentalists, Inc., for the Stationary Source Compliance Division of the U.S. Environmental Protection Agency. This document is intended for informational purposes **ONLY**, and may not in any way be interpreted to alter or replace the coverage or requirements of the asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61, Subpart M. Any mention of product items names does not constitute endorsement by the U.S. Environmental Protection Agency.

# **The Asbestos Informer**

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

**December, 1990**



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**What is  
asbestos?**

Asbestos is a mineral. It is mined in much the same way that other minerals, such as iron, lead, and copper, are. Asbestos is composed of silicon, oxygen, hydrogen, and various metal cations (positively charged metal ions).

There are many varieties of asbestos: the three most common are chrysotile, amosite, and crocidolite. Chrysotile fibers are pliable and cylindrical, and often arranged in bundles. Amosite and crocidolite fibers are like tiny needles.

The first commercial asbestos mine – a chrysotile mine – opened in Quebec, Canada, in the 1870's. Crocidolite asbestos was first mined in South Africa during the 1980's. Amosite asbestos also comes from Africa and was first mined in 1916.

Unlike most minerals, which turn into dust particles when crushed, asbestos breaks up into fine fibers that are too small to be seen by the human eye. Often individual fibers are mixed with a material that binds them together, producing asbestos containing material (ACM).

**Why has  
asbestos been  
so widely  
used?**

Asbestos appealed to manufacturers and builders for a variety of reasons. It is strong yet flexible, and it will not burn. It conducts electricity poorly, but insulates effectively. It also resists corrosion. Asbestos may have been so widely used because few other available substances combine the same qualities.

**How many products contain asbestos?**

One study estimated that 3,000 different types of commercial products contained asbestos. The amount of asbestos in each product varied from as little as one percent to as much as 100 percent. Many older plastics, paper products, brake linings, floor tiles and textile products contain asbestos, as do many heavy industrial products such as sealants, cement pipe, cement sheets, and insulation.

The final Asbestos Ban and Phaseout Rule prohibits the manufacture, processing and importation of most asbestos products.

**How long has asbestos been in use?**

Asbestos was first used in the United States in the early 1900's, to insulate steam engines. But until the early 1940's, asbestos was not used extensively. However, after World War II, and for the next thirty years, people who constructed and renovated schools and other public buildings used asbestos and asbestos -containing materials (ACM) extensively. They used ACM primarily to fireproof, insulate, soundproof, and decorate. The Environmental Protection Agency (EPA) estimates that there are asbestos containing materials in most of the nation's approximately 107,000 primary and secondary schools and 733,000 public and commercial buildings.

**How are people exposed to asbestos?**

When asbestos fibers are in the air, people may inhale them. Because asbestos fibers are small and light, they can stay in the air for a long time.

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People whose work brings them into contact with asbestos – workers who renovate buildings with asbestos in them, for example – may inhale fibers that are in the air: this is called **occupational exposure**.

Workers' families may inhale asbestos fibers released by clothes that have been in contact with ACM: this is called **paraoccupational exposure**. People who live or work near asbestos-related operations may inhale asbestos fibers that have been released into the air by the operations: this is called **neighborhood exposure**.

The amount of asbestos a worker is exposed to will vary according to

- The concentration of fibers in the air
- Duration of exposure
- The worker's breathing rate (workers doing manual labor breathe faster)
- Weather conditions
- The protective devices the worker wears

It is estimated that between 1940 and 1980, 27 million Americans had significant occupational exposure to asbestos.

People may also ingest asbestos if they eat in areas where there are asbestos fibers in the air.

**When is ACM most likely to release asbestos fibers?**

Damaged ACM is more likely to release fibers than non-damaged ACM. In a 1984 survey, EPA found that approximately 66 percent of those buildings that contained asbestos contained damaged ACM.

If ACM, when dry, can be crumbled by hand pressure – a condition known as "friable" – it is more likely to release fibers than if it is "non-friable." Fluffy, spray-applied asbestos fireproofing material is generally considered "friable." Some materials which are considered "non-friable," such as vinyl-asbestos floor tile, can also release fibers when sanded, sawed or otherwise aggressively disturbed. Materials such as asbestos cement pipe can release asbestos fibers if broken or crushed when buildings are demolished, renovated or repaired.

ACM which is in a heavy traffic area, and which is therefore often disturbed, is more likely to release fibers than ACM in a relatively undisturbed area.

**How can asbestos be identified?**

While it is often possible to "suspect" that a material or product is/or contains asbestos by visual determination, actual determinations can only be made by instrumental analysis. Until a product is tested, it is best to assume that the product contains asbestos, unless the label, or the manufacturer verifies that it does not.



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The EPA requires that the asbestos content of suspect materials be determined by collecting bulk samples and analyzing them by polarized light microscopy (PLM). The PLM technique determines both the percent and type of asbestos in the bulk material. EPA Regional Offices can provide information about laboratories that test for asbestos.

**Does asbestos exposure cause health problems?**

Some people exposed to asbestos develop asbestos-related health problems; some do not. Once inhaled, asbestos fibers can easily penetrate body tissues. They may be deposited and retained in the airways and lung tissue. Because asbestos fibers remain in the body, each exposure increases the likelihood of developing an asbestos-related disease. Asbestos related diseases may not appear until years after exposure. Today we are seeing results of exposure among asbestos workers during World War II. A medical examination which includes a medical history, breathing capacity test and chest x-ray may detect problems early.

Scientists have not been able to develop a "safe" or threshold level for exposure to airborne asbestos. Ingesting asbestos may be harmful, but the consequences of this type of exposure have not been clearly documented. Nor have the effects of skin exposure to asbestos been documented. People who touch asbestos may get a rash similar to the rash caused by fiberglass.

**What illnesses are associated with asbestos exposure?**

**Asbestosis**

Asbestosis is a serious, chronic, non-cancerous respiratory disease. Inhaled asbestos fibers aggravate lung tissues, which causes them to scar. Symptoms of asbestosis include shortness of breath and a dry crackling sound in the lungs while inhaling. In its advanced stages, the disease may cause cardiac failure. There is no effective treatment for asbestosis; the disease is usually disabling or fatal. The risk of asbestosis is minimal for those who do not work with asbestos; the disease is rarely caused by neighborhood or family exposure.

Those who renovate or demolish buildings that contain asbestos may be at significant risk, depending on the nature of the exposure and precautions taken.

**Lung Cancer**

Lung cancer causes the largest number of deaths related to asbestos exposure. The incidence of lung cancer in people who are directly involved in the mining, milling, manufacturing and use of asbestos and its products is much higher than in the general population. The most common symptoms of lung cancer are coughing and a change in breathing. Other symptoms include shortness of breath, persistent chest pains, hoarseness, and anemia.

People who have been exposed to asbestos and are also exposed to some other carcinogen – such as cigarette smoke – have

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a significantly greater risk of developing lung cancer than people who have only been exposed to asbestos. One study found that asbestos workers who smoke are about 90 times more likely to develop lung cancer than people who neither smoke nor have been exposed to asbestos.

### **Mesothelioma**

Mesothelioma is a rare form of cancer which most often occurs in the thin membrane lining of the lungs, chest, abdomen, and (rarely) heart. About 200 cases are diagnosed each year in the United States. Virtually all cases of mesothelioma are linked with asbestos exposure. Approximately 2 percent of all miners and textile workers who work with asbestos, and 10 percent of all workers who were involved in the manufacture of asbestos-containing gas masks, contract mesothelioma.

People who work in asbestos mines, asbestos mills and factories, and shipyards that use asbestos, as well as people who manufacture and install asbestos insulation, have an increased risk of mesothelioma. So do people who live with asbestos workers, near asbestos mining areas, near asbestos product factories or near shipyards where use of asbestos has produced large quantities of airborne asbestos fibers.

The younger people are when they inhale asbestos, the more likely they are to develop mesothelioma. This is why enormous efforts are being made to prevent school children from being exposed.

### **Other Cancers**

Evidence suggests that cancers in the esophagus, larynx, oral cavity, stomach, colon and kidney may be caused by ingesting asbestos. For more information on asbestos-related cancers, contact your local chapter of the American Cancer Society.

### **Who regulates asbestos?**

The U.S. Environmental Protection Agency and the Occupational Safety and Health Administration (OSHA) are responsible for regulating environmental exposure and protecting workers from asbestos exposure. OSHA is responsible for the health and safety of workers who may be exposed to asbestos in the workplace, or in connection with their jobs. EPA is responsible for developing and enforcing regulations necessary to protect the general public from exposure to airborne contaminants that are known to be hazardous to human health. The EPA's Worker Protection Rule (40 CFR Part 763, Subpart G) extends the OSHA standards to state and local employees who perform asbestos work and who are not covered by the OSHA Asbestos Standards, or

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by a state OSHA plan. The Rule parallels OSHA requirements and covers medical examinations, air monitoring and reporting, protective equipment, work practices, and recordkeeping.

In addition, many State and local agencies have more stringent standards than those required by the Federal government. People who plan to renovate or remove asbestos from a building of a certain size, or who plan to demolish any building, are required to notify the appropriate federal, state and local agencies, and to follow all federal, state, and local requirements for removal and disposal of regulated asbestos-containing material (RACM).

**What is EPA's position about asbestos in buildings and what to do about it?**

EPA's advice on asbestos is neither to rip it all out in a panic nor to ignore the problem under a false presumption that asbestos is "risk free." Rather, EPA recommends a practical approach that protects public health by emphasizing that asbestos material in buildings should be located, that it should be appropriately managed, and that those workers who may disturb it should be properly trained and protected. That has been, and continues to be, EPA's position. The following summarizes the five major facts that the Agency has presented in congressional testimony:

**FACT ONE:**

Although asbestos is hazardous, human risk of asbestos disease depends upon exposure.

**FACT TWO:**

Prevailing asbestos levels in buildings – the levels school children and you and I face as

building occupants – seem to be very low, based upon available data. Accordingly, the health risk we face as building occupants also appears to be very low.

**FACT THREE:**

Removal is often not a school district's or other building owner's best course of action to reduce asbestos exposure. In fact, an improper removal can create a dangerous situation where none previously existed.

**FACT FOUR:**

EPA only requires asbestos removal in order to prevent significant public exposure to asbestos, such as during building renovation or demolition.

**FACT FIVE:**

EPA does recommend in-place management whenever asbestos is discovered. Instead of removal, a conscientious in-place management program will usually control fiber releases, particularly when the materials are not significantly damaged and are not likely to be disturbed.

**What are EPA's regulations governing asbestos?**

**TSCA**

In 1979, under the Toxic Substances Control Act (TSCA), EPA began an asbestos technical assistance program for building owners, environmental groups, contractors and industry. In May 1982, EPA issued the first regulation intended to control asbestos in schools under the authority of TSCA; this regulation was known as the Asbestos-in-Schools Rule. Starting in 1985, loans and grants have been given each year to aid

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Local Education Agencies (LEAs) in conducting asbestos abatement projects under the Asbestos School Hazard Abatement Act (ASHAA).

### **AHERA**

In 1986, the Asbestos Hazard Emergency Response Act (AHERA; Asbestos Containing Materials in Schools, 40 CFR Part 763, Subpart E) was signed into law as Title II of TSCA. AHERA is more inclusive than the May 1982 Asbestos-in-Schools Rule. AHERA requires LEAs to inspect their schools for asbestos containing building materials (ACBM) and prepare management plans which recommend the best way to reduce the asbestos hazard. Options include repairing damaged ACM, spraying it with sealants, enclosing it, removing it, or keeping it in good condition so that it does not release fibers. The plans must be developed by accredited management planners and approved by the State. LEAs must notify parent, teacher and employer organizations of the plans, and then the plans must be implemented.

AHERA also requires accreditation of abatement designers, contractor supervisors and workers, building inspectors, and school management plan writers. Those responsible for enforcing AHERA have concentrated on educating LEAs, in an effort to ensure that they comply with the regulations. Contractors that improperly remove asbestos from schools can be liable under both AHERA and NESHAP. For more information on AHERA, request the pamphlet entitled "The ABC's of Asbestos in Schools" from the EPA Public Information Center.

## **ASBESTOS BAN & PHASEOUT RULE**

In 1989 EPA published the Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions; Final Rule (40 CFR Part 763, Subpart I). The rule will eventually ban about 94 percent of the asbestos used in the U.S. (based on 1985 estimates). For example, asbestos containing drum brake linings and roof coatings will be banned. The rule will be implemented in three stages between 1990 and 1997.

## **NESHAP**

The Clean Air Act (CAA) of 1970 requires EPA to develop and enforce regulations to protect the general public from exposure to airborne contaminants that are known to be hazardous to human health. In accordance with Section 112 of the CAA, EPA established National Emission Standards for Hazardous Air Pollutants (NESHAP). Asbestos was one of the first hazardous air pollutants regulated under Section 112. On March 31, 1971, EPA identified asbestos as a hazardous pollutant, and on April 6, 1973, EPA promulgated the Asbestos NESHAP in 40 CFR Part 61, Subpart M. The Asbestos NESHAP has been amended several times, most recently in November 1990. For a copy of the Asbestos NESHAP contact the Asbestos NESHAP Coordinators listed in the Appendix.

### **What are the basic requirements of the Asbestos NESHAP?**

The Asbestos NESHAP is intended to minimize the release of asbestos fibers during activities involving the handling of asbestos. Accordingly, it specifies work practices to be followed during renovations



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of buildings which contain a certain threshold amount of friable asbestos, and during demolitions of all structures, installations, and facilities (except apartment buildings that have no more than four dwelling units). Most often, the Asbestos NESHAP requires action to be taken by the person who owns, leases, operates, controls, or supervises the facility being demolished or renovated (the "owner"), and by the person who owns, leases, operators, controls or supervises the demolition or renovation (the "operator").

The regulations require owners and operators subject to the Asbestos NESHAP to notify delegated State and local agencies and/or their EPA Regional Offices before demolition or renovation activity begins. The regulations restrict the use of spray asbestos, and prohibit the use of wet applied and molded insulation (i.e., pipe lagging). The Asbestos NESHAP also regulates asbestos waste handling and disposal.

**Why was the Asbestos NESHAP recently amended?**

The Asbestos NESHAP was amended for several reasons. EPA wanted to clarify existing regulatory policies, and to add regulations which explicitly address monitoring and recordkeeping at facilities which mill, manufacture, and fabricate asbestos. Also, because of the high risk associated with the transfer and disposal of ACM, EPA also wanted to strengthen the

requirements which govern asbestos waste disposal by requiring tracking and recordkeeping. Furthermore, EPA determined that the Asbestos NESHAP needed to take into account the availability of improved emission controls. EPA also wanted to make the NESHAP consistent with other EPA statutes that regulate asbestos.

**What sources are now covered by the asbestos NESHAP?**

The following activities and facilities are currently regulated by the Asbestos NESHAP:

- The milling of asbestos.
- Roadways containing ACM.
- The commercial manufacture of products that contain commercial asbestos.
- The demolition of all facilities.
- The renovation of facilities that contain friable ACM.
- The spraying of ACM.
- The processing (fabricating) of any manufactured products that contain asbestos.
- The use of insulating materials that contain commercial asbestos.

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- The disposal of asbestos-containing waste generated during milling, manufacturing, demolition, renovation, spraying, and fabricating operation
  - The closure and maintenance of inactive waste disposal sites.
  - The operation of and reporting on facilities that convert asbestos containing waste material into nonasbestos material.
  - The design and operation of air cleaning devices.
  - The reporting of information pertaining to process control equipment, filter devices, asbestos generating processes, etc.
  - Active waste disposal sites.

### **Milling, Manufacturing, and Fabricating Sources**

Businesses which are involved in asbestos milling, manufacturing, and fabricating now must monitor for visible emissions for at least 15 seconds at least once a day (during daylight hours), and inspect air cleaning devices at least once a week. The facilities must maintain records of the results, and submit each quarter a copy of the visible emissions monitoring records if visible emissions occurred during the quarter.

Facilities that install fabric filters (to control asbestos emissions) after the effective date

**What were the major changes to the Asbestos NESHAP?**

of the revision must provide for easy inspection of the bags.

### **Demolition and Renovation**

All facilities which are "demolished" are subject to the Asbestos NESHAP. The definition of demolition was expanded to include the intentional burning of a facility, in addition to the "wrecking or taking out . . . any load-supporting structural member of a facility."

Owners and operators of all facilities which are to be demolished, and of facilities that contain a certain amount of asbestos which are to be renovated, must now provide more detailed information in notifications, including the name of the asbestos waste transporter and the name of the waste disposal site where the ACM will be deposited. Owners and operators must give a 10-day notice for planned renovations and demolitions. They must renotify EPA in advance of the actual start date if the demolition or renovation will begin on a date other than the one specified in the original notification. Telephone re-notifications are permitted, but must be followed by written notice.

Starting one year after promulgation of the regulation, a person trained in the provisions of the Asbestos NESHAP, and in the methods of complying with them, must supervise operations in which ACM is stripped, removed or otherwise handled. This supervisor is responsible for all on-site activity.

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Before wetting is suspended, the EPA administrator must approve. When wetting of asbestos during its removal is suspended due to freezing temperatures, owners or operators must measure the air temperature in the work area three times during the workday, and must keep those records for at least two years.

The revisions also clarify EPA's position regarding the handling and treatment of non-friable asbestos material. The owner and operator must inspect the site for the presence of non-friable ACM, and include in the notification an estimate of how much non-friable ACM is present. Also, the owner and operator must describe the procedures to be followed if unexpected ACM is found in the course of demolition or renovation, and if non-friable asbestos becomes friable in the course of renovation or demolition.

### **Waste Transport and Disposal**

Vehicles used to transport ACM must be marked according to new guidelines during loading and unloading. Labels indicating the name of the waste generator and the location where the waste was generated must be placed on containers of RACM.

When ACM waste is transported off-site, a waste shipment record (WSR) must be given to the waste site operator or owner at the time that the waste is delivered to the waste disposal site. The owner or operator must

send a signed copy of the WSR back to the waste generator within 30 days, and attempt to reconcile any discrepancy between the quantity of waste given on the WSR and the actual amount of waste received. If, within 15 days of receiving the waste, the waste site owner or operator cannot reconcile the discrepancy, he or she must report that problem to the same agency that was notified about the demolition or renovation.

New disposal sites must apply for approval to construct, and must notify EPA of the startup date. Existing disposal sites must supply EPA with certain information concerning their operations, such as the name and address of the owner or operator, the location of the site, the average weight per month of the hazardous materials being processed, and a description of the existing emission control equipment.

If a copy of the WSR signed by the waste site owner or operator is not received by the waste generator within 35 days of the date that the waste was accepted by the initial transporter, the waste generator must contact the transporter and/or disposal site owner or operator to determine the status of the waste shipment. If a signed copy of the WSR is not received within 45 days of the date that the waste was accepted by the initial transporter, the waste generator must submit a written report to the same agency that was notified about the demolition or renovation.

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Owners of disposal sites must record on the deed to the disposal site that the property has been used for ACM disposal. They must also keep records that show the location, depth, area and volume of the asbestos waste; they must indicate on the deed that these records are available.

Owners of inactive disposal sites must obtain written approval before they excavate or otherwise disturb ACM waste that has been deposited on the site.

**Where can I  
get more  
information?**

There are ten EPA Regional Offices around the country. You can obtain more information about the Asbestos NESHAP by contacting your EPA Regional Office's NESHAP coordinator or the appropriate State or local agency. You can obtain more information about AHERA by contacting your EPA Regional Asbestos Coordinator (RAC). The addresses and phone numbers of both the RAC and NESHAP coordinators for EPA are listed at the end of this pamphlet.

You may also call the EPA Toxic Substances Control Act (TSCA) Hotline to ask general questions about asbestos, or to request asbestos guidance documents. The Hotline number is (202) 554-1404. The EPA Public Information Center can send you information on EPA regulations. You can reach the center at (202) 382-2080 or (202) 475-7751. The Office of the Federal Register (202-382-5475) can send you copies of any regulations published in The Federal Register, including the Asbestos NESHAP.

Finally, the EPA has an Asbestos Ombudsman to provide information on the handling and abatement of asbestos in schools, the workplace and the home. Also, the EPA Asbestos Ombudsman can help citizens with asbestos-in-school complaints. The Ombudsman can be reached toll-free at (800) 368-5888, direct at (703) 557-1938 or 557-1939.

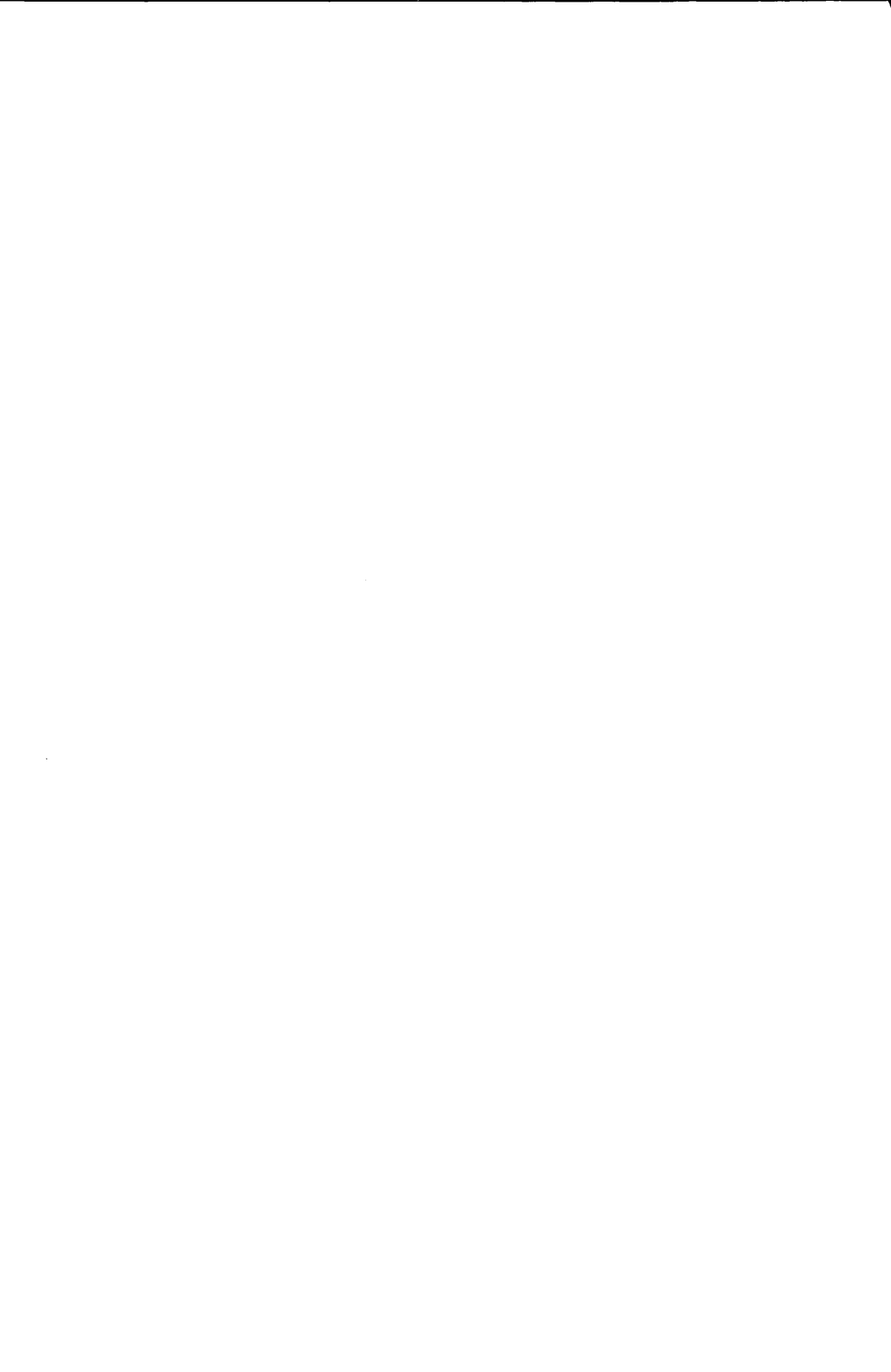


**AHERA and NESHAP Coordinators**

Region	NESHAP	AHERA
<p>Region 1 CT, MA, ME NH, RI, VT</p>	<p>Asbestos NESHAP Coordinator Air Management Division US EPA JFK Building Boston, MA 02203  (617) 565-3265</p>	<p>Regional Asbestos Coordinator US EPA JFK Federal Building Boston, MA 02203  (617) 565-3835</p>
<p>Region 2 NJ, NY PR, VI</p>	<p>Asbestos NESHAP Coordinator Air &amp; Waste Management Div. US EPA 26 Federal Plaza New York, NY 10278  (212) 264-6770</p>	<p>Regional Asbestos Coordinator US EPA Woodbridge Avenue Edison, NJ 08837  (201) 321-6671</p>
<p>Region 3 DC, DE, MD PA, VA, WV</p>	<p>Asbestos NESHAP Coordinator Air and Toxics Division US EPA 841 Chestnut Street Philadelphia, PA 19107  (215) 597-8683</p>	<p>Regional Asbestos Coordinator US EPA 841 Chestnut Street Philadelphia, PA 19107  (215) 597-3160</p>
<p>Region 4 AL, FL, GA, KY, MS, NC, SC, TN</p>	<p>Asbestos NESHAP Coordinator Air, Pesticide &amp; Toxics Div. US EPA 345 Courtland Street Atlanta, GA 30365  (404) 347-5014</p>	<p>Regional Asbestos Coordinator US EPA 345 Courtland Street Atlanta, GA 30365  (404) 347-5014</p>
<p>Region 5 IL, IN, MI MN, OH, WI</p>	<p>Asbestos NESHAP Coordinator Air &amp; Radiation Division US EPA 230 South Dearborn Street Chicago, IL 60604  (312) 353-6793</p>	<p>Regional Asbestos Coordinator US EPA 230 South Dearborn St. Chicago, IL 60604  (312) 353-6003</p>

## AHERA and NESHAP Coordinators

Region	NESHAP	AHERA
Region 6  AR, LA, NM OK, TX	Asbestos NESHAP Coordinator Air, Pesticides & Toxics Div. US EPA 1445 Ross Avenue Suite 1200 Dallas, TX 75202-2733  (214) 655-7233	Regional Asbestos Coordinator US EPA 1445 Ross Avenue Suite 1200 Dallas, TX 75202-2733  (214) 655-7244
Region 7  IA, KS MO, NE	Asbestos NESHAP Coordinator Air & Toxics Division US EPA 726 Minnesota Avenue Kansas City, KS 66101  (913) 551-7618	Regional Asbestos Coordinator US EPA 726 Minnesota Avenue Kansas City, KS 66101  (913) 551-7020
Region 8  CO, MT, ND SD, UT, WY	Asbestos NESHAP Coordinator Air & Waste Management Div. US EPA One Denver Place 999 18th Street Suite 500 Denver, CO 80202-2405  (303) 294-7685	Regional Asbestos Coordinator US EPA One Denver Place 999 18th Street Suite 500 Denver, CO 80202-2405  (303) 293-1442
Region 9  AS, CA, HI, NV, AZ, GU, TT	Asbestos NESHAP Coordinator Air Management Division US EPA 75 Hawthorne Street San Francisco, CA 94105  (415) 744-1135	Regional Asbestos Coordinator US EPA 75 Hawthorne Street San Francisco, CA 94105  (415) 744-1128
Region 10  AK, ID OR, WA	Asbestos NESHAP Coordinator Air & Toxics Management Div. US EPA 1200 6th Avenue Seattle, WA 98101  (206) 442-1757	Regional Asbestos Coordinator US EPA 1200 6th Avenue Seattle, WA 98101  (206) 442-4762





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