ALASKA LEGISLATURE COMMITTEE FILES 1983-1984 8672

2297 HHESS SB 362

229

And they'd like to see schools help prevent those deaths—no matter how few—by removing the risk.

It could be many years before we're able to draw conclusions on the effects of asbestos exposure in schools. The risks vary, of course, depending on individual people, the condition and location of asbestos materials in school buildings, and the amount and duration of exposure. The appalling truth, according to Dr. Holstein: "It's false reassurance if no one is sick [now], because they might be sick by 1990 and dead by 1992." But despite the tendency for people to personalize this kind of highly emotional, life-and-death issue, he says, school board members and administrators should assure concerned parents that "there's no need to get hysterical; it's a problem that can be remedied."

The remedy

At the very least, you already should have complied with all federal regulations pertaining to asbestos in schools. Three sets of regulations have been issued. First, Department of Education (ED) regulations specify *how* states must distribute information on asbestos to schools, according to the Asbestos School Hazard Detection and Control Act of 1980. Second, Occupational Safety and Health Administration regulations detail procedures for the protection and decontamination of asbestos abatement workers and for measuring airborne asbestos. Schools engaged in containing and removing the friable fibers must comply with these procedures. Third—and more to the point—are the E.P.A. regulations: As of June 1983, you're responsible for having met the requirements of Section 6(a) of the Toxic Substances Control Act (T.S.C.A.), which were specified in "Friable Asbestos-Containing Materials in Schools; Identification and Notification Rule" (47 *Federal Register* 23360, May 27, 1982).

E.P.A. issued this rule because its Technical Assistance Program (TAP), launched in 1978, had limited success in getting schools to comply voluntarily with previous E.P.A. inspection and record-keeping guidelines. The T.S.C.A. rule applies to all elementary and secondary schools, except those built after December 31, 1978, and those that can document they already have checked buildings and either found no friable asbestos or satisfactorily dealt with the material. Schools were given one year to comply with the requirements.

(1) *Inspection.* You must inspect each building for friable materials.

(2) *Sampling.* If you find friable materials, you must take samples, following E.P.A. instructions.

(3) *Analysis.* A qualified laboratory must perform an analysis using polarized light microscopy, a sophisticated (and expensive) technique for measuring the amount of asbestos fibers in asbestos-containing materials.

(4) *Warnings and notifications.* You must post warning signs wherever you find friable asbestos-containing materials in schools—and send written notification to the staff and the P.T.O. of each school involved, specifying where the hazardous materials are located.

Note that the T.S.C.A. rule does *not* require you to remove, cover, or encapsulate the asbestos; it's up to individual school systems to decide how to dispense with the offending material. The rule also doesn't require you to report your findings to E.P.A., although you *do* need to keep complete and detailed records documenting your compliance with the T.S.C.A. rule.

Once you've found asbestos in your schools, you have a choice of four acceptable ways to resolve the problem: (1) removing the material altogether; (2) enclosing the areas containing asbestos to prevent fibers from escaping; (3) encapsulating completely the area that contains or is coated with asbestos; and (4) observing and maintaining the affected surfaces to avoid any damage that could cause the release of more fibers. Experts say removal is the only surefire way to rid your schools finally and completely of asbestos hazards. But the removal process itself is an extremely dangerous undertaking; a faulty or incomplete removal job could present even greater health hazards to your students and staff, as well as to asbestos abatement workers. So before you contract for any asbestos containment or removal work, refer to the technical advice presented in the E.P.A. document, "Guidance for Controlling Friable Asbestos-Containing Materials in Buildings," published in March 1983. And even though other measures might work in some schools, many school systems have found that public pressure is brought to bear on the school board to remove asbestos completely—regardless of expense.

The cost

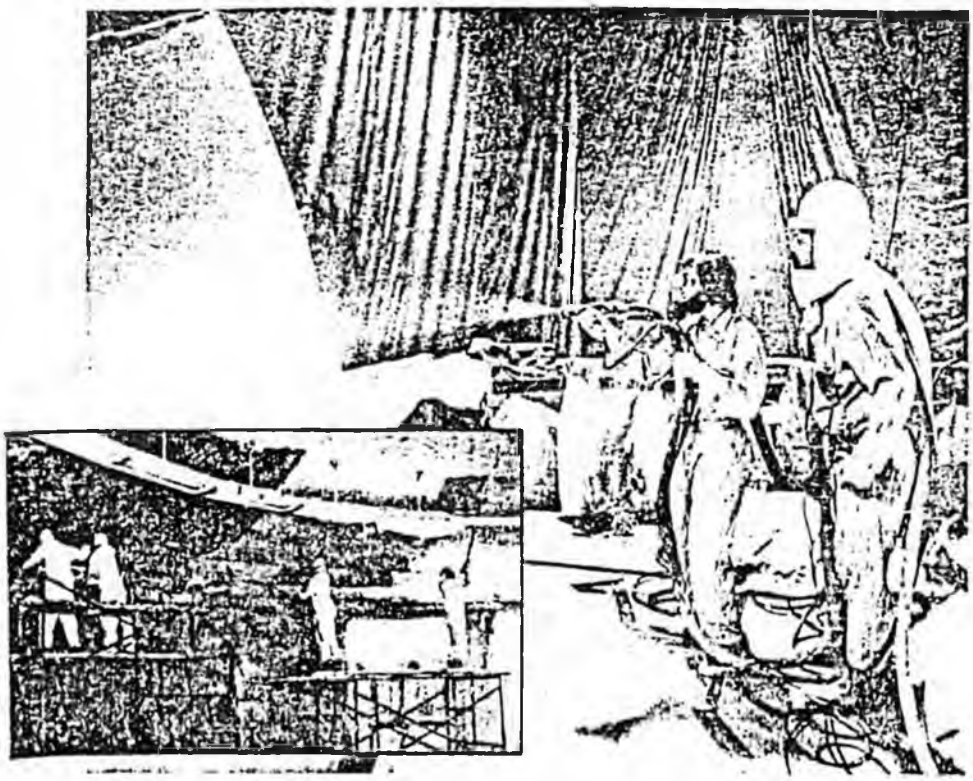
E.P.A. estimates that as many as 14,000 U.S. schools might contain dangerous friable material composed of more than 1 percent asbestos—which means more than 3 million students and 250,000 staff members are at risk right now. The agency estimates the total cost of asbestos abatement at $1.4 billion nationwide, or $100,000 per school building. Some school systems already have spent millions. According to Dwight Brown, formerly asbestos coordinator for E.P.A. Region IV in Atlanta, schools can expect to pay between $3 and $10 per square foot for asbestos removal—and the price can go as high as $28 per square foot. What drives the cost so high is the need for sophisticated analysis equipment and clothing to protect workers, Brown explains. Analysis of asbestos samples using an electron microscope goes for between $200 and $500 per sample—and you might need scores of samples to determine the hazard level in only one school.

Without a doubt, asbestos is a financial burden for school systems. At President Reagan's behest, Congress repeatedly has refused to provide funds to accompany the federal regulations it requires schools to obey. Part of the Asbestos School Hazard Detection and Control Act of 1980, for example, called for $700 million in grants and interest-free loans to help state and local education agencies identify and correct asbestos hazards in schools; no appropriations were made. Don't count on E.P.A. for changes in the funding situation, either: Officials there say they have no plans to request or provide money for school systems to deal with asbestos problems.

School systems in several states are fortunate to be reimbursed for expenses they incur in removing asbestos. In the past four years, for example, New York has given more than $12 million in grants and state building aid to help local asbestos removal programs. And in the same period, Florida has appropriated $10.5 million for asbestos removal. These are notable exceptions, however. Most school leaders have to dig into general operating budgets to come up with the funds. Such cost considerations, along with federal regulations that are at once technical and vague, have caused many school leaders to avoid the issue of asbestos altogether. But ducking the issue can only bring harm to your schools.

The consequences

Forewarned is forearmed: E.P.A. is stepping up its monitoring of schools' compliance. Although the agency has no conclusive statistics, E.P.A. officials say the rate of noncompliance by schools is high. Proferred proof: An E.P.A. staff



Space-age procedures are needed to eliminate asbestos from schools. Here, abatement workers wet down and remove the substance from a school gymnasium.

memorandum in August 1983 indicated that 80 percent of a sample of 167 schools were in violation of the E.P.A. inspection rule. And, according to E.P.A.'s compliance monitoring office, inspections conducted in 275 school systems since June 1983 show that 190—nearly 70 percent—had not complied with E.P.A. regulations on obtaining asbestos samples, notifying parents, keeping records, and so forth. The 275 school systems inspected include approximately 80 of the 100 largest school systems in the U.S.

Now something is being done about that kind of slackness: In fact, E.P.A. inspectors could come knocking on your door any day, asking to see your records. You could be cited for violations of T.S.C.A. on these grounds: failure to inspect schools; failure to sample friable materials; failure to analyze asbestos samples; failure to notify parents and staff; and failure to keep records.

Depending on the number and type of violations, your schools could be fined as much as *$25,000 per day per violation*—an amount that quickly could snowball into an outrageous sum. Here's how the fine system works: If E.P.A. finds you haven't complied with T.S.C.A., your central office will be given 30 days to certify compliance in writing. If certification isn't received within 30 days, E.P.A. files a civil complaint against your schools. Agency officials then will ask to see a compliance schedule as a demonstration of your good intentions. If these negotiations fail—if you don't cooperate—E.P.A. will attempt to collect the fines it has levied against your schools.

If you think the E.P.A. is making idle threats, think again: Under the direction of old/new Director William Ruckleshaus, E.P.A. has become more vigilant and is going after asbestos in schools as one of its Top Ten priority items. E.P.A.'s design in these aggressive actions is to force schools into compliance through pressure from the community, according to Connie DeRocco, a specialist in E.P.A.'s asbestos enforcement program. It stands to reason that school board members and administrators would tend to choose compliance over the chance that a concerned parent might blow the whistle on the schools' negligence.

Other signs that E.P.A. means business: The agency is doubling its monitoring staff for fiscal year 1985. And then there's the Philadelphia case: E.P.A. has threatened to set a precedent by filing a civil complaint for noncompliance against the Philadelphia schools, to the tune of $378,000 in fines ($6,000 for each of 63 nursery and day care centers housed in buildings leased by the school system that weren't inspected for asbestos). School officials are trying to head off the complaint by inspecting the buildings; E.P.A. officials say they are willing to negotiate as long as the Philadelphia schools can show they mean to comply fully with E.P.A. regulations.

But public pressure also is mounting on E.P.A. itself to issue more stringent and specific regulations on asbestos in schools. In response to a petition filed last November by the Service Employees International Union—prompted by the asbestos-related death of a school custodian—E.P.A.'s Ruckleshaus announced in late February that the agency will set formal standards for schools to remove or seal crumbling asbestos materials.

The legal ramifications

Before you make any decisions about asbestos in your schools, consult your school attorney. Advice from Dwight Brown, who has conducted seminars on asbestos in schools for the past five years: Devise a three-part legal action plan with your attorney concerning cost recovery, tort claim defense, and the process of administering contracts for removing and disposing of asbestos.

One legal question on everyone's mind: Can you recover costs of removing asbestos from the manufacturers of the material? "The Attorney General's Asbestos Liability Report to the Congress," published in September 1981, says schools should have a good chance of recovery in court. The bankruptcy last year of a major asbestos producer, Johns Manville Co., cast a pallor over what some school attorneys had held were excellent chances to recover costs. But in February, Lexington County School District No. 5 in South Carolina brought suit against U.S. Gypsum Co. to recover approximately $300,000—the cost of removing asbestos from Irmo High School. (The potentially precedent-setting case was about to come to trial as the JOURNAL went to press.) The school system is being represented by Daniel A. Speights of Hampton S.C. Speights anticipates having filed as many as 30 asbestos-related lawsuits against U.S. Gypsum Co., National Gypsum Co., and W.R. Grace & Co. by July on behalf of school systems in Florida, Alabama, Mississippi, New Hampshire, and other states. He says these cases stand a "good chance" of winning. The Lexington suit, too, could open the floodgates for thousands of lawsuits against asbestos manufacturers.

Other legal issues you should be aware

(2) Requiring the owner or operator of a stationary source, other than a stationary source owned or operated by the United States, to obtain permits, licenses, or approvals prior to initiating construction, modification, or operation of such source.

[Sec. 116, Clean Air Act as amended (42 U.S.C. 7416)]

[37 FR 8826, Apr. 6, 1973, as amended at 43 FR 8800, Mar. 3, 1978]

61.17 Circumvention.

No owner or operator subject to the provisions of this part shall build, erect, install, or use any article machine, equipment, process, or method, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with a visible emissions standard, and the piecemeal carrying out of an operation to avoid coverage by a standard that applies only to operations larger than a specified size.

[40 FR 48299, Oct. 14, 1975]

Subpart B—National Emission Standard for Asbestos

61.20 Applicability.

The provisions of this subpart are applicable to those sources specified in 61.22.

61.21 Definitions.

Terms used in this subpart are defined in the act, in Subpart A of this part, or in this section as follows:

(a) "Asbestos" means actinolite, asbestite, anthophyllite, chrysotile, crocidolite, tremolite.

(b) "Asbestos material" means asbestos or any material containing asbestos.

(c) "Particulate asbestos material" means finely divided particles of asbestos material.

(d) "Asbestos tailings" means any solid waste product of asbestos mining or milling operations which contains asbestos.

(e) "Outside air" means the air outside buildings and structures, including, but not limited to, the air under paved surfaces.

(f) "Visible emissions" means any emissions which are visually detectable without the aid of instruments and which contain particulate asbestos material.

(g) "Asbestos mill" means any facility engaged in the conversion of any intermediate step in the conversion of asbestos or into commercial asbestos. Outside storage of asbestos materials is not considered a part of such facility.

(h) "Commercial asbestos" means any variety of asbestos which is produced by extracting asbestos from asbestos ore.

(i) "Manufacturing" means the combining of commercial asbestos, or in the case of woven friction products the combining of textiles containing commercial asbestos, with any other material(s), including commercial asbestos, and the processing of this combination into a product as specified in § 61.22(c).

(j) "Demolition" means the wrecking or taking out of any load-supporting structural member and any related removing or stripping of friable asbestos materials.

(k) "Friable asbestos material" means any material that contains more than 1 percent asbestos by weight and that can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure.

(l) "Control device asbestos waste" means any asbestos-containing waste material that is collected in a pollution control device.

(m) "Renovation" means the removing or stripping of friable asbestos material used on any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member. Operations in which load-supporting structural members are wrecked or taken out are excluded.

(n) "Planned renovation" means a renovation operation, or a number of such operations, in which the amount of friable asbestos material that will be removed or stripped within a given period of time can be predicted. Operations that are individually non-scheduled are included, provided a number of such operations can be predicted to occur during a given period of time

(o) "Emergency renovation" means a renovation operation that results from a sudden, unexpected event, and is not a planned renovation. Operations necessitated by non-routine failures of equipment are included.

(p) "Adequately wetted" means sufficiently mixed or coated with water or an aqueous solution to prevent dust emissions.

(q) "Removing" means taking out friable asbestos materials used on any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member from any building, structure, facility, or installation.

(r) "Stripping" means taking off friable asbestos materials from any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member.

(s) "Fabricating" means any processing of a manufactured product containing commercial asbestos, with the exception of processing at temporary sites for the construction or restoration of buildings, structures, facilities or installations.

(t) "Inactive waste disposal site" means any disposal site or portion thereof where additional asbestos-containing waste material will not be deposited and where the surface is not disturbed by vehicular traffic.

(u) "Active waste disposal site" means any disposal site other than an inactive site.

(v) "Roadways" means surfaces on which motor vehicles travel including, but not limited to, highways, roads, streets, parking areas, and driveways.

(w) "Asbestos-containing waste material" means any waste which contains commercial asbestos and is generated by a source subject to the provisions of this subpart, including asbestos mill tailings, control device asbestos waste, friable asbestos waste material, and bags or containers that previously contained commercial asbestos.

(x) "Structural member" means any load-supporting member, such as beams and load supporting walls; or any non-load-supporting member, such as ceilings and non-load-supporting walls.

[38 FR 8826, Apr. 6, 1973, as amended at 39 FR 15398, May 3, 1974; 40 FR 48299, Oct. 14, 1975; 42 FR [illegible]]

§ 61.22 Emission standard.

(a) Asbestos mills: There shall be no visible emissions to the outside air from any asbestos mill except as provided in paragraph (f) of this section.

(b) Roadways: The surfacing of roadways with asbestos tailings or with asbestos-containing waste that is generated by any source subject to paragraphs (c), (d), (e) or (h) of this section is prohibited, except for temporary roadways on an area of asbestos ore deposits. The deposition of asbestos tailings or asbestos-containing waste on roadways covered with snow or ice is considered "surfacing."

(c) Manufacturing: There shall be no visible emissions to the outside air, except as provided in paragraph (f) of this section, from any of the following operations if they use commercial asbestos or from any building or structure in which such operations are conducted.

(1) The manufacture of cloth, cord, wicks, tubing, tape, twine, rope, thread, yarn, roving, lap, or other textile materials.

(2) The manufacture of cement products.

(3) The manufacture of fireproofing and insulating materials.

(4) The manufacture of friction products.

(5) The manufacture of paper, millboard, and felt.

(6) The manufacture of floor tile.

(7) The manufacture of paints, coatings, caulks, adhesives, sealants.

(8) The manufacture of plastics and rubber materials.

(9) The manufacture of chlorine.

(10) The manufacture of shotgun shells.

(11) The manufacture of asphalt concrete.

(d) Demolition and renovation: The requirements of this paragraph shall apply to any owner or operator of a demolition or renovation operation who intends to demolish any institutional, commercial, or industrial building (including apartment buildings having more than four dwelling units), structure, facility, installation, or portion thereof, which contains any pipe,

(d) or coated with friable asbestos material, except as provided in paragraph (d)(1) of this section; or who intends to renovate any institutional, commercial, or industrial building, structure, facility, installation, or portion thereof where more than 60 meters (ca. 260 feet) of pipe covered or coated with friable asbestos material is stripped or removed, or more than 15 square meters (ca. 160 square feet) of friable asbestos material used to cover or coat any duct, boiler, tank, reactor, turbine, furnace, or structural member are stripped or removed.

(1)(i) The owner or operator of a demolition operation is exempted from the requirements of this paragraph: *Provided*, (A) the amount of friable asbestos material in the building or portion thereof to be demolished is less than 80 meters (ca. 260 feet) used to insulate pipes, and less than 15 square meters (ca. 160 square feet) used to insulate or fireproof any duct, boiler, tank, reactor, turbine, furnace, or structural member, and (B) the notification requirements of paragraph (d)(2)(ii) are met.

(2)(i) Written notification shall be postmarked or delivered to the Administrator at least 20 days prior to commencement of demolition and shall include the information required by paragraph (d)(2) of this section, with the exception of the information required by paragraphs (d)(2)(iii), (vi), (vii), (viii), and (ix), and shall state the measured or estimated amount of friable asbestos materials which is present. Techniques of estimation shall be explained.

(ii) Written notice of intention to demolish or renovate shall be provided to the Administrator by the owner or operator of the demolition or renovation operation. Such notice shall be postmarked or delivered to the Administrator at least 10 days prior to commencement of demolition, or as early as possible prior to commencement of emergency demolition subject to paragraph (d)(6) of this section, and as early as possible prior to commencement of renovation. Such notice shall include the following information:

(A) Name of owner or operator.

(B) Description of the building, structure, facility, or installation to be demolished or renovated, including the size, age, and prior use of the structure, and the approximate amount of friable asbestos materials present.

(C) Address or location of the building, structure, facility, or installation.

(D) Scheduled starting and completion dates of demolition or renovation.

(E) Nature of planned demolition or renovation and method(s) to be employed.

(F) Procedures to be employed to meet the requirements of this paragraph and paragraph (j) of this section.

(G) The name and address or location of the waste disposal site where the friable asbestos waste will be deposited.

(H) Name, title, and authority of the State or local governmental representative who has ordered a demolition which is subject to paragraph (d)(6) of this section.

(3)(i) For purposes of determining whether a planned renovating operation constitutes a renovation within the meaning of this paragraph, the amount of friable asbestos material to be removed or stripped shall be:

(A) For planned renovating operations involving individually nonscheduled operations, the additive amount of friable asbestos material that can be predicted will be removed or stripped at a source over the maximum period of time for which a prediction can be made. The period shall be not less than 30 days and not longer than one year.

(B) For each planned renovating operation not covered by paragraph (d)(3)(i)(A), the total amount of friable asbestos material that can be predicted will be removed or stripped at a source.

(ii) For purposes of determining whether an emergency renovating operation constitutes a renovation within the meaning of this paragraph, the amount of friable asbestos material to be removed or stripped shall be the total amount of friable asbestos material that will be removed or stripped as

event that necessitated the renovation.

(4) The following procedures shall be used to prevent emissions of particulate asbestos material to outside air:

(i) Friable asbestos materials, used on any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member, shall be removed from any building, structure, facility or installation subject to this paragraph. Such removal shall occur before wrecking or dismantling of any portion of such building, structure, facility, or installation that would break up the friable asbestos materials and before wrecking or dismantling of any other portion of such building, structure, facility, or installation that would preclude access to such materials for subsequent removal. Removal of friable asbestos materials used on any pipe, duct, or structural member which are encased in concrete or other similar structural material is not required prior to demolition, but such material shall be adequately wetted whenever exposed during demolition.

(ii) Friable asbestos materials used on pipes, ducts, boilers, tanks, reactors, turbines, furnaces, or structural members shall be adequately wetted during stripping, except as provided in paragraphs (d)(4)(iv), (d)(4)(vi) or (d)(4)(vii) of this section.

(iii) Pipes, ducts, boilers, tanks, reactors, turbines, furnaces, or structural members that are covered or coated with friable asbestos materials may be taken out of any building, structure, facility, or installation subject to this paragraph as units or in sections provided the friable asbestos materials exposed during cutting or disjointing are adequately wetted during the cutting or disjointing operation. Such units shall not be dropped or thrown to the ground, but shall be carefully lowered to ground level.

(iv) The stripping of friable asbestos materials used on any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member that has been removed as a unit or in sections as provided in paragraph (d)(4)(iii) of this section shall be performed in accordance with paragraph (d)(4)(ii) of this section. Rather than comply with the wetting

ventilation and collection system may be used to prevent emissions to the outside air. Such local exhaust ventilation systems shall be designed and operated to capture the asbestos particulate matter produced by the stripping of friable asbestos material. There shall be no visible emissions to the outside air from such local exhaust ventilation and collection systems except as provided in paragraph (f) of this section.

(v) All friable asbestos materials that have been removed or stripped shall be adequately wetted to ensure that such materials remain wet during all remaining stages of demolition or renovation and related handling operations. Such materials shall not be dropped or thrown to the ground or a lower floor. Such materials that have been removed or stripped more than 50 feet above ground level, except those materials removed as units or in sections, shall be transported to the ground via dust-tight chutes or containers.

(vi) Except as specified below, the wetting requirements of this paragraph are suspended when the temperature at the point of wetting is below 0°C (32°F). When friable asbestos materials are not wetted due to freezing temperatures, such materials on pipes, ducts, boilers, tanks, reactors, turbines, furnaces, or structural members shall, to the maximum extent possible, be removed as units or in sections prior to wrecking. In no case shall the requirements of paragraphs (d)(4)(iv) or (d)(4)(v) be suspended due to freezing temperatures.

(vii) For renovation operations, local exhaust ventilation and collection systems may be used, instead of wetting as specified in paragraph (d)(4)(ii), to prevent emissions of particulate asbestos material to outside air when damage to equipment resulting from the wetting would be unavoidable. Upon request and supply of adequate information, the Administrator will determine whether damage to equipment resulting from wetting to comply with the provisions of this paragraph would be unavoidable. Such local exhaust ventilation systems shall be designed and operated to capture the as-

stripping and removal of friable bestos material. There shall be no ible emissions to the outside air m such local exhaust ventilation d collection systems, except as pro- d in paragraph (f) of this section.

5) Sources subject to this paragraph exempt from the requirements of 61.05(a), 61.07, and 61.09.

6) The demolition of a building, ucture, facility, or installation, pur- nt to an order of an authorized rep- entative of a State or local govern- ntal agency, issued because that ilding is structurally unsound and in ger of imminent collapse is exempt m all but the following require- nts of paragraph (d) of this section:

i) The notification requirements cified by paragraph (d)(2) of this ction;

ii) The requirements on stripping of able asbestos materials from previ- ly removed units or sections as cified in paragraph (d)(4)(iv) of is section;

iii) The wetting, as specified by ragraph (d)(4)(v) of this section, of able asbestos materials that have n removed or stripped;

iv) The portion of the structure t is demolished that contains friable bestos materials shall be adequately tted during the wrecking operation.

c) Spraying: There shall be no visi- emissions to the outside air from e spray-on application of materials ntaining more than 1 percent asbes- s, on a dry weight basis, used on uipment and machinery, except as ovided in paragraph (f) of this sec- n. Materials sprayed on buildings, uctures, pipes, and conduits shall ntain less than 1 percent asbestos on y weight basis.

1) Sources subject to this paragraph exempt from the requirements of 61.05(a), § 61.07, and § 61.09.

2) Any owner or operator who in- nds to spray asbestos materials ich contain more than 1 percent as- stos on a dry weight basis to insu- e or fireproof equipment and ma- inery shall report such intention to e Administrator at least 20 days ior to the commencement of the raying operation. Such report shall clude the following information:

(i) Amount of asbestos material.

(ii) Address of owner or operator.

(iii) Location of spraying operation.

(iv) Procedures to be followed to meet the requirements of this paragraph.

(3) The spray-on application of materials in which the asbestos fibers are encapsulated with a bituminous or resinous binder during spraying and which are not friable after drying is exempted from the requirements of paragraphs (e) and (e)(2) of this section.

(f) Rather than meet the no-visible-emission requirements as specified by paragraphs (a), (c), (d), (e), (h), (j), and (k) of this section, an owner or operator may elect to use the methods specified by § 61.23 to clean emissions containing particulate asbestos material before such emissions escape to, or are vented to, the outside air.

(g) Where the presence of uncombined water is the sole reason for failure to meet the no-visible-emission requirement of paragraphs (a), (c), (d), (e), (h), (j), or (k) of this section, such failure shall not be a violation of such emission requirements.

(h) Fabricating: There shall be no visible emissions to the outside air, except as provided in paragraph (f) of this section, from any of the following operations if they use commercial asbestos or from any building or structure in which such operations are conducted.

(1) The fabrication of cement building products.

(2) The fabrication of friction products, except those operations that primarily install asbestos friction materials on motor vehicles.

(3) The fabrication of cement or silicate board for ventilation hoods; ovens; electrical panels; laboratory furniture; bulkheads, partitions and ceilings for marine construction; and flow control devices for the molten metal industry.

(i) Insulating: Molded insulating materials which are friable and wet-applied insulating materials which are friable after drying, installed after the effective date of these regulations, shall contain no commercial asbestos. The provisions of this paragraph do not apply to [illegible] materials which are spray applied; such materials are regulated under § 61.22(e).

(j) Waste disposal for manufacturing, fabricating, demolition, renovation and spraying operations: The owner or operator of any source covered under the provisions of paragraphs (c), (d), (e), or (h) of this section shall meet the following standards:

(1) There shall be no visible emissions to the outside air, except as provided in paragraph (j)(3) of this section, during the collection; processing, including incineration; packaging; transporting; or deposition of any asbestos-containing waste material which is generated by such source.

(2) All asbestos-containing waste material shall be deposited at waste disposal sites which are operated in accordance with the provisions of § 61.25.

(3) Rather than meet the requirement of paragraph (j)(1) of this section, an owner or operator may elect to use either of the disposal methods specified under (j)(3) (i) and (ii) of this section, or an alternative disposal method which has received prior approval by the Administrator:

(i) Treatment of asbestos-containing waste material with water:

(A) Control device asbestos waste shall be thoroughly mixed with water into a slurry and other asbestos-containing waste material shall be adequately wetted. There shall be no visible emissions to the outside air from the collection, mixing and wetting operations, except as provided in paragraph (f) of this section.

(B) After wetting, all asbestos-containing waste material shall be sealed into leak-tight containers while wet, and such containers shall be deposited at waste disposal sites which are operated in accordance with the provisions of § 61.25.

(C) The containers specified under paragraph (j)(3)(i)(B) of this section shall be labeled with a warning label that states:

CAUTION

Contains Asbestos

Avoid Opening or

Breaking Container

Breathing Asbestos is Hazardous

to Your Health

Alternatively, warning labels specified by Occupational Safety and Health Standards of the Department of Labor, Occupational Safety and Health Administration (OSHA) under 29 CFR 1910.93a(g)(2)(ii) may be used.

(ii) Processing of asbestos-containing waste material into non-friable forms:

(A) All asbestos-containing waste material shall be formed into non-friable pellets or other shapes and deposited at waste disposal sites which are operated in accordance with the provisions of § 61.25.

(B) There shall be no visible emissions to the outside air from the collection and processing of asbestos-containing waste material, except as specified in paragraph (f) of this section.

(4) For the purposes of this paragraph (j), the term all asbestos-containing waste material as applied to demolition and renovation operations covered by paragraph (d) of this section includes only friable asbestos waste and control device asbestos waste.

(k) Waste disposal for asbestos mills: The owner or operator of any source covered under the provisions of paragraph (a) of this section shall meet the following standard:

(1) There shall be no visible emissions to the outside air, except as provided in paragraph (k)(3) of this section, during the collection, processing, packaging, transporting or deposition of any asbestos-containing waste material which is generated by such source.

(2) All asbestos-containing waste material shall be deposited at waste disposal sites which are operated in accordance with the provisions of § 61.25.

(3) Rather than meet the requirement of paragraph (k)(1) of this section, an owner or operator may elect to meet the following requirements in paragraphs [illegible]

ceived prior approval by the Administrator:

(i) There shall be no visible emissions to the outside air from the transfer of control device asbestos waste to the tailings conveyor, except as provided in paragraph (f) of this section. Such waste shall be subsequently processed either as specified in paragraph (k)(3)(ii) of this section or as specified in paragraph (j)(3) of this section.

(ii) All asbestos-containing waste material shall be adequately mixed, with a wetting agent recommended by the manufacturer of the agent to effectively wet dust and tailings, prior to deposition at a waste disposal site. Such agent shall be used as recommended for the particular dust by the manufacturer of the agent. There shall be no discharge of visible emissions to the outside air from the wetting operation except as specified in paragraph (f) of this section. Wetting may be suspended when the ambient temperature at the waste disposal site is less than −9.5° C (ca. 15° F). The ambient air temperature shall be determined by an appropriate measurement method with an accuracy of ±1° C (±2° F) and recorded at least at hourly intervals during the period that the operation of the wetting system is suspended. Records of such temperature measurements shall be retained at the source for a minimum of 2 years and made available for inspection by the Administrator.

(j) The owner of any inactive waste disposal site, which was operated by sources covered under § 61.22(a), (c) or (e) and where asbestos-containing waste material produced by such sources was deposited, shall meet the following standards:

(1) There shall be no visible emissions to the outside air from an inactive waste disposal site subject to this paragraph, except as provided in paragraph (j)(5) of this section.

(2) Warning signs shall be displayed at all entrances, and along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material was deposited, at intervals of 100 m (ca. 330 ft) or less, except as specified in paragraph (j)(4). The signs shall be posted in such a manner and location that a person may easily read the legend. The warning signs required by this paragraph shall conform to the requirements of 20" x 14" upright format signs specified in 29 CFR 1910.145(d)(4) and this paragraph. The signs shall display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

LEGEND

ASBESTOS WASTE DISPOSAL SITE

DO NOT CREATE DUST

Breathing Asbestos is Hazardous to Your Health

Notation

1" Sans Serif, Gothic or Block

¾" Sans Serif, Gothic or Block

14 Point Gothic

Spacing between lines shall be at least equal to the height of the upper of the two lines.

(3) The perimeter of the site shall be fenced in a manner adequate to deter access by the general public, except as specified in paragraph (j)(4) of this section.

(4) Warning signs and fencing are not required where the requirements of paragraphs (j)(5) (i) or (ii) of this section are met, or where a natural barrier adequately deters access by the general public. Upon request and supply of appropriate information, the Administrator will determine whether a fence or a natural barrier adequately deters access to the general public.

(5) Rather than meet the requirement of paragraph (j)(1) of this section, an owner may elect to meet the requirements of this paragraph or may use an alternative control method for emissions from inactive waste disposal sites which has received prior approval by the Administrator.

(i) The asbestos-containing waste material shall be covered with at least 15 centimeters (ca. 6 inches) of compacted non-asbestos-containing material, and a cover of vegetation shall be

adequate to prevent exposure of the asbestos-containing waste material; or

(ii) The asbestos-containing waste material shall be covered with at least 60 centimeters (ca. 2 feet) of compacted non-asbestos-containing material and maintained to prevent exposure of the asbestos-containing waste; or

(iii) For inactive waste disposal sites for asbestos tailings, a resinous or petroleum-based dust suppression agent which effectively binds dust and controls wind erosion shall be applied. Such agent shall be used as recommended for the particular asbestos tailings by the dust suppression agent manufacturer. Other equally effective dust suppression agents may be used upon prior approval by the Administrator. For purposes of this paragraph, waste crankcase oil is not considered a dust suppression agent.

[38 FR 8826, Apr. 6, 1973, as amended at 39 FR 15398, May 3, 1974; 40 FR 48299, Oct. 14, 1975; 43 FR 26374, June 19, 1978]

§ 61.23 Air-cleaning.

If air-cleaning is elected, as permitted by §§ 61.22(f) and 61.22(d)(4)(iv), the requirements of this section must be met.

(a) Fabric filter collection devices must be used, except as noted in paragraphs (b) and (c) of this section. Such devices must be operated at a pressure drop of no more than 4 inches water gage, as measured across the filter fabric. The airflow permeability, as determined by ASTM method D737-69, must not exceed 30 $ft^3/min/ft^2$ for woven fabrics or 35 $ft^3/min/ft^2$ for felted fabrics, except that 40 $ft^3/min/ft^2$ for woven and 45 $ft^3/min/ft^2$ for felted fabrics is allowed for filtering air from asbestos ore dryers. Each square yard of felted fabric must weigh at least 14 ounces and be at least one-sixteenth inch thick throughout. Synthetic fabrics must not contain fill yarn other than that which is spun.

(b) If the use of fabric filters creates a fire or explosion hazard, the administrator may authorize the use of wet collectors designed to operate with a unit contacting energy of at least 40 inches water gage pressure.

(c) The administrator may authorize than that described in paragraphs (a) and (b) of this section if the owner or operator demonstrates to the satisfaction of the administrator that the filtering of particulate asbestos material is equivalent to that of the described equipment.

(d) All air-cleaning equipment authorized by this section must be properly installed, used, operated, and maintained. Bypass devices may be used only during upset or emergency conditions and then only for so long as it takes to shut down the operation generating the particulate asbestos material.

[38 FR 8826, Apr. 6, 1973, as amended at 40 FR 48302, Oct. 14, 1975]

§ 61.24 Reporting.

The owner or operator of any existing source to which this subpart is applicable shall, within 90 days after the effective date, provide the following information to the administrator:

(a) A description of the emission control equipment used for each process;

(b) If a fabric filter device is used to control emissions, the pressure drop across the fabric filter in inches water gage.

(1) If the fabric filter device utilizes a woven fabric, the airflow permeability in $ft^3/min/ft^2$ and, if the fabric is synthetic, indicate whether the fill yarn is spun or not spun.

(2) If the fabric filter device utilizes a felted fabric, the density in oz/yd^2, the minimum thickness in inches, and the airflow permeability in $ft^3/min/ft^2$.

(c) For sources subject to §§ 61.22(j) and 61.22(k):

(1) A brief description of each process that generates asbestos-containing waste material.

(2) The average weight of asbestos-containing waste material disposed of, measured in kg/day.

(3) The emission control methods used in all stages of waste disposal.

(4) The type of disposal site or incineration site used for ultimate disposal, the name of the site operator, and the name and location of the disposal site.

(d) For sources subject to § 61.22(k)

(2) The method or methods used to comply with the standard, or alternative procedures to be used.

(c) Such information shall accompany the information required by § 61.10. The information described in this section shall be reported using the format of Appendix A of this part.

(Sec. 114, Clean Air Act as amended (42 U.S.C. 7414))

[38 FR 8826, Apr. 6, 1973, as amended at 40 FR 48302, Oct. 14, 1975; 43 FR 8800, Mar. 3, 1978]

§ 61.25 Waste disposal sites.

In order to be an acceptable site for disposal of asbestos-containing waste material under § 61.22(j) and (k), an active waste disposal site shall meet the requirements of this section.

(a) There shall be no visible emissions to the outside air from any active waste disposal site where asbestos-containing waste material has been deposited, except as provided in paragraph (e) of this section.

(b) Warning signs shall be displayed at all entrances, and along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited, at intervals of 100 m (ca. 330 ft) or less except as specified in paragraph (d) of this section. Signs shall be posted in such a manner and location that a person may easily read the legend. The warning signs required by this paragraph shall conform to the requirements of 20" x 14" upright format signs specified in 29 CFR 1910.145(d)(4) and this paragraph. The signs shall display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

Legend	Notation
Asbestos Waste Disposal Site	1" Sans Serif, Gothic or Block
Do Not Create Dust	¾" Sans Serif, Gothic or Block
Breathing Asbestos is Hazardous to Your Health	14 Point Gothic

Spacing between lines shall be at least equal to the height of the upper of the two lines.

(c) The perimeter of the disposal site shall be fenced in order to adequately deter access to the general public except as specified in paragraph (d) of this section.

(d) Warning signs and fencing are not required where the requirements of paragraph (e)(1) of this section are met, or where a natural barrier adequately deters access to the general public. Upon request and supply of appropriate information, the Administrator will determine whether a fence or a natural barrier adequately deters access to the general public.

(e) Rather than meet the requirement of paragraph (a) of this section, an owner or operator may elect to meet the requirements of paragraph (e)(1) or (e)(2) of this section, or may use an alternative control method for emissions from active waste disposal sites which has received prior approval by the Administrator.

(1) At the end of each operating day, or at least once every 24-hour period while the site is in continuous operation, the asbestos-containing waste material which was deposited at the site during the operating day or previous 24-hour period shall be covered with at least 15 centimeters (ca. 6 inches) of compacted non-asbestos-containing material.

(2) At the end of each operating day, or at least once every 24-hour period while the disposal site is in continuous operation, the asbestos-containing waste material which was deposited at the site during the operating day or previous 24-hour period shall be covered with a ... dust suppression agent which effectively binds dust and controls wind erosion. Such agent shall be used as recommended for the particular dust by the dust suppression agent manufacturer. Other equally effective dust suppression agents may be used upon prior approval by the Administrator. For purposes of this paragraph, waste crankcase oil is not considered a dust suppression agent.

[40 FR 48302, Oct. 14, 1975]

Subpart C—National Emission Standard for Beryllium

§ 61.30 Applicability.

The provisions of this subpart are applicable to the following stationary sources:

(a) Extraction plants, ceramic plants, foundries, incinerators, and propellant plants which process beryllium ore, beryllium, beryllium oxide, beryllium alloys, or beryllium-containing waste.

(b) Machine shops which process beryllium, beryllium oxides, or any alloy when such alloy contains more than 5 percent beryllium by weight.

§ 61.31 Definitions.

Terms used in this subpart are defined in the act, in subpart A of this part, or in this section as follows:

(a) "Beryllium" means the element beryllium. Where weights or concentrations are specified, such weights or concentrations apply to beryllium only, excluding the weight or concentration of any associated elements.

(b) "Extraction plant" means a facility chemically processing beryllium ore to beryllium metal, alloy, or oxide, or performing any of the intermediate steps in these processes.

(c) "Beryllium ore" means any naturally occurring material mined or gathered for its beryllium content.

(d) "Machine shop" means a facility performing cutting, grinding, turning, honing, milling, deburring, lapping, electrochemical machining, etching, or other similar operations.

(e) "Ceramic plant" means a manufacturing plant producing ceramic items ...

(f) "Foundry" means a facility engaged in the melting or casting of beryllium metal or alloy.

(g) "Beryllium-containing waste" means material contaminated with beryllium and/or beryllium compounds used or generated during any process or operation performed by a source subject to this subpart.

(h) "Incinerator" means any furnace used in the process of burning waste for the primary purpose of reducing the volume of the waste by removing combustible matter.

(i) "Propellant" means a fuel and oxidizer physically or chemically combined which undergoes combustion to provide rocket propulsion.

(j) "Beryllium alloy" means any metal to which beryllium has been added in order to increase its beryllium content and which contains more than 0.1 percent beryllium by weight.

(k) "Propellant plant" means any facility engaged in the mixing, casting, or machining of propellant.

§ 61.32 Emission standard.

(a) Emissions to the atmosphere from stationary sources subject to the provisions of this subpart shall not exceed 10 grams of beryllium over a 24-hour period, except as provided in paragraph (b) of this section.

(b) Rather than meet the requirement of paragraph (a) of this section, an owner or operator may request approval from the Administrator to meet an ambient concentration limit on beryllium in the vicinity of the stationary source of 0.01 μg/m³, averaged over a 30-day period.

(1) Approval of such requests may be granted by the Administrator provided that:

(i) At least 3 years of data is available which in the judgment of the Administrator demonstrates that the future ambient concentrations of beryllium in the vicinity of the stationary source will not exceed 0.01 μg/m³, averaged over a 30 day period. Such 3 year period shall be the 3 years ending 30 days before the effective date of this standard.

(ii) The owner or operator requests

ANNALS OF THE NEW YORK ACADEMY OF SCIENCES
Volume 330

HEALTH HAZARDS OF ASBESTOS EXPOSURE

Edited by Irving J. Selikoff and E. Cuyler Hammond

The New York Academy of Sciences
New York, New York
1979

Sciences

l da*a.
. NICHOLSON. 1975. Exposure to
. and taping compound. Science

re to asbestos. Fed. Reg. 37 (110)

re to asbestos. Fed. Reg. 4[illegible] (103)

ire to asbestos. Notice of proposed

\RE. 1977. Revised recommended

ASBESTOS CONTAMINATION IN UNITED STATES SCHOOLS FROM USE OF ASBESTOS SURFACING MATERIALS*

William J. Nicholson, Edward J. Swoszowski, Jr. Arthur N. Rohl, James D. Todaro, and Antoinette Adams

Environmental Sciences Laboratory
Mount Sinai School of Medicine
The City University of New York
New York, New York 10029

Until recently there was only limited awareness of the extent of asbestos use in public school buildings. Reports existed of damaged asbestos surfaces in a grade school in Wyoming,[1] a university dormitory in California,[2] and in the Yale School of Arts and Architecture in New Haven, Connecticut.[3] In each case, public concern [illegible] the removal of the asbestos material. In both the Wyoming school and the [illegible] Library, air measurements by optical microscopy showed asbestos concentrations that in some circumstances exceeded 5 f/ml, the time-weighted-average occupational standard in effect at the time. In the fall of 1976, flaking of sprayed-on asbestos was reported in a school in Howell Township, New Jersey, leading to its removal and to further concern about the presence of deteriorating asbestos in other school buildings in New Jersey. As a consequence, the New Jersey Department of Education requested that the school administrators report the presence and condition of asbestos surfaces in all school buildings within the state. Responses revealed that 265 (of approximately 2400) schools in all 142 districts in the State had nearly three million square feet of what they considered to be asbestos material in classrooms, auditoriums, hallways and other rooms accessible to pupils.

Asbestos Surfacing Materials in New Jersey Schools

In cooperation with the Department of Education of New Jersey, the Environmental Sciences Laboratory of Mount Sinai School of Medicine undertook an investigation of the asbestos use in New Jersey schools.[4] All of the schools with asbestos surfacing material in twenty-one districts were selected for study. The selection was accomplished using random numbers, but also employed a weighting factor to include more of those school districts which had reported greater use of asbestos. In all, forty-eight schools were visited and samples were taken of the material thought to be asbestos. These were analyzed for their asbestos content and for the presence of other mineral materials. Areas such as classrooms, hallways, auditoriums, cafeterias and locker rooms were priority locations for sampling, since they are used by large numbers of students as well as by faculty. In general the suspect materials were on ceilings, although they might also have been applied to walls. Of 64 samples collected, 50 were in such areas, the remainder being from custodial or boiler rooms.

During visual inspection of these schools and the analysis of collected samples, three general types of asbestos containing material were found. One was a friable,

*This research was supported by Contract N01-ES-7-2113 of the National Institute of Environmental Health Sciences.

0077-8923/79/0330-0587 $01.75/0

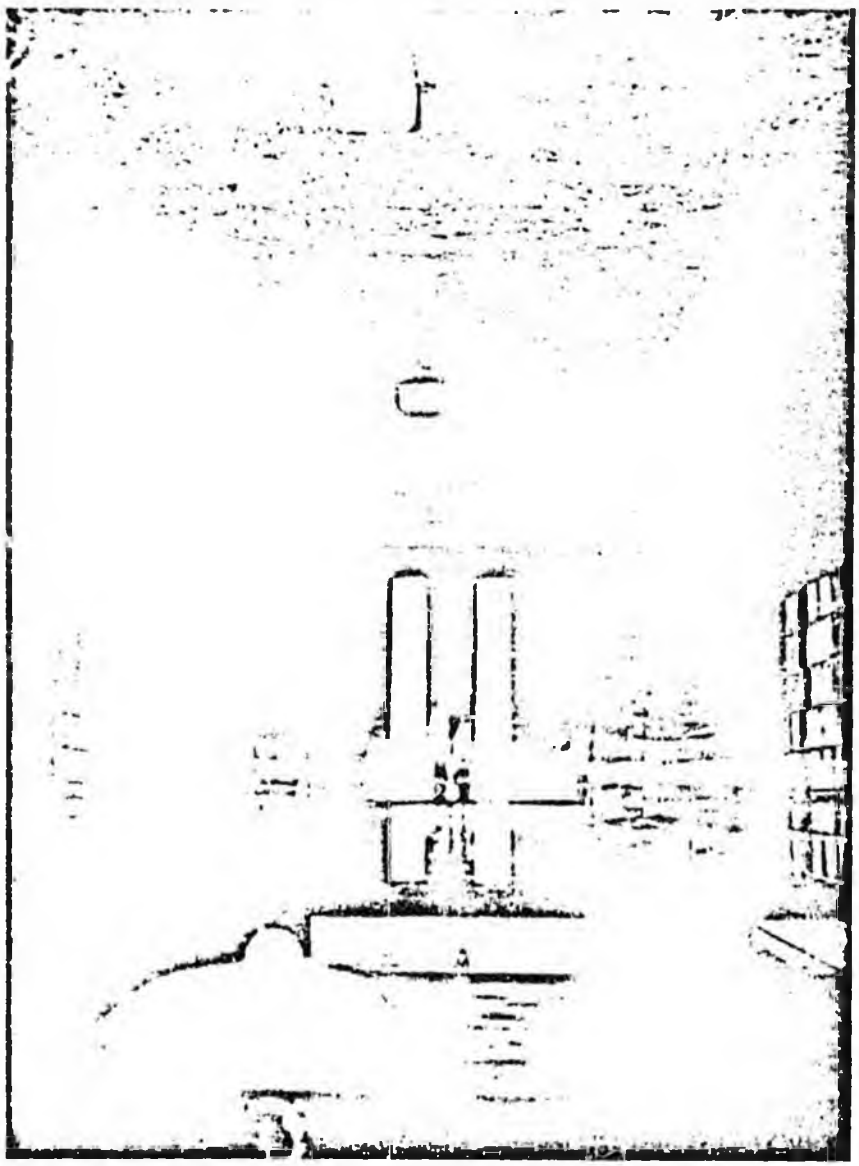


FIGURE 1. Damage to asbestos materials sprayed on a hallway ceiling. This was easily reached by students and extensive damage was present throughout the length of the hallway.

loosely bonded, fibrous mat approximately one-half inch thick. The mat had been applied by blowing a mixture of asbestos, mineral (rock) wool, clay binders (as, bentonite), adhesives, synthetic resins and other proprietary agents through a two- to four-inch diameter hose. Upon leaving the hose, the material passed through a water spray which activated the adhesives and binders. The applied material would then

eiling. This was easily reached
th of the hallway.

thick. The mat had been
k) wool, clay binders (as,
's agents through a two- to
ial passed through a water
Wed material would then

have been tamped and often sprayed with emulsion type sealers—latex or acrylic paints. Most material of this type observed in this survey was readily damageable and could also break loose from the underlying surface because of the inadequacy of the bi..ers. In the schools visited, the most troublesome problems were those seen with ..ais type of material and its application. FIGURES 1 and 2 illustrate extreme examples of damaged and deteriorating sprayed-on asbestos ceilings. Approximately one-third of the schools visited had this type of material applied. Its use in boiler rooms and custodial areas was more frequent, however.

A second type of coating material was a dense, compactible mixture of asbestos and other products, such as vermiculite. This would have been applied in the wet state to walls and ceilings, compacted and formed into a relatively smooth matrix. This material would also usually be over-painted, either shortly following application or subsequently. In the schools we visited, spontaneous disintegration of such materials was not seen. However, in areas accessible to students, various degrees of abuse were observed. Severe damage of such m: terial is shown in FIGURES 3 and 4.

Thirdly, asbestos was found incorporated in cementitious or plaster-like matrices. These were applied as slurries to walls and ceilings forming a textured surface of considerable hardness which would usuall.. be over-painted. Such plasters or textured paints have considerable stability and ..re unlikely to allow the release of asbestos fibers through erosion. Although damage to these surfaces can occur from physical abuse or abrasion, this was infrequently seen.

In each school visited the asbestos material was categorized as above and an estimate made of damage or deterioration. The results are outlined in TABLE 1.

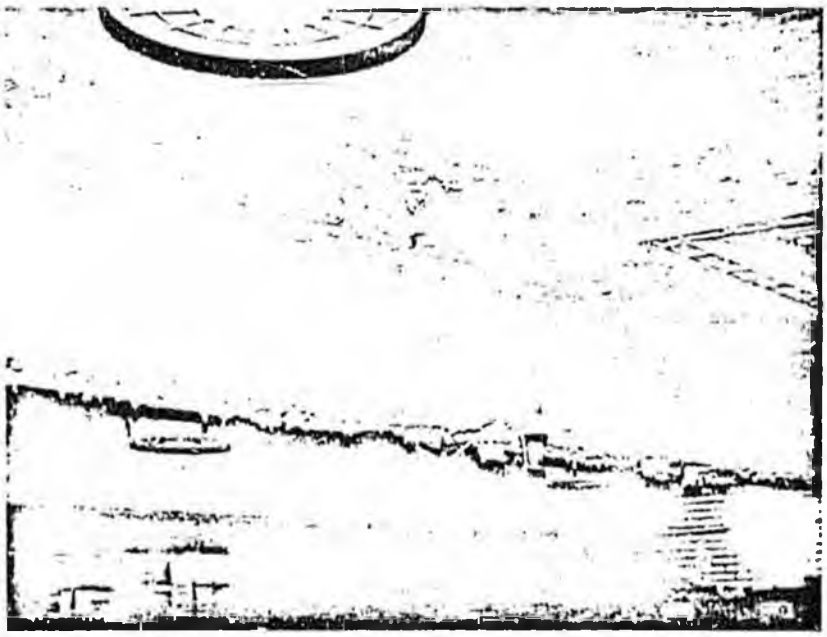


FIGURE 2. Disintegration of fibrous spray material in a building storage area. The conditions seen occurred spontaneously, with no evidence of external abuse.

FIGURE 3. Damage to cementitious asbestos spray in a school hallway. Some of the indentations occurred from flagpoles inadvertently striking the ceiling during color guard practice.

Overall, two-thirds of schools with asbestos surfaces had some visible evidence of damage to the material.

The x-ray analysis of materials, by and large, confirmed the presence of asbestos in those schools that had reported its use. Such was the case in 97% of the schools that believed their sprayed-on material contained asbestos. In only two schools was the reported presence of asbestos not confirmed by x-ray diffraction analysis of the sampled material. On the other hand, this survey did not provide information on the number of schools that may have been mistaken in their belief that they had no asbestos in surfacing material, and, as a result, did not report its presence. That this possibility exists is exemplified by one instance in which a school official stated that his administration had been told by its architect that the sprayed-on plaster material in their school was asbestos free. An analysis of the material, however, revealed that it contained about 2% chrysotile. Further, many schools did not report the presence of asbestos in school areas not used by pupils, such as boiler rooms where extensive use of asbestos occurs. While not accessible to students, the possibility exists that such asbestos could be dislodged and transported into student use areas.

Similar data from other areas indicate the use in New Jersey is fairly typical. New York City has reported asbestos surfaces to be present in 351 of approximately 1100 schools in the city.[5] Massachusetts found asbestos in student areas of 138 of 1200 schools surveyed.[6] Widespread use of asbestos has also been reported in schools in Indiana, Kentucky and other states.[7] If the estimates from those states surveyed are applicable to the entire nation, two to six million pupils may be attending schools with asbestos surfaces in pupil areas.[1] An additional 100,000 to 300,000 teachers would also be exposed.

Asbestos Concentrations in Schools and in the Ambient Air

Air samples have been taken in ten schools in which asbestos materials were used as surface coatings in halls, cafeterias, libraries and other pupil-use areas. Three of the schools were located in surburban areas of New Jersey and Massachusetts, and seven

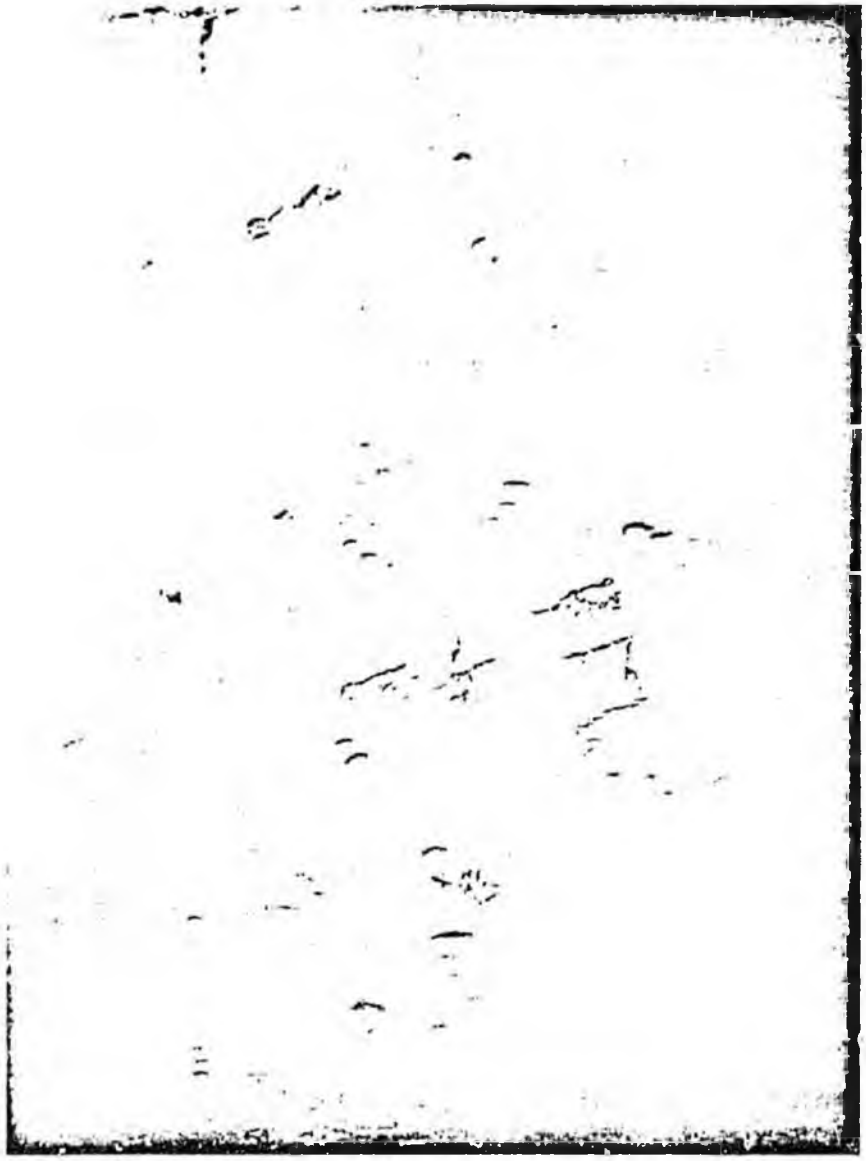


FIGURE 4. Further damage to cementitious ceiling material. Here evidence exists that some students wished to be remembered beyond their stay at the school.

TABLE 1
CONDITION OF ASBESTOS SURFACES IN 64 NEW JERSEY SCHOOLS

Type of Asbestos Material	Intact Undamaged	Minimum Damage, No Deterioration	Localized Damage or Deterioration	Severe Damage or Deterioration	Totals
Loose, friable fibrous asbestos spray material	4 (18%)	10 (45%)	5 (23%)	3 (14%)	22
Moderately dense asbestos spray material, often in association with vermiculite or perlite	15 (42%)	13 (36%)	4 (11%)	4 (11%)	36
Plaster or textured paint material with asbestos binder	4 (67%)	1 (17%)	1 (17%)	0 (0%)	6
Totals	23 (36%)	24 (38%)	10 (16%)	7 (11%)	64

in urban centers of New York and New Jersey. The schools were selected for air sampling because of visible damage in some of the asbestos surfaces. The samples were collected on 0.8 μm pore size membrane filters and analyzed using electron microscopic techniques that determined the amount of chrysotile asbestos in each specimen. This variety of asbestos was quantitated because it could easily be identified on the basis of its unique tubular structure. Amphibole asbestos (either amosite or crocidolite) could also be present in the air of schools or in the ambient air, but is much less commonly found. For example, only seven of 64 bulk material samples in schools contained either of these minerals. However, if present in the air sampled, such asbestos would add to those concentrations measured.

To prepare a sample for analysis, a portion of the sample, mounted on a microscope slide, was ashed in a low temperature-activated oxygen furnace for approximately four hours. This served to remove the membrane filter material, all organic material in the collected sample, soot and other carbonaceous material. The residue, consisting mostly of fly ash and mineral matter, was dispersed on microscope slides in a solution of 1% nitrocellulose in amyl acetate. Upon evaporation of amyl

TABLE 2
DISTRIBUTION OF CHRYSOTILE ASBESTOS CONCENTRATIONS IN 4- TO 8-HOUR SAMPLES TAKEN IN PUBLIC SCHOOLS WITH DAMAGED ASBESTOS SURFACES

Electron Microscopic Analysis		
Asbestos Concentration (ng/m^3) Less than	Number of Samples	Percentage of Samples
20	1	3.7
50	6	22.2
100	12	44.4
200	19	70.4
500	25	92.6
1000	26	96.3
2000	27	100.0

v Jersey Schools

alized nage or rioration	Severe Damage or Deterioration	Totals
(23%)	3 (14%)	22
(11%)	4 (11%)	36
(17%)	0 (0%)	6
(16%)	7 (11%)	64

schools were selected for air os surfaces. The samples were nd analyzed using electron f chrysotile asbestos in each se it could easily be identified e asbestos (either amosite or n the ambient air, but is much k material samples in schools nt in the air sampled, such

the sample, mounted on a etivated oxygen furnace for nembrane filter material, all carbonaceous material. The w s dispersed on microscope Upon evaporation of the amyl

s in 4- to 8-Hour Samples sbestos Surfaces

Percentage of Samples
1.7
22.2
44.4
70.4
92.6
96.1
[illegible]

acetate, the dispersal was scanned for uniformity and representative areas were chosen for transfer to electron microscope grids for scanning. The samples thus prepared were scanned at magnification of 20,000X. Typically, four to eight 100 μm squares of separate grids from each sample were scanned, and the mass of chrysotile fibers was determined by sizing each individual fiber. Control blank filters were processed with each set of four samples and background levels of chrysotile determined from them subtracted from that found on sample filters.

Table 2 lists the distribution of chrysotile concentrations found in samples taken over four to eight hours in these ten schools. Chrysotile asbestos concentrations ranged from 9 nanograms/cubic meter of sampled air (ng/m^3) to 1950 ng/m^3 with an average of 217 ng/m^3. Outside air samples at three of the schools varied from 3 ng/m^3 to 30 ng/m^3 with an average of 14 ng/m^3. In all samples but two (which measured 320 ng/m^3 and 260 ng/m^3) no asbestos was visible on the floor of the area sampled although surface damage was generally present near the area sampled. The highest value (1950 ng/m^3) was in a sample following routine sweeping of a hallway in a school with water damage to the asbestos surface. However, no asbestos was visible on the floor prior to sweeping.

Table 3

Distribution of 24-Hour Chrysotile Asbestos Concentrations in the Ambient Air of United States Cities[8]

Electron Microscopic Analysis		
Asbestos Concentration (ng/m^3) Less than	Number of Samples	Percentage of Samples
1.0	61	32.6
2.0	119	63.6
5.0	164	87.7
10.0	176	94.2
20.0	184	98.5
50.0	185	99.0
100.0	187	100.0

These concentrations in schools with damaged asbestos surfaces can be compared with those found in other circumstances. Asbestos of the chrysotile variety has been found to be a ubiquitous contaminant of ambient air. A study of 187 quarterly composite samples collected in 48 United States cities during 1969 to 1970 showed chrysotile asbestos to be present in virtually all metropolitan areas.[8] Table 3 lists the distribution of values obtained in that study. Each value is from a composite of five to seven 24-hour samples and thus averages over possible peak concentrations which could occur periodically or randomly. It is noteworthy that 98.5% of these ambient air samples had concentrations less than 20 ng/m^3, a value *exceeded* by 96% of the school samples.

In a study of the ambient air of New York City, in which samples were taken only during daytime working hours, higher values than those mentioned above were obtained.[9] These were six- to eight-hour samples collected between 8:00 A.M. and 5:00 P.M., and reflect what could be intermittently higher concentrations during those hours compared to night time periods, for example. Table 4 records the chrysotile

content of 22 samples collected in the five boroughs of New York. It should be noted that the samples analyzed in all of the studies discussed above were taken during a period when fireproofing highrise buildings by spraying asbestos-containing material was permitted. The practice was especially common in New York City. While no sampling station was known to be located adjacent to an active construction site, unusually high levels could nevertheless have resulted from the procedure. The highest concentration measured in these samples, 65 ng/m^3, was exceeded by 70% of the school samples and the average of all 26 school samples (217 ng/m^3) was more than 10 times the average of the New York City samples (17 ng/m^3).

Of particular relevance to the current study are the analyses for chrysotile of 116 samples of indoor and outdoor air collected in or near 19 buildings in five United States cities.[10] The buildings sampled included those in which various asbestos minerals had been applied as fireproofing material to the steelwork or for acoustic or decorative purposes. Average values for the air inside buildings ranged from 2.5 ng/m^3 to 200 ng/m^3, with individual measurements ranging from 0 to 800 ng/m^3.

For outside air the variation for the average concentration at a given site extended from 0 to 48 ng/m^3. Little contamination was found in buildings utilizing cementitious

TABLE 4

CHRYSOTILE CONTENT OF AMBIENT AIR IN NEW YORK CITY BY BOROUGH (6- TO 8-HOUR DAYTIME SAMPLES)[9]

Sampling Locations	Number of Samples	Asbestos Concentration (ng/m^3)	
		Range	Average
Manhattan	7	8–65	30
Brooklyn	3	6–39	19
Bronx	4	2–25	12
Queens	4	3–18	9
Staten Island	4	5–14	8

material but 47% of buildings with friable asbestos materials, either on room surfaces or in return air plenums, had air concentrations in excess of 20 ng/m^3 versus 14% of all outside control samples. Twenty-four samples were taken in buildings with asbestos applied to wall and ceiling surfaces for decorative or acoustic purposes. Of these, three showed concentrations exceeding 100 ng/m^3 in areas where the asbestos was damaged. However, in the absence of damage, air concentrations similar to background were observed.

The majority of the data on asbestos concentrations in schools were obtained in circumstances in which damage had occurred to friable, noncementitious asbestos-containing sprayed material with consequent dislodgement of asbestos fibers. In general, when significant levels were found, physical deterioration of the surface of the material was evident. While fewer data exist regarding air concentrations associated with damage to cementitious asbestos-containing sprayed material, the finding of higher chrysotile concentrations in one school with such material raises the same question here as well. Thus, the conclusions that can be drawn from these data include the following.

1. If visible damage to or erosion of any asbestos-containing sprayed material is evident, increased asbestos air concentrations would have existed at the time of damage and may still persist.

2. As such damage is likely to recur or to continue, asbestos air concentrations in excess of background (50 ng/m^3) may be expected in the future.
3. Where visible damage or erosion is not evident, asbestos air concentrations are likely to be little different from background, but the possibility of later damage and future asbestos fiber release with concomitant increased air concentrations cannot be excluded.

Environmental Asbestos Health Effects

Serious asbestos disease associated with direct[11-13] or indirect[14] occupational exposure to asbestos has been extensively documented. Of increasing importance, are the findings of asbestos disease in other than occupational circumstances. In 1960 Wagner reviewed 47 cases of mesothelioma found in the Northwest Cape Province, South Africa in the previous five years.[15] Of this number, roughly half were in people who had worked with asbestos. Virtually all of the rest were in individuals who had, decades before, simply lived or worked in an area of asbestos mining (one lived along a roadway in which asbestos fibers were shipped). This germinal observation demonstrated that asbestos exposure of limited intensity, often intermittent, could cause mesothelioma. The hazard was further pointed by the findings of Newhouse,[16] who showed that mesothelioma could occur among people whose potential asbestos exposure consisted of their having resided near an asbestos factory or in the households of asbestos workers. Twenty of 76 cases from the files of the London Hospital were the result of such exposure, 31 were occupational in origin and asbestos exposure was not identified for 25.

A recent extensive study of the effects of household exposure has been conducted by Dr. Henry Anderson and his colleagues of the Mount Sinai School of Medicine.[17] In a clinical survey of 679 family contacts of former asbestos factory workers, it was found that the x-rays of 35% of these individuals showed abnormalities characteristic of asbestos exposure. It did not matter greatly what the relationship to the worker was; the asbestos dust in the household could effect any resident—wife, sons, daughters, parents. While almost all were currently asymptomatic, and while most would perhaps suffer no impairment from their past exposure, others may be stricken with an asbestos-related cancer as a result of past household asbestos exposure. (During this continuing survey, five deaths of mesothelioma have already been identified in this group of family contacts.)

Unfortunately, no exposure data exist on the concentrations of asbestos dust to which these various populations were exposed 20, 30, or 40 years ago. Thus, direct dose-response data on asbestos health effects in environmental circumstances do not exist. However, recent measurements of asbestos concentrations in the homes of workers, around sites where asbestos materials were sprayed as fireproofing or in the neighborhood surrounding uncontrolled asbestos-processing facilities, usually yield values in the hundreds of ng/m^3, with concentrations only rarely exceeding 1000 ng/m^3.[18] This suggests that the long-term exposure of many children to concentrations above 100 ng/m^3 may not be without later risk of asbestos disease.

References

1. Wagoner, J. K. Occupational Safety and Health Administration, U.S. Department of Labor. Personal communication.
2. Brown, H. V. UCLA, Los Angeles, California. Personal communication to R. N. Sawyer.

3. SAWYER, R. N. 1977. Asbestos exposure in a Yale building: analysis and resolution. Environ. Res. 13: 146–168.
4. NICHOLSON, W. J. *et al.* 1978. Control of sprayed asbestos surfaces in school buildings: a feasibility study. Final Report. Contract No. NO1-ES-7-2111, NIEHS.
5. SMITH, A. R. 1979. New York City Board of Education. Testimony before House of Representatives Education and Labor Subcommittee on Elementary, Secondary and Vocational Education. January 8.
6. HUSID, D. M. 1979. Massachusetts Special Legislative Commission on Asbestos. Testimony before House of Representatives Education and Labor Subcommittee on Elementary, Secondary and Vocational Education. January 8.
7. DACIB, L. 1979. Environmental Defense Fund, Washington, D.C. Testimony before House of Representatives Educational and Labor Subcommittee on Elementary, Secondary and Vocational Education. January 8.
8. NICHOLSON, W. J. 1971. Measurement of asbestos in ambient air. Final Report. Contract CPA 70–92, National Air Pollution Control Administration.
9. NICHOLSON, W. J., A. N. ROHL & E. F. FERRAND. 1971. Asbestos air pollution in New York City. *In:* Proceedings of the Second Clean Air Congress. H. M. England, & W. T. Barry, Eds. Academic Press, New York.
10. NICHOLSON, W. J., A. N. ROHL & I. WEISMAN. 1975. Asbestos contamination of the air in public buildings. Final Report. Contract No. 68–02–1346. Environmental Protection Agency. See also, Nicholson, W. J., A. N. Rohl and I. Weisman. 1976. Asbestos contamination of building air supply systems. Proc. Int. Conf. on Environmental Sensing and Assessment: Vol II., Paper 29–6, Inst. Electrical and Electronic Engineers.
11. SELIKOFF, I. J., E. C. HAMMOND & H. SEIDMAN. 1973. Cancer risk of insulation workers in the United States. *In:* Biological Effects of Asbestos, IARC Sc. Pub No. 8:209–216. Lyons, France.
12. ENTERLINE, P., P. DECOUFLE & V. HENDERSON. 1972. Mortality in relation to occupational exposure in the asbestos industry. J. Occup. Med. 14(12): 897–903.
13. MCDONALD, J. C., A. MCDONALD, G. W. GIBBS, J. SIEMIATYCKI & C. E. ROSSITER. 1971. Mortality in the chrysotile asbestos mines and mills of Quebec. Arch. Environ. Health 22: 667–686.
14. HARRIES, P. G. 1976. Experience with asbestos disease and its control in Great Britain's naval dockyards. Environ. Res. 11: 261–267.
15. NICHOLSON, W. J. To be published.

LAWS OF ALASKA

1983

Source

CSSB 79(Res)

Chapter No.

93

AN ACT

Relating to toxic and hazardous substances in the workplace; and providing for an effective date.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

THE ACT FOLLOWS ON PAGE 1, LINE 9

Approved by the Governor: July 25, 1983
Actual Effective Date: Sections 1, 3, and 4 take effect July 26, 1983; and Section 2 takes effect July 1, 1984

Chapter 93

AN ACT

Relating to toxic and hazardous substances in the workplace; and providing for an effective date.

* Section 1. AS 18.60.030 is amended by adding new paragraphs to read:

(12) annually publish a list of toxic and hazardous substances;

(13) maintain a current set of OSHA form 20's or equivalent information for toxic and hazardous substances, and other information relevant to toxic and hazardous substances;

(14) assist employers, upon request, to identify and obtain information on toxic and hazardous substances and develop employee safety education programs.

* Sec. 2. AS 18.60 is amended by adding new sections to read:

Sec. 18.60.065. IMPORTATION OF TOXIC AND HAZARDOUS SUBSTANCES. Toxic and hazardous substances imported into the state shall be accompanied by a federal Occupational Safety and Health Administration (OSHA) form 20 or equivalent information. This requirement does not apply to a substance for which the in-state purchaser has already received the most current information.

Sec. 18.60.066. EMPLOYEE SAFETY EDUCATION PROGRAMS. (a) An employer shall conduct a safety education program for an employee before the employee performs a new work assignment that may result in the employee being exposed to a toxic or hazardous substance for which the employee has not received safety instruction as provided under (b

of this section.

(b) An employee safety instruction program shall inform the employee of

(A) the location, properties, and known or suspected acute and chronic health effects of the hazardous or toxic substances to which the employee is exposed in the workplace;

(B) the nature of the operations that could result in exposure to hazardous or toxic substances, as well as any necessary handling or hygienic practices or precautions; and

(C) the location, purpose, proper use, and limitations of personal protective equipment used in the workplace.

Sec. 18.60.067. INFORMATION PROVIDED ON EMPLOYEE'S REQUEST. (a) An employer shall make available to an employee on request a copy of the most recent OSHA form 20 or equivalent written information for a toxic or hazardous substance to which the employee may be exposed. If the employer does not have the copy or information requested, the employer shall request a copy from the department or the manufacturer of the substance within three state government working days after receiving the request.

(b) If the copy or information requested under (a) of this section is not made available to the employee within 15 calendar days after the request is received, the employer shall take measures to assure that employees are not exposed to the substance to which the copy or information pertains until the copy or information is made available to the employee who made the request. This subsection applies only to substances for which an OSHA form 20 or equivalent information is required under OSHA regulations. This subsection does not alter, deny, or abrogate any right an employee may have under law to refuse to work under hazardous circumstances.

Chapter 93

Sec. 18.60.068. POSTING OF INFORMATION IN WORKPLACE. (a) The department shall print and make available to employers posters that contain notice of the provisions of this chapter relating to toxic and hazardous substances.

(b) An employer whose employees are or may be exposed in the workplace to a toxic or hazardous substance shall display the following information in a manner designed to notify the employees:

(1) a poster printed by the department under (a) of this section; and

(2) an OSHA form 20 or equivalent information for each toxic or hazardous substance to which an employee may be exposed in the workplace

(A) under normal conditions of work; or

(B) during a reasonably foreseeable emergency, including equipment failure and rupture of containers.

(c) Instead of posting the information required under (b)(2) of this section, an employer may post a list of the chemical name and product name of each toxic or hazardous substance to which an employee may be exposed in the workplace, together with an identification of a location, in or near the workplace and accessible to employees, where an employee may inspect the information listed under (b)(2) of this section.

* Sec. 3. AS 18.60.105 is amended by adding new paragraphs to read:

(6) "be exposed" means to ingest, inhale, or absorb through the skin or eyes a substance, or fumes or other potentially harmful aspect of a substance;

(7) "OSHA" means the federal Occupational Safety and Health Administration;

(8) "toxic or hazardous substance" includes

(A) a chemical listed in 29 CFR Part 1910, Subpart Z, Toxic and Hazardous Substances, "General Industry Standards", Occupational Safety and Health Administration;

(B) a chemical listed in "Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment", American Conference of Governmental Industrial Hygienists (Latest Edition);

(C) a substance for which an OSHA form 20 or equivalent information is required under OSHA regulations; and

(D) a substance determined by the department, in accordance with the Administrative Procedure Act (AS 44.62), to be a health hazard to an employee who is exposed to the substance, including a carcinogen, reproductive toxin, irritant, corrosive, sensitizer, hepatotoxin, nephrotoxin, neurotoxin, agent that acts on the hematopoietic system, agent that damages the lungs, a cutaneous hazard and an eye hazard;

(9) "toxic or hazardous substance" does not include

(A) substances that because of their physical state, volume, or concentration do not pose a health hazard upon exposure;

(B) substances that are goods, food, drugs, cosmetics, or tobacco products intended for personal consumption; or

(C) substances in transit;

(10) "transit" means conveyed in a sealed or unopened container by a mode of transportation.

* Sec. 4. AS 18.60.105 is amended by adding a new subsection to read:

(b) In AS 18.60.030(14), 18.60.065 - 18.60.068, and 18.60.105-(a)(9)

(1) "employee" means a person who works for an employer,

but not in a place used primarily as a personal residence;

(2) "employer" means a person, including the state and a political subdivision of the state, who has one or more employees working in a place not used primarily as a personal residence.

(3) "health hazard" means a substance capable of causing acute or chronic adverse effects to health;

(4) "workplace" means a place of employment other than a place used primarily as a personal residence.

* Sec. 5. Sections 1, 3, and 4 of this Act take effect immediately in accordance with AS 01.[illegible].070(c).

* Sec. 6. Section 2 of this Act takes effect July 1, 1984.

News Miner
2/1/84

EPA: schools ignore law about asbestos warnings

WASHINGTON (AP)—Local school officials, worried about their budgets or about "panic and hysteria," are widely ignoring a federal law requiring parents to be notified about dangerous asbestos in their school buildings, a government study says.

The study by the Environmental Protection Agency said that study said.

In many cases, the study said, school officials did not want to notify parents because of the money the school district would have to spend if forced to clean up the asbestos hazard.

School officials "are reluctant to notify parents because they believe this will result in a redirection of limited operating funds and-or create unnecessary panic and hysteria," the study said.

But whatever the reason, the EPA study added, it is undermining the program to get rid of hazards from asbestos that face millions of schoolchildren.

"The success or failure of the asbestos in schools rule, which relies heavily upon public involvement, is the degree to which information is communicated to the public," the study said. "Poor public awareness has resulted in only slight activity on the part of the parent groups in schools."

The finding are included in an internal program review requested by EPA Deputy Administrator Al Alm and completed in December. A copy was obtained by The Associated Press.

The study involves asbestos insulation that once was widely used in schools and other public buildings. Health officials now say that some types of asbestos can flake into microscopic particles that can be inhaled, causing lung cancer or other lung diseases. There is no known safe exposure level.

Under federal law, school officials are required to inspect their buildings for hazardous asbestos and to notify parents and school employees if it is found. It is then up to the local officials to decide what to do.

The law covers more than 37,000 public, private and parochial school systems with more than 50 million students.

The EPA study was intended to find out how well the program was working. Some of its findings, including the conclusion that two-thirds of the nation's schools are in violation of some part of the law, have been reported earlier.

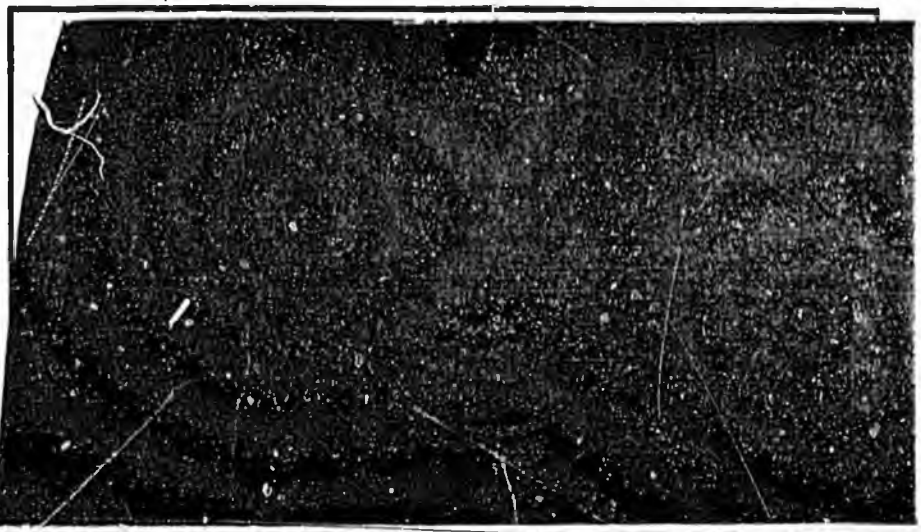
The EPA study did not blame school officials alone. It also found that the agency itself needed to devote more money and people to the program, including more than doubling the EPA inspection program.

"The agency has not issued a high-level statement detailing the risks of exposure to asbestos and the importance of considering various abatement options," the study said. "The regions and the public have not been made fully aware and have received mixed signals on the seriousness of asbestos health hazards."

The congressional author of the asbestos in schools law, Rep. George Miller, D-Calif., focused on those shortcomings in his analysis of the report.

"This document, drafted by EPA's own experts, again confirms the shocking inadequacy of this administration's approach to a threat that endangers the health of millions of school children," Miller said. "It is apparent that at least some officials within EPA are trying to warn their agency about the consequences of the current policies."

Whatever the failings of the agency, however, the study indicated that school officials have not endorsed the program wholeheartedly.



Funding limits asbestos removal

Associated Press

Washington — Local school officials, worried about their budgets or about "panic and hysteria," are widely ignoring a federal law requiring parents to be notified about dangerous asbestos in their school buildings, a government study says.

The study by the Environmental Protection Agency said that of 275 schools inspected by EPA, 190 were found to be violating the federal law on asbestos insulation. Of those 190, the EPA said, 134 had violated the requirement that parents be notified of the excess levels.

"Consequently, we can conclude that the parents of students exposed are in many cases unaware of the existence of such a hazard," the study said.

In many cases, the study said, school officials did not want to notify parents because of the money the school district would have to spend if forced to clean up the asbestos hazard.

School officials "are reluctant to notify parents because they believe this will result in a redirection of limited operating funds and-or create unnecessary panic and hysteria," the study said.

But whatever the reason, the EPA study added, it is undermining the program to get rid of hazards from asbestos that face millions of schoolchildren.

"The success or failure of the asbestos in schools rule, which relies heavily upon public involvement, is the degree to which information is communicated to the public," the study said. "... Poor public awareness has resulted in only slight activity on the part of the parent groups in schools."

The finding are included in an internal program review requested by EPA Deputy Administrator Al Alm and completed in December. A copy was obtained by The Associated Press.

The study involves asbestos insulation that once was widely used in schools and other public buildings. Health officials now say that some types of asbestos can flake into microscopic particles that can be inhaled, causing lung cancer or other lung diseases. There is no known safe exposure level.

Under federal law, school officials are required to inspect their buildings for hazardous asbestos and to notify parents and school employees if it is found. It is then up to the local officials to decide what to do.

The law covers more than 37,000 public, private and parochial school systems with more than 50 million students.

Whatever the failings of the agency, however, the study indicated that school officials have not endorsed the program wholeheartedly.

Federal funds to help remove asbestos

by Stephen J. Dowries 2/9/84
Times Writer

The federal government has offered at least $2.1 million to help remove asbestos at Bartlett High School, a school district official said Wednesday.

And federal dollars will also pay for removing asbestos at Mount Spurr Elementary School, said assistant superintendent Tom Freeman.

Freeman said the federal Department of Education made the offer in a letter received by the district Tuesday, after three months of lobbying by the school district and members of the school board.

The district wanted the federal government to pay a portion of the bill for the schools because they are both on federal land.

About 35 acres of Bartlett is on federal land and technically belongs to the federal government, Freeman said. The other 113 acres have been deeded to the municipality, he said. The district operates the whole school.

Mount Spurr is on Elmendorf Air Force Base. The school district estimates it will cost $80,000 to remove asbestos at the school.

Negotiations between the district and the DOE that might result in even more money being obtained are still continuing. The district is seeking additional funds because cost estimates for Bartlett are increasing, Freeman said.

The $2.1 million represents 38 percent — the federal government's share — of what the district originally believed the Bartlett project would cost: $5.5 million.

"We've informed them that it may be more," Freeman said.

Howard Games, a DOE project engineer in Seattle, said a request for the money would go to DOE offices in Washington as soon as the school district provides a revised estimate of the cost. The estimate could come as early as next week.

Construction firms will be asked to come up with estimated costs of removing asbestos at Bartlett. The firms will also seek a way to complete the work without disrupting the school year, which could mean higher costs.

The federal Environmental Protection Agency has linked exposure to asbestos with lung cancer and other diseases. The Anchorage School Board last year ordered asbestos removed from all district buildings.

The state legislature is now considering a district request for $10 million to remove asbestos from six schools, among them Bartlett and Mount Spurr. Bartlett is the top priority and has by far the most asbestos.

Anchorage lawmakers have already proposed $8.7 million for Anchorage asbestos removal.

DOE representatives will come to Anchorage in the next couple of weeks to advertise for bids on the Mount Spurr project, Freeman said.

The bid specifications will be drawn up by Gobbell, Hays and Pickering, the firm evaluating the asbestos problem for the school district.

Another DOE official, Jim Ishihara, said the federal government is also paying for asbestos removal on other Alaska schools: a $2.2 million project at Reeve Junior and Senior High School in Adak and a $250,000 project at nine schools in Fair-

Sent to all school districts and private schools

Note: Under TAP, in 1979 all schools were sent copies of Guidance

Document 1 & 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 10 1982

THE ADMINISTRATOR

Dear School Administrator:

On May 27, 1982, the Environmental Protection Agency (EPA) published a rule in the Federal Register (47 FR 23360-23399) requiring all public and private elementary and secondary schools in the United States to identify friable asbestos-containing materials, maintain records, and notify employees of the location of the friable materials which contain asbestos. When friable asbestos-containing materials are found, schools must provide the employees with instructions on reducing exposure to asbestos, and notify the school's parent-teacher association.

Since 1979, EPA has operated a Technical Assistance Program (TAP) to help schools identify and correct potential hazards due to asbestos in schools. However, many schools did not respond to EPA's effort under the TAP. EPA is now requiring all schools to identify friable asbestos-containing materials and notify employees and parent-teacher organizations of their presence. These actions must be completed by June 28, 1983.

To assist schools in complying with the rule, we are enclosing a copy of the rule along with copies of "Asbestos-Containing Materials in School Buildings: A Guidance Document, Parts 1 and 2." Should you need a copy of any forms for this rule or other general information, please contact the Industry Assistance Office (TS-799), Office of Toxic Substances, Environmental Protection Agency, Rm. E-511, 401 M Streets, S.W., Washington, D.C. 20460. Phone: Toll free, 800-424-9065. In Washington, D.C., call 544-1404. Outside the Continental U.S., call Operator-202-554-1404. If you need technical assistance, please contact the appropriate Regional Asbestos Coordinator listed in the rule on page 23361.

Sincerely,

Douglas G. Bannerman
Acting Director,
Industry Assistance Office

Date

ROUTING AND TRANSMITTAL SLIP

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. ~~Jane Goods~~		
2. Andy Christensen		
3.		
4.		
5.		

Action	File	Note and Return
Approval	For Clearance	For Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

~~Attached~~ are schools w Alaska which were sent + the schools Rule package.

Also, attached is an address change.

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
Dave Mayer EPA	
	Phone No.

5041-102

OPTIONAL FORM 41 (Rev. 7-76)
Prescribed by GSA
FPMR (41 CFR) 101-11.206

Dave Mayer, EPA, WASH. D.C.
Acting Team leader for Asbestos

SUPERINTENDENT
ADAK REGION SCHOOLS
FPO SEATTLE AK 96791

SUPERINTENDENT
BRISTOL BAY BOROUGH SCH D
NAKNEK AK 99633

SUPERINTENDENT
ALASKA GATEWAY SCH DIST
TOK AK 99760

SUPERINTENDENT
CRAIG CITY SCH DIST
CRAIG AK 99921

SUPERINTENDENT
DELTA GREELY SCH DIST
DELTA JUNCT AK 99737

SUPERINTENDENT
GATEWAY BOROUGH SCH DIST
KETCHIKAN AK 99901

SUPERINTENDENT
ANCHORAGE SCH DIST
ANCHORAGE AK 99502

SUPERINTENDENT
HAINES BOROUGH SCH DIST
HAINES AK 99627

SUPERINTENDENT
HOONAH CITY SCH DIST
HOONAH AK 99829

SUPERINTENDENT
KENAI PENINSULA BOROUGH S
SOLDOTNA AK 99669

SUPERINTENDENT
KING COVE CITY SCH DIST
KING COVE AK 99612

SUPERINTENDENT
LAKE AND PENINSULA SCH DI
NAKNEK AK 99633

SUPERINTENDENT
LOWER KUSKOKWIM SCH DIST
BETHEL AK 99559

SUPERINTENDENT
ISITARCO AREA SCH DIST
MCGRATH AK 99627

SUPERINTENDENT
ANNETTE ISLAND SCH DIST
METLAKATLA AK 99926

SUPERINTENDENT
NORTH STAR BOROUGH SCH DI
FAIRBANKS AK 99701

SUPERINTENDENT
NORTH SLOPE BOROUGH SCH D
BARROW AK 99723

SUPERINTENDENT
PETERSBURG CITY SCH DIST
PETERSBURG AK 99833

SUPERINTENDENT
PRIBILOF ISLAND SCH DIST
ST PAUL AK 99660

SUPERINTENDENT
ALEUTIAN REGION SCH DIST
ANCHORAGE AK 99503

SUPERINTENDENT
BERING STRAIT SCH DIST
NOME AK 99762

SUPERINTENDENT
CORDOVA CITY SCH DIST
CORDOVA AK 99574

SUPERINTENDENT
COPPER RIVER REAA SCH DI
GLENNALLEN AK 99588

SUPERINTENDENT
DILLINGHAM CITY SCH DIST
DILLINGHAM AK 99576

SUPERINTENDENT
GALENA CITY SCH DIST
GALENA AK 99741

SUPERINTENDENT
JUNEAU BOROUGH SCHOOLS
DOUGLAS AK 99824

SUPERINTENDENT
SITKA BOROUGH SCH DIST
SITKA AK 99835

SUPERINTENDENT
HYDABURG CITY SCH DIST
HYDABURG AK 99922

SUPERINTENDENT
KAKE CITY SCH DIST
KAKE AK 99830

SUPERINTENDENT
KLAWOCK CITY SCH DIST
KLAWOCK AK 99925

SUPERINTENDENT
KODIAK ISLAND BOROUGH SC
KODIAK AK 99615

SUPERINTENDENT
LOWER YUKON SCH DIST
MT VILLAGE AK 99632

SUPERINTENDENT
MATANUSKA-SUSITNA BOR S
PALMER AK 99645

SUPERINTENDENT
NENANA CITY SCH DIST
NENANA AK 99760

SUPERINTENDENT
NOME CITY SCH DIST
NOME AK 99762

SUPERINTENDENT
NORTHWEST ARCTIC SCH DIST
KOTZEBUE AK 99752

SUPERINTENDENT
PELICAN CITY SCH DIST
PELICAN AK 9983

SUPERINTENDENT
SAINT MARYS CITY SCH DIST
ST MARYS AK 99658

SUPERINTENDENT
SAND POINT SCHOOLS
SAND POINT AK 99661

SUPERINTENDENT
SOUTHWEST REGION SCH DIST
DILLINGHAM AK 99576

SUPERINTENDENT
UNALASKA CITY SCH DIST
UNALASKA AK 99685

SUPERINTENDENT
RAIL BELT SCHOOL DISTRICT
CLEAR AK 99704

SUPERINTENDENT
YUKON FLATS SCH DIST
FORT YUKON AK 99740

SUPERINTENDENT
WRANGELL CITY SCH DIST
WRANGELL AK 99929

SUPERINTENDENT
YAKUTAT CITY SCH DIST
YAKUTAT AK 99689

SUPERINTENDENT
SKAGWAY CITY SCH DIST
SKAGWAY AK 99840

SUPERINTENDENT
SOUTHEAST ISLAND SC
KETCHIKAN AK
99901

SUPERINTENDENT
CHATHAM REGION SCHOOLS
ANGOON AK 99820

SUPERINTENDENT
KUSPUK SCHOOL DISTR
ANIAK AK
99557

SUPERINTENDENT
VALDEZ CITY SCH DIST
VALDEZ AK 99686

SUPERINTENDENT
CHUGACH SCH DIST
WHITTIER AK
99693

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Private schools for requests

Office copy

DATE: 2 August, 1982

SUBJECT: Identification and Notification requirements for Friable Asbestos-Containing Materials in Schools

FROM: A. B. Christensen, Asbestos Technical Advisor, Region X

A B Christensen

TO:

Each public school district has been mailed a separate package containing copies of "Asbestos-Containing Materials in School Buildings: A Guidance Document", Parts I & II (the orange colored booklets) and the new Regulation dated Thursday May 27, 1982, "Friable Asbestos-Containing Materials in Schools: Identification and Notification" (which requires inspection of all public and private schools for the presence of friable asbestos-containing material).

The responsibility for compiling and maintaining records in each school district (Local Education Agency) is placed on the individual districts. This mailing is designed to assist you to fulfill the requirements. You may find much of the work was already accomplished under the "Voluntary Asbestos Survey Program".

To assist each district and school have in their file the required information, we have made up some "check-off" lists for your use. One blank copy for the district and blank copies for the individual schools in the district are attached. For those districts and schools that are not complicated by the presence of any friable materials it will be a simple matter to fill in the blanks which apply. Those districts and schools which have friable materials are, obviously, required to complete inspections and analysis and to comply with the additional requirements of the rule as outlined on the "check-off" list and spelled out in the regulation. Please retain a copy of the "check-off" list with your file.

The check lists are made out to try to cover every situation so please bear with the seeming duplication on the second page of each list.

Should you require copies of any of the following reference materials:

(1) Guidance Documents, Parts I & II,
(2) Mathematical formula referred to in Part I, Chapter 7, page 14 (The Algorithm),
(3) Polarized Light Microscopy (PLM) laboratory listing,
(4) Any other pertinent information, please call or write direct to:

Environmental Protection Agency
School Asbestos Program M/S 524
1200 Sixth Avenue
Seattle, WN 98101 / ~~(206) 442-1255~~ 3200 Hospital Dr
Suite 101
Juneau, AK 99801
586-7619

Your assistance to complete the identification of friable asbestos-containing materials in your school district is appreciated.

Recordkeeping required by Chapter 1 of Title 40, Code of Federal Regulations, Part 763 - ASBESTOS Subpart F - Friable Asbestos-Containing Materials in Schools; Identification and Notification

Cover Sheet

LOCAL EDUCATION AGENCY
INSPECTION FOR FRIABLE ASBESTOS-CONTAINING MATERIALS

Cover Sheet

Name and Address of the Agency (School District)

Local Education Agencies shall inspect each school building which they lease, own, or otherwise use as a school building, to locate all friable material. Inspection shall consist of looking for and touching all suspect material, including surfaces behind suspended ceilings or other non-permanent structures which may be entered during normal building maintenance or remairs.

Listing of All Schools Under Agency Authority	Inspected for Friable Materials		Contains Friable Materials	
	Yes	No	Yes	No
1.				
2.				
3.				
4.				
5.				
6.				

(Attach additional listing to include all schools in agency)

Record of Friable Materials in schools which were sampled and analyzed

School	Sampled Yes or NO / Analyzed Yes or NO	Analysis Results	Total Area Analyzed Material (FRIABLE)
1.			
2.			
3.			
4.			
5.			
6.			

(Attach additional listing to include all schools in Agency which contain Friable Asbestos-Containing Materials)

For each school which contains friable asbestos-containing materials, the total number of school employees who regularly work in that school

Administrative	Faculty	Custodial

Continued Next Page

Warnings and Notifications

(a) Local Education Agencies shall post in the primary administrative and custodial offices and in the faculty common rooms of each school under their authority a completed copy of the Notice to School Employees unless no friable asbestos-containing material is present in the school. The Notice shall remain posted indefinitely in any school which has friable asbestos-containing material.

Date Posted _____ Copies Attached - Yes_____ No_____

(b) Local Education Agencies shall provide to all persons employed in school buildings under their authority which contain friable asbestos-containing materials a written Notice of the location, by room or building area, of all friable asbestos-containing materials in the school

Date Notice Provided _____ Copies Attached - Yes_____ No_____

(c) "A Guide for Reducing Asbestos Exposure", shall be provided to all custodial or maintenance employees.

Date Guide Provided _____

(d) Local Education Agencies shall provide notice of the results of inspections and analysis in each school in which friable asbestos materials are found to the appropriate parent-teacher association of that school. If there is no parent-teacher association for the school, the Local Education Agency shall notify directly the parents of the pupils.

Date Notice Provided to: PTA_____ Parents _____

(e) Each Local Education Agency shall complete and retain in the administrative office of the Local Education Agency the form "Inspections for Friable Asbestos-Containing Materials".

Copy Completed - Yes_____ No_____

CERTIFICATION:

I hereby certify that this Agency has complied with the EPA Regulation 40 CFR, 763.100 through 763.117, "Asbestos-Containing Materials in Schools; Identification and Notification", and that the information on this form is, to the best of my knowledge, true and complete.

Signature	Typed or Printed Name
Typed or Printed Title	Date

Please send copies of this form completed to:

(1) State Department of Education, Pouch F, Juneau, AK 99811, ATTEN: Facilities

(2) EPA ~~M/S 524~~ EPA-900
1200 ~~6th~~ Ave.
Seattle, WN 98101

3200 Hospital DR.
Suite 101
Juneau, AK 99801

Recordkeeping required by Chapter 1 of Title 40, Code of Federal Regulations, Part 763-ASBESTOS Subpart F - Friable Asbestos-Containing Materials in Schools; Identification and Notification

Cover Sheet

INDIVIDUAL SCHOOL INSPECTION FOR FRIABLE ASBESTOS-CONTAINING MATERIALS

Cover Sheet

Name and Address of the School

Local Education Agencies shall inspect each school building which they lease, own, or otherwise use as a school building, to locate all friable material. Inspection shall consist of looking for and touching all suspect material, including surfaces behind suspended ceilings or other non-permanent structures which may be entered during normal building maintenance or repairs.

Listing of All Buildings Used by School	Inspected For Friable Materials	Friable Materials Present/ Not Present
1.		
2.		
3.		
4.		
5.		
6.		

(Attach additional listing to include all buildings - (§763.103 (h))

FOR EACH SCHOOL BUILDING WHICH CONTAINS FRIABLE MATERIALS, THE FOLLOWING INFORMATION MUST BE MAINTAINED IN THAT SCHOOL'S ASBESTOS FILE:

1. A blueprint, diagram, or written description of the building which identifies clearly the location(s) and approximate area(s) in square feet of each sampling area of such material(s), the locations at which samples were taken, and the identification number of each sample, and which shows clearly whether each sampling area of friable material contains asbestos, including an estimate of its percent asbestos content as determined by calculating the average of the percent asbestos content of all samples taken in the area.

2. A copy of all laboratory reports and all correspondence with laboratories concerning the analysis of samples taken.

3. For each school, copies of the "Guide for Reducing Asbestos Exposure", and one copy of "Asbestos-Containing Materials in School Buildings: A Guidance Document, Parts 1 & 2.

Continued Next Page

Warnings and Notifications

(a) Local Education Agencies shall post in the primary administrative and custodial offices and in the faculty common rooms of each school under their authority a completed copy of the Notice to School Employees unless no friable asbestos-containing material is present in the school. The Notice shall remain posted indefinitely in any school which has friable asbestos-containing material.

Date Posted _____ Copies Attached - Yes _____ No _____

(b) Local Education Agencies shall provide to all persons employed in school buildings under their authority which contain friable asbestos-containing materials a written Notice of the location, by room or building area, of all friable asbestos-containing materials in the school.

Date Notice Provided _____ Copies Attached - Yes _____ No _____

(c) "A Guide for Reducing Asbestos Exposure", shall be provided to all custodial or maintenance employees.

Date "Guide" Provided _____

(d) Local Education Agencies shall provide notice of the results of inspections and analysis in each school in which friable asbestos-containing materials are found to the appropriate parent-teacher association of that school. If there is no parent-teacher association for the school, the Local Education Agency shall notify directly the parents of the pupils.

Date Notice Provided To: PTA _____ Parents _____

CERTIFICATION:

I hereby certify that this school has complied with the EPA Regulation 40 CFR 763.100 through 763.117, "Asbestos-Containing Materials in Schools; Identification and Notification", and that the information on this form is, to the best of my knowledge, true and complete.

Signature	Typed or Printed Name
Typed or Printed Title	Date

3) Copy of the friable-asbestos results of any Alaska school that complies with the present regulation.

5) List of those schools represented at your presentation in Anchorage and Fairbanks.

Thank you for your time and effort.

September 17, 1982

Sincerely,

Chris Christensen, Asbestos Technical Advisor
EPA/Region X
1200 Sixth Avenue
Seattle, Washington 98101

Dear Christensen
A. Smith

The EPA-AOO, Juneau would like to express their appreciation for your presentation on the May 27, 1982 Regulation on Friable Asbestos-Containing Materials in Schools conducted in Juneau (9/13), Anchorage (9/14), and Fairbanks (9/15) for all Alaska school district representatives. I think this explanation, and clarification of the relatively new rule will help to promote Alaska schools to comply with the regulation.

As we discussed, you are planning to distribute a letter explaining the new friable-asbestos regulation to each Alaska school district and private school. Hopefully, this will clarify the regulation for those school representatives who were unable to attend your presentation and encourage each school to comply with the regulation in a timely manner. If we can be of any assistance to you in notifying Alaska schools of their responsibility in identifying friable-asbestos materials in their schools, please contact us.

In order to complete our records concerning this project would you please send us a copy of the following material:

1) The 1982 cover letter that accompanied the new regulation and Guidance Document distributed to all school districts and private schools.

2) The follow-up letter (yellow) and attachments you will be distributing to school districts and private schools.

3) Copy of the friable-asbestos results of all Alaska schools that complied with the volunteer program.

4) Copy of the friable-asbestos results of any Alaska school that complies with the present regulation.

5) List of those schools represented at your presentation in Anchorage and Fairbanks.

Thank you for your time and effort.

Sincerely,

[illegible]

Kathy Pazera
Environmental Scientist

cc: J. Halterman
A. Smith

ATTENDANCE TO CHRISTENSEN'S
presentation in Anchorage 9/14/82

Tom Bicak Risk Manager Anchorage School Dist
Bob Thornton MAINT DEPT. ANCHORAGE SCHOOL DIST.
Bob Ellison MAINT + OPERATIONS DIR. KODIAK SCHOOL DIST
DAN R. SHERK PLANT MANAGER NORTH SLOPE BOROUGH SCH DIST.
LUDWIC C. OSOWICK DEPUTY SUPERINTENDENT KENAI PENINSULA BOR.
JAMES WM. ELLIOTT DOE (SEA) ANCHORAGE
PATRICK A. DAY DIR. FACILITIES VALDEZ CITY SCHOOLS VALDEZ
JAMES C. HUNSICKER DIR operation & MAINTENANCE MAT SU School Dist.
JAN D. AFFINITO, Asst CONTRACT ADMINISTRATOR, MATANUSKA-SUSITNA BOROUGH
STEVE ZBRAKE AK DEPT. OF ENV. CONS. ~~ANCH~~, AK
437 E ST, SUITE 200
ANCH., AK 99501

PLEASE SEND 10 COPIES OF MATERIAL LISTED ON
2 AUG. 1982 MEMORANDUM. THANK YOU.

Need copy of model specifications for development of asbestos removal contracts.

ATTN: JAN AFFINITO

MATANUSKA-SUSITNA BOROUGH
P.O. Box B
PALMER, AK
99645

Please send set of specs to PLM Lab
Tom Bibeau Risk Manager
Anchorage School Dist.
Pouch 6-614
Anchorage, AK 99503

Attendance to Christensen to presentation in Fairbanks 9/15/82.

List

+ * Donna Higdon - S.D. Warehouse. 1300 Minnie St
FBKS. {P.O. Box. 1250
{FBKS. AK 99707

+ * Michael D. Piñon FAIRBANK NSBSD
Dir. Maint + OPS.

+ Nancy P. Napolilli
Dept. of Environmental Conservation
Pouch 1601
Fairbanks, AK 99707

+ Bid B. IRVIN
ALASKA GATEWAY SCHOOL DISTRICT
PO BOX 226 TOK ALASKA 99780

+ Ray L. Huntley
Delta/Greely School Dist.
PO Box 527 Delta Jct, ak 99737

+ JIM ELLIOTT
DOE 650 W. INTNL AIRPT RD
ANCH 99502

+ HARRY Purdy
[illegible] School District

* James Howard
maint Foreman
FBKS North Star Borough School Dist.
PO Box 1250 - 99701

ANCHORAGE SCHOOL DISTRICT

PRELIMINARY CAPITAL IMPROVEMENT SUMMARY SHEET

CATEGORY 1

ESSENTIAL FOR THE HOUSING OF STUDENTS

PRIORITY	PROJECT	ESTIMATED COST
1	Asbestos removal.	10,000,000
2	Eagle River - Four-room addition, site improvements, lands purchase.	4,918,020
3	Fire Lake Elementary School.	10,114,700
4	Section 16 Elementary School.	10,402,600
5	Chugiak High - 22-classroom and library addition.	13,304,600
6	School Site Acquisition Program - Phase II.	6,200,000
7	Maintenance Requests - Roofing repairs.	7,901,301
8	Microcomputer Project.	1,500,000
9	Food Education and Service Center.	3,641,800
10	Emergency communication system.	385,000
11	Denali Fundamental - Heating system renovation.	550,000
	SUBTOTAL (CATEGORY 1)	$ 68,918,521

ANCHORAGE
SCHOOL DISTRICT
4600 DeBarr Avenue
Pouch 6-614
Anchorage, Alaska 99502
[907] 333-9561

May 14, 1984

The Honorable Joe P. Josephson
Alaska State Legislature
Pouch V
Juneau, Alaska 99811

Dear Senator Josephson:

The Anchorage School District has been monitoring the asbestos fiberous material that is located within 55 schools since 1979. This requirement was federally mandated by the Environmental Protection Agency (EPA). In June, 1983, we were again mandated by the EPA to post each school that contained asbestos and to notify all occupants of the building of its location.

The Anchorage School District structured a formal process by which prequalified bidders were selected and given the opportunity to bid on six abatement projects. Bartlett-Begich Junior/Senior High School was a separate item due to the magnitude of asbestos within the school. The five other schools were bid as a unit which includes West, East, and Dimond High Schools, Clark Junior High School, and Mt. Spurr Elementary School.

The bids were opened on Wednesday, May 9, 1984. The base bid for Bartlett had a low $13,005,300 and a high of $22,166,000. We received three bids for this project. We received two bids for the five school project with a high of $1,980,000 to a low of $1,538,240.

We will be approximately $10 million short from awarding a contract for the removal of asbestos at Bartlett. At the present time the District is very appreciative of the approximately $6.5 million which was awarded in HB 403.

The low bid, if accepted, is $14,543,540. This bid indicates that Bartlett would have to be closed for at least one semester. The District is analyzing some of the options for Bartlett's 2,000 students which would not impact on the educational program.

If Bartlett was to be completed over two summers, it would require an additional $4 million. This, however, does not include storage for all of the furniture and equipment housed in Bartlett's 324,000 square feet.

The options available to us is to reject all bids, rebid the five schools by themselves, or reject Bartlett because of lack of funds. This question comes to the School Board on May 21, 1984, and it is imperative that the District receive the funding for this very important program.

We have appreciated all your efforts on behalf of the Anchorage community, its children, and their future.

Sincerely,

E. E. (Gene) Davis

E. E. (Gene) Davis, Ed.D.
SUPERINTENDENT

cl
CIP.3

cc Bill Miles

P.S. Enclosed is an article from "What's Happening In Washington", published by The National PTA.

TARGET VOL. 13 APRIL-MAY '84 NO. 5

Asbestos: Still a danger in schools

by Elaine S. Knapp

For Phyllis Adams and Ann Gibbs the last year has been a frustrating one—trying to get their local school board to remove asbestos from the school their children attend.

"It's frustrating, our children are being poisoned and there's not anything we can do," Mrs. Gibbs declared. What the Lexington, Kentucky, housewife has done is work through the PTA, form a group of concerned parents, go door-to-door telling parents of the danger, gather hundreds of signatures on petitions, read volumes on asbestos, call and write federal agencies and confront the school administrator and board.

After a year of parental pressure being applied and at least a decade after school authorities knew of the asbestos hazard, Mrs. Gibbs said, "We don't think anything will be done until the government makes them (the school board)." School authorities maintain the asbestos will be cleaned up if money is available for renovation next year.

Ironically, the major government effort to control asbestos lies in Mrs. Gibbs and others like her. Telling parents and teachers that their school has asbestos and relying on them to pressure local action is the heart of the U.S. Environmental Protection Agency's (EPA) strategy to rectify the nationwide problem of asbestos in schools.

No effective federal program exists to protect schoolchildren from asbestos, state efforts vary widely and local schools often ignore the danger due to the cost of cleanup.

Asbestos dangers

Any exposure to asbestos involves some health risk, according to the Congress, the EPA and the scientific community. Children are especially vulnerable, according to the EPA guidance document on asbestos sent to schools. Their remaining life expectancy provides the 20 to 40 years it takes for disabling and fatal asbestos-related diseases to develop. Large numbers of children may be exposed in a contaminated school and exposure is continuous during the school year. Children are active and breathe more frequently than adults, possibly inhaling more asbestos fibers. Smoking can increase the cancer risk due to asbestos exposure.

Most hazardous is friable asbestos that can be crumbled. It sends deadly fibers into the air which may lodge in the lungs indefinitely, according to EPA's guidance document. Asbestos workers often develop a chronic and debilitating lung disease called asbestosis. Lower and shorter exposure can result in death many years later.

Asbestos diseases include: 1) asbestosis, a disease in which asbestos clogs the lungs, 2) pleural calcification, a deposit of calcium salts in the lung lining, 3) malignant tumors of the lung, 4) mesothelioma, a rapid and fatal cancer of the lung and 5) intestinal and uterine cancers.

Hot potato

Asbestos in the schools has been a "hot potato" tossed among various levels of government and federal agencies. One reason is that removal of asbestos can be quite expensive, especially if large areas of buildings are affected. Funding is basically up to local schools as is asbestos detection and control. No federal funds are available and state aid varies.

The U.S. EPA requires schools to inspect for asbestos and notify parents and [school] employees of asbestos hazards. The EPA doesn't require removal or abatement. "The theory is that PTAs and employees would pressure local districts to take remedial action," said Terrell Hunt, assistant to EPA Deputy Administrator Alvin Alm.

However, a recent internal EPA report found that many schools did not meet EPA's June 1983 deadline for asbestos detection, record keeping and notification.

No federal funds

Federal funds of $172 million authorized by the Asbestos School Hazard Detection and Control Act of 1980 were never appropriated. Grants were promised for schools to identify asbestos hazards and loans for mitigation of asbestos hazards. But funds were never requested by the Department of Education, reported John Bennett, aide to U.S. Representative George Miller, D-Calif., who sponsored the act. In 1983, a $50 million recommendation by the House was omitted in a House-Senate conference.

The U.S. Department of Education had a task force which set standards for state grants in 1980, according to W. Stanley Kruger, deputy director for state and local programs. However, when the program wasn't funded, the department "deferred to EPA," Kruger said.

Under pressure from Congress, the department reactivated its task force in October 1983 and is gathering information on asbestos to send to chief state school officials, Kruger said. The department also reactivated its requirement that states file plans for asbestos in the schools' programs and report on their progress every six months. All but two states have filed.

EPA's program

The federal effort has largely been a requirement by the EPA that schools inspect for asbestos hazards, sample and analyze material to determine if asbestos is present, keep records of the inspection, post notices, and notify parents and employees if asbestos is found. Although schools were to comply with the rule by June 1983, the EPA doesn't know how many did. It does not require schools to report to it and must send federal inspectors to schools to check their records. EPA staff said when the EPA regulation was written that the administration op-

This is a reprint of a portion of an article appearing in State Government News, *March 1984. It is authored by and printed with permission of Elaine S. Knapp, its editor.*

posed imposing a data reporting requirement. The EPA recently doubled its field force of inspectors by adding 16 people through a contract with the American Association of Retired Persons, Hunt said. These include retired architects and engineers. Primarily, EPA staff look at school records and physically inspect some schools. However, there are not enough inspectors to cover but a small portion of the nation's schools.

In providing technical advice, EPA can help schools determine the best strategy for evaluating the risk and responding to asbestos, Hunt said. He said that anything short of removal is considered a short-term solution.

Connie Derocco, environmental protection specialist with EPA, said that out of 1,527 schools inspected in 468 districts, some 60 percent did not comply with EPA rules. Most failed to notify and warn PTAs and employees of asbestos materials [manufacturers]. Schools know they will be pressured once the word is out, and they are hesitant to deal with the asbestos problem, Derocco explained. After receiving a notice of noncompliance, schools have 30 days to act before the EPA files a civil complaint.

Labor union concern

An estimated 3.24 million schoolchildren and 648,000 school employees are potentially exposed to asbestos, according to Kitty Conlan, research analyst with the Service Employees International Union (SEIU).

The SEIU is lobbying Congress to fund the 1980 act for grants and loans to schools. Schools don't have the money to clean up on their own, Conlan said. "It's a nationwide problem which affects the health of millions of people."

SEIU is suing the EPA to require schools to clean up flaking asbestos. "Schools say if EPA thinks asbestos is so bad, then EPA would require them to get rid of it," Conlan commented.

EPA does give schools good technical advice on how to get rid of asbestos, Conlan noted. But some schools accept the lowest bid rather than follow EPA guidelines. If the cleanup is not done right, the asbestos danger can be worsened.

Conlan said SEIU doesn't think suing asbestos' manufacturers is worthwhile, citing lack of action on suits filed by asbestos workers. "We're hesitant to have our members litigate themselves to death," she said.

Conlan added that school districts can also be held responsible for asbestos. "They can face a big liability," she commented.

Lawsuits filed

A number of lawsuits on behalf of school boards and building owners in Kentucky, Mississippi, New Hampshire, Florida, South Carolina, Alabama and Tennessee have been filed by a South Carolina law firm.

Daniel Speights (a school board attorney) noted that legal theories available to school boards against manufacturers of asbestos include: contract (the products were not fit for the use intended), negligence (the manufacturers were negligent in informing users of the risks associated with the products), strict liability (manufacturers should be strictly liable for failing to warn of asbestos hazards), and restitution (manufacturers have a duty to abate the hazard).

A civil action filed on behalf of the Barnwell, South Carolina, school district notes that school districts and public officials could be held liable for failing to abate a health hazard.

A September 1981 report by the U.S. attorney general to Congress recommended that school authorities seek to recover asbestos abatement expenses from asbestos manufacturers. The report said federal litigation would be ineffective unless Congress imposed liability on asbestos manufacturers.

Asbestos manufacturers are being sued by at least 20,000 people on the grounds that the companies knew of asbestos hazards and covered them up, according to a September article in the *National Journal*.

A 1983 report from the Rand Institute says that asbestos litigation and compensation has cost an estimated $1 billion over the past decade. Only 37 cents of every dollar went for actual compensation to plaintiffs. Estimates of the number of deaths due to asbestos over the next 30 years range from 74,000 to 265,000.

What you should do about asbestos in your school

Given current asbestos rules and regulations, PTAs should check on the following:

1. Was each school in your district inspected for friable asbestos? If not, request this action immediately.
2. Was an analysis of asbestos samples, using polarized light microscopy, conducted?
3. Are records of the asbestos inspection on file in the school district?
4. Does the PTA have a copy of the report in its records?

In schools where asbestos was found, has the school complied with the following:

1. Did the school district notify the children's parents, either directly or through the PTA?
2. Were school employees notified of the location of the materials?
3. Did the school post a standard form in administrative and custodial areas?
4. Are measures being taken, if not already completed, to remove asbestos in the school?
5. Did the school district provide maintenance and custodial employees with instructions for reducing exposure to asbestos?

If asbestos was found in your school, but corrective measures are not being taken, the following steps should be pursued:

1. The PTA should work with the school to affect removal or abatement. Invite parents, teachers, employees of the building, the school principal, and the superintendent to a PTA meeting. Request information about the degree of the asbestos problem and what plans are being developed for cleanup.

2. If plans are not under way or seem unsatisfactory, contact the school board to inform it of your concern. If informal discussions do not produce results, get the issue on the agenda of the next school board meeting. Be prepared to provide the facts, including the inspection reports and the cost of abatement, to school board members.

3. Meanwhile, inform your state legislature and the U.S. Congress about the problems and the degree of difficulty there is in terms of cleanup.

4. If the school board is unable or unwilling to ameliorate the problem, one resort would be a lawsuit. Be sure that you have tried every alternative before taking this step.

Fairbanks North Star Borough - Program for Progress

Project Title

Fairbanks Schools Asbestos
Identification and Removal Project

☒ Equipment ☐ Road
☒ Structure ☐ Utility
☐ Service

Capital Request $1,385,000

Estimated Annual M & O Cost No Increase in Annual M & O Costs.

Description, Objectives and Public Benefit

During November 1983, sixteen school facilities of the Fairbanks North Star Borough were surveyed by a professional consultant for the presence and extent of asbestos. Asbestos was found in thirteen of the sixteen schools surveyed. This asbestos is "friable" or in a condition to release small fibers into the air. Non-friable asbestos was also found in these schools, usually in a cement-like compound on pipe elbows and fittings.

Friable asbestos is associated with a number of serious illnesses; consequently, the Federal government has issued strict regulations governing the use of asbestos and occupational exposure to airborne asbestos fibers.

The objective of this project is to protect the health of all Borough school building users by the removal or encapsulization of the asbestos materials.

The asbestos hazards were assessed and prioritized in order of the most serious potential risks of exposure. These priorities are:

URGENT:	Requires immediate attention to eliminate or reduce the risk of severe exposure to asbestos fibers.
PRIORITY ONE:	The facility contains friable asbestos which is accessible to all building occupants.
PRIORITY TWO:	The facility contains asbestos which is accessible to maintenance and custodial personnel.

A summary of asbestos findings and cost estimates for removal are given in Table 1.

Project Schedule

Encapsulization began December 1983 with local fund appropriation. Removal scheduled for summer 1984.

Project Contact

Larry Crouder, FNSB, Department of Public Works
Borough Engineer

TABLE I

SUMMARY OF ASBESTOS FINDINGS AND COST ESTIMATES

SCHOOL	EXPOSURE	CONDITION	PRIORITY	REMOVAL COST
Barnette Elementary	Maintenance	Friable	P-TWO	$134,390
Denali Elementary	Public	Friable	URGENT	118,512
Hunter Elementary	Maintenance	Friable	P-TWO	137,455
Hutchison Career Center	Public	Friable	URGENT	21,474
Joy Elementary	Public	Friable	URGENT	35,264
Lathrop High School	Public	Friable	URGENT	309,954
Nordale Elementary	Public	Friable	P-ONE	158,502
North Pole Elementary	Public	Friable	URGENT	37,245
North Pole Jr/Sr High	None	NO ASBESTOS FOUND		-0-
Ryan Jr. High	Maintenance	Friable	P-TWO	86,704
Salcha Elementary	Maintenance	Friable	P-TWO	2,741
Tanana Jr. High	None	NO ASBESTOS FOUND		-0-
University Park Elementary	Maintenance	Friable	P-TWO	22,531
West Valley High School	Public	Friable	P-ONE	4,675
Woodriver Elementary	NONE	NO ASBESTOS FOUND		-0-
		SUBTOTAL		1,069,447
		CONTINGENCY		128,333
		DESIGN		117,637
		ADMINISTRATION,DP,ACCOUNTING		69,514
		TOTAL		$1,384,931

Asbestos hazards have been identified in thirteen Borough schools

HA/WK Attachment I

A JOINT VENTURE OF
HOLDEN & ASSOCIATES AND
WILLIAM J. KING &
ASSOCIATES

January 31, 1984

Mr. Harry Rogers, Superintendent
Petersburg City Schools
P.O. Box 329
Petersburg, Alaska 99833

RE: Petersburg High School
Asbestos Removal

Per your request we have evaluated the quantity and cost of removal of the asbestos pipe insulation in the 1951 portion of the Petersburg High School.

Per your testing information, the known area of asbestos is confined to the heating supply and return mains, and the insulation of the old boiler. We assume that vertical piping in walls or classes would not be removed. The cost of removing the horizontal runs and the boiler insulation is $107,000.

We have assumed that pieces would be removed in 5' to 10' lengths and properly disposed of according to State and Federal law.

Sincerely,

W. Keith Gerken

cc: Twyla Coughlin, Southeast Regional Resource Center (SERRC)
John Danielsen, City Engineer

PLEASE RESPOND TO:

☐ JUNEAU: MERCHANT'S WHARF, SUITE 225
#14 MARINE WAY
JUNEAU, ALASKA 99801

☐ ANCHORAGE: SUITE 211
750 W. 2ND AVENUE
ANCHORAGE, ALASKA 99501

☐ FAIRBANKS: BOX 80667
FAIRBANKS, ALASKA 99708
907-479-6474

CHEMICAL & GEOLOGICAL LABORATORIES OF ALASKA, I

P.O. BOX 4-1276
Anchorage, Alaska 99509

TELEPHONE (907) 562-2343

ANCHORAGE INDUSTRIAL CE
5633 B Street

ANALYTICAL REPORT

From Petersburg Public Schools Product Bulk Insulation Samples

Address Petersburg, Alaska Date August 6, 1983

Other Pertinent Data ANALYSIS BY POLARIZING LIGHT MICROSCOPY.

Analyzed by DB Date August 22, 1983 Lab No. 3080

REPORT OF ANALYSIS
BULK INSULATION SAMPLES
PETERSBURG, ALASKA

Samples received August 6, 1983

FINDINGS:	.....BOILER ROOM.....	
	PIPE - OLD BOILER	OLD BOILER
ASBESTOS PRESENT:	CHRYSOTILE-15% AMOSITE -15%	CHRYSOTILE-15% AMOSITE -15%
OTHER FIBROUS MATERIAL:	NONE SEEN	NONE SEEN
NON-FIBROUS MATERIAL:	CALCIUM CARBONATE-70%	CALCIUM CARBONA 70%

CONCLUSION: THE U.S.ENIVRONMENTAL PROTECTION AGENCY HAS DETERMINED THAT A SAMPL WITH AN ASBESTOS CONTENT GREATER THAN ONE PERCENT BY WEIGHT, IS POSITIVE.

CHEMICAL & GEOLOGICAL LABORATORIES OF ALASKA, I.

P.O. BOX 4-1276
Anchorage, Alaska 99509

TELEPHONE (907) 562-2343

ANCHORAGE INDUSTRIAL CE
5633 B Street

ANALYTICAL REPORT

From Petersburg Public Schools Product Bulk Insulation Samples

Address Petersburg, Alaska Date August 6, 1983

Other Pertinent Data ANALYSIS BY POLARIZING LIGHT MICROSCOPY

Analyzed by DB Date August 22, 1983 Lab No. 3080

REPORT OF ANALYSIS
BULK INSULATION SAMPLES
PETERSBURG, ALASKA

Samples received August 6, 1983.

FINDINGS:	OLD HIGH SCHOOL PIPE CRAWL WAY	OLD GYM HOT WATER TANK
ASBESTOS PRESENT:	CHRYSOTILE-45%	CHRYSOTILE-60%
OTHER FIBROUS MATERIAL:	CELLULOSE -45%	NONE SEEN
NON-FIBROUS MATERIAL:	SILICATES -10%	SILICATES - 5% UNKNOWN BINDER-3

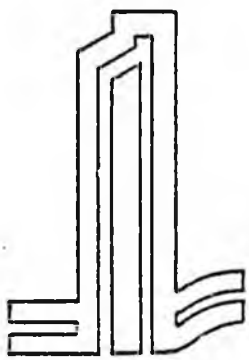
CONCLUSION: THE U.S.ENVIRONMENTAL PROTECTION AGENCY HAS DETERMINED THAT A SAMPLE WITH AN ASBESTOS CONTENT GREATER THAN ONE PER CENT BY WEIGHT, IS POSITIVE.

KODIAK ISLAND BOROUGH

SCHOOL DISTRICT

ASBESTOS ABATEMENT COST ESTIMATE

January 13, 1984



ARCHITECTS ENGINEERS PLANNERS

GOBBELL HAYS PICKERING

821 S. Barksdale, Memphis, Tennessee 38114 (901) 726-0810

GOBBELL HAYS PICKERING

Jan. 16, 1984

Mr. Ray Camardella
Kodiak Island Borough School District
P.O. Box 886
Kodiak, Alaska 99615

Dear Mr. Camardella:

Enclosed is the cost estimate for the asbestos abatement of the spray-applied material in Kodiak High School. We have included our recommendation for abatement, approximate cost and time figures, and phasing possibilities to allow for portions of the building to remain in use during the abatement.

If you have any questions concerning this report or would like to continue on with plans and specifications, please feel free to contact me.

We look forward to working with you on your asbestos abatement problems.

Sincerely,

GOBBELL·HAYS·PICKERING

William L. Wagner

WLW/cr

Enclosures

KODIAK ISLAND BOROUGH SCHOOL DISTRICT

INTRODUCTION

This report was prepared in response to the Kodiak Island Borough School District's request for the proper selection of appropriate abatement measures and cost estimates. Enclosed are Gobbell·Hays·Pickering's recommendations for abatement and approximate construction cost.

VIEWING THE PROBLEM

Asbestos abatement selection is a highly subjective and often difficult process. There are no standards, governmental or otherwise, which provide for clear-cut choices. Abatement costs must be balanced against present and future building use, building life, health considerations, and legal liability; abatement solutions must take into account that balance.

GOBBELL·HAYS·PICKERING feels it is necessary for all concerned to evaluate the level of existing exposure and chance for potential exposure prior to choosing an abatement method. We consider it our professional responsibility in dealing with this problem to provide recommendations toward establishing a safe environment which functions as originally intended or better. The Attorney General's Asbestos Liability Report to the Congress contains the statement that there is no known safe lower limit of exposure to asbestos fibers. We feel that exposure should be eliminated if at all practical for health reasons and legal ramifications to the owner. Here, too, cost is a factor. For example, one lawsuit in the future could cost the owner more than a more expensive, but possibly better, original abatement choice.

SELECTION OF A CORRECTIVE ACTION

The following is the United States Environmental Protection Agency's comparison of asbestos abatement alternatives for encapsulation and removal, which we feel are the only two appropriate abatement measures for this application. Outlined with each method are their opinions as to some of the advantages and disadvantages and their thoughts as to when the methods are appropriate or inappropriate. Our abatement recommendation is made with these considerations in mind, and also with practical, health and legal considerations tempered with architectural and engineering experience in asbestos abatement projects.

Method: REMOVAL

Advantages of Method

Eliminates asbestos source

Eliminates need for special operations and maintenance program

Disadvantages of Method

Replacement with substitute material may be necessary

Porous surface also may require encapsulation

Improper removal may raise fiber levels

Appropriate Applications

Always

Inappropriate Applications

Never

General Comments

Containment barriers needed

Worker protection required

Wet removal is required for all types of asbestos

Disposal may be a problem in some areas

Unusual circumstances, complex surfaces, and the presence of utilities may require special removal techniques

Method: ENCAPSULATION

Advantages of Method

Reduces asbestos fiber release from material

Initial cost may be lower than removal

Does not require replacement of material

Disadvantages

Asbestos source remains and must be removed later

If material is not in good condition, sealant may cause material to delaminate

Periodic reinspection required to check for damage or deterioration

Repair of damaged or deteriorated encapsulated surfaces required

Encapsulated surface is difficult to remove and may require dry techniques for eventual removal

Long-term cost may be higher than removal

Appropriate Applications

Material still retains bonding integrity

Damage to material not likely

Material not highly accessible

Material granular cementitious

Inappropriate Applications

Material does not adhere well to substrate

Material is deteriorating or damaged, or damage is likely

Water damage is evident

Material is fibrous, fluffy

General Comments

Containment barriers needed

Worker protection needed

Airless sprayers should be used

Damaged pipe insulation may be taped but not sprayed

Previously encapsulated materials may have to be re-encapsulated

With our previous experience and the United States Environmental Protection Agency's opinions in mind, we have selected removal of all asbestos-containing spray-applied material in the high school. With encapsulation cost exceeding 70% of removal cost and still requiring a costly maintenance program because the material and owner liability still exist, we feel removal is the optimum solution.

PHASING

We have divided the school into two areas we feel can be done in phases to help keep part of the building open during abatement. Phase I includes the major portion of the affected areas, including the multi-purpose entry, library and classrooms of both levels. Phase II would include the corridor outside the gym and pool and two fan rooms on either side of the gym. The first and second floors were not separated due to complications in access to the stairwell during abatement and with the height of the ceiling in the multi-purpose entry.

KODIAK ISLAND BOROUGH SCHOOL DISTRICT
KODIAK HIGH SCHOOL

TABLE A

Removal/Replacement Cost - Phase I

Item	Quantity	Cost/Item	Total
Demolition			
Dropped Ceiling Removal	24,855 S.F.	2.10	$ 52,195.50
Asbestos Removal			
Decon Set Up	1 S-up	3,500.00	3,500.00
Fireproofing Removal	42,785 S.F.	13.00	556,205.00
Waste Transportation & Disposal	372 BLS	30.00	11,160.00
Post Removal Encapsulant	42,785 S.F.	0.70	29,949.50
			$ 600,814.50
Replacement			
New Fireproofing	42,785 S.F.	6.15	263,127.75
Dropped Ceiling Replacemt.	24,855 S.F.	4.38	108,864.90
			$ 371,992.65
	Phase I Construction Cost		$1,025,002.65
	Estimated Time for Completion		60 Days
	Air Monitoring Cost 50 days @ $650/day		$ 32,500.00
	Phase 1 Total Cost*		$1,057,502.65

Estimated costs are excluding A/E fees

KODIAK ISLAND BOROUGH SCHOOL DISTRICT
KODIAK HIGH SCHOOL

TABLE B

Removal/Replacement Cost - Phase II

Item	Quantity	Cost/Item		Total
Demolition				
Dropped Ceiling Removal	1,730 S.F.	2.10	$	3,633.00
Asbestos Removal				
Decon Set Up	1 S-up	3,500.00		3,500.00
Fireproofing Removal	2,970 S.F.	13.00		38,610.00
Waste Transportation & Disposal	28 BLS	30.00		840.00
Post Removal Encapsulant	2,970 S.F.	0.70		2,079.00
			$	45,029.00
Replacement				
New Fireproofing	2,970 S.F.	6.15		18,265.50
Dropped Ceiling Replacemt.	1,730 S.F.	4.38		7,577.40
			$	25,842.90
	Phase I Construction Cost		$	74,504.90
	Estimated Time for Completion			14 Days
	Air Monitoring Cost 10 days @ $650/day		$	6,500.00
	Phase II Total Cost*		$	81,004.90

Estimated costs are excluding A/E fees

KODIAK ISLAND BOROUGH SCHOOL DISTRICT
KODIAK HIGH SCHOOL

Cost Summary

Demolition		
Phase I		$ 52,195.50
Phase II		3,633.00
		$ 55,828.50
Asbestos Removal		
Phase I		$ 600,814.50
Phase II		45,029.00
		$ 645,843.50
Replacement		
Phase I		$ 371,992.65
Phase II		25,842.90
		$ 397,835.55
	Construction Total	$1,099,507.55
	Air Monitoring Total	39,000.00
	Total Project Cost*	$1,133,507.55

*Estimated costs are **excluding** A/E fees

NOTE 1: The asbestos removal figures have been developed using wage rates for asbestos workers instead of general laborers. Prices could be reduced if the Department of Labor approves the use of general laborers and does not require asbestos workers for the removal of the fireproofing.

DRAFT

SECTION 1

EXECUTIVE SUMMARY

Swearingen Associates surveyed two school facilities at Delta Junction and Fort Greely which are operated by the Delta/Greely School District, REAA #15. These schools were surveyed for the presence and extent of asbestos. On December 20 and December 21, 1983, the following facilities were evaluated:

Delta Junction	Fort Greely
1. Delta Junction School	1. Greely School
2. Univ. of Alaska Bldg.	
3. Metals and Ag. Shop	
4. Class Module 1, 2, 3, 4, 5	
5. Support Module A, B, C	

Asbestos was found in the Delta Junction and Greely schools and in the five (5) class modules. No asbestos-containing materials were identified in the University Building, the Shop Building, or in the three Support Modules.

The asbestos found in these facilities was generally in a sound, cement-like compound used as thermal insulation. In several locations, however, "friable" asbestos was identified: asbestos which is in a condition to release microscopic particles into the air. (Examples of friable asbestos include sprayed-on materials and materials which have been physically damaged.)

Friable asbestos, when inhaled or ingested, is associated with a number of serious illnesses; consequently, the Federal government, mainly the Environmental Protection Agency and the Occupational Safety and Health Administration, have issued strict and comprehensive reg-ulations governing the use of asbestos and the limits of occupational exposure to airborne asbestos fibers.

We have prioritized our findings in order of the most serious potential risks of exposure. These priorities are:

PRIORITY ONE: The facility contains friable asbestos which is accessible to all building occupants.

PRIORITY TWO: The facility contains friable asbestos which is accessible to maintenance and custodial personnel only.

PRIORITY THREE: The facility contains only non-friable asbestos which is accessible to all building occupants.

PRIORITY FOUR: The facility contains only non-friable asbestos accessible to maintenance personnel only.

The facilities which have a Priority One asbestos hazard are:

The five Classroom Modules at the Delta Junction School

The facilities which have a Priority Two asbestos hazard are:

Delta Junction School
Fort Greely School

No facilities were identified with only a Priority Three asbestos hazard.

No facilities were identified with only a Priority Four asbestos hazard.

The five Classroom Modules have sprayed-on accoustical ceilings which had been previously sampled and found to contain approximately five percent (5%) asbestos. Air monitoring in each of these modules conducted as part of this survey established that air borne fiber count was less than four percent (4%) of the allowable limit. (Note that the EPA standard test for air borne fibers includes all fibers--lint, dust, asbestos, and animal--not just asbestos.)

There are several techniques which are used to reduce the risks of exposure to asbestos fibers. These include removal of the asbestos containing material, sealing or encapsulating the asbestos-containing material to prevent fiber release, enclosing or barricading the asbestos-containing material so that contact with it is unlikely, and administrative controls and procedures. The latter three, encapsulation, enclosing and administrative controls, all require extensive record keeping and periodic re-inspection. They also will seriously impact future facility modifications as well as retaining a potential hazard in the event of a fire or earthquake. Asbestos removal is generally considered to be the most desireable abatement procedure for schools. The initial costs are higher than the alternatives; however, the potential for future damages are gone as are the administrative requirements for record maintenance.

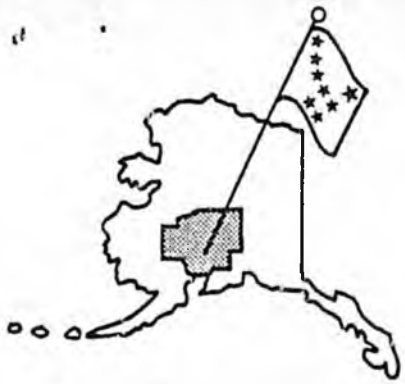
Swearingen Associates developed a cost estimate for the asbestos removal in the facilities schools identified above: The estimated cost of $99,700 includes asbestos removal and disposal, surface refinishing or insulating, preparation of removal specifications and contract, and, performance verification and certification.

TABLE I

SUMMARY OF ASBESTOS FINDINGS AND COST ESTIMATES

FACILITY	EXPOSURE	CONDITION	PRIORITY	ABATEMENT COST*
DELTA JUNCTION SCHOOL	MAINTENANCE	FRIABLE	P - TWO	$ 8,910
UNIVERSITY OF ALASKA BLDG./	NONE	N/A	N/A	NONE
METALS & AG. SHOP	NONE	N/A	N/A	$ NONE
CLASS MODULES 1, 2, 3, 4, 5	PUBLIC	FRIABLE	P-ONE	$ 70,920
SUPPORT MODULES A, B, C	NONE	N/A	N/A	$ NONE
FORT GREELY SCHOOL	MAINTENANCE	FRIABLE	P-TWO	$ 19,870
			TOTAL	$ 99,700

*Abatement costs include asbestos removal and disposal, surface refinishing or new insulation, removal specifications and contract preparation, and final project acceptance and certification.



MATANUSKA-SUSITNA BOROUGH SCHOOL DISTRICT

BOX AB ● PALMER, ALASKA 99645-1646 ● PHONE 745-4822

GORDON C. TOPE
SUPERINTENDENT OF SCHOOLS

March 19, 1984

The Honorable Joe P. Josephson
Alaska State Senate
Pouch V
Juneau, Alaska 99811

Senator Josephson:

Attached you will find a copy of the amount of money expended on asbestos removal in the Matanuska-Susitna Borough School District, as requested by your office.

If you have any further questions please contact my office.

Sincerely,

Norm Palenske

Norm Palenske
Director of Planning & Facilities

fc
Enc: Memorandum from Borough

Matanuska-Susitna Borough

BOX B, PALMER, ALASKA 99645 • PHONE 745-4801

DEPARTMENT OF PUBLIC WORKS

MEMORANDUM

March 14, 1984

TO: Norm Palenske, Director of Planning and Facilities

FROM: Jan Affinito, Contract Administrator JA

SUBJECT: ASBESTOS ABATEMENT-
Financial Record as of March 13, 1984

ENCUMBERANCES:

Sampling and analysis by testing lab =	$5,000

EXPENDED:

Contractor payments = (Remove and replace asbestos containing insulation at 3 schools)	94,302
Testing Laboratory = (Air quality monitoring)	3,967
Film and Development =	78
Mat-Su Borough Engineering Department Labor =	2,285
Courier Sevice =	168
Special Equipment =	159
TOTAL	$105,959

MAR 14 1983

Valdez City Schools

Office of the Superintendent

Box 398
Valdez, Alaska 99686
Phone: (907) 835-4357

March 20, 1984

Joe P. Josephson
State Senator
State Capitol
Pouch V
Juneau, AK 99811

Dear Senator Josephson:

The Valdez City Schools has been inspected and does not contain an airborne asbestos condition. Any asbestos is incapsulated and does not contain a condition which is hazardous to students and/or employees or public as caused by asbestos fibers.

I appreciate your efforts in providing financial support to eliminate any hazard which may be caused by airborne asbestos. My only recommendation would be to develop criteria which would assist school districts in applying for the monies. I feel that the costs involved may be tremendously varied pending individual districts' plans for removing asbestos; particularly in the case of demolition and rebuilding.

Thank you for the opportunity to provide input.

Sincerely,

GEORGE MAYKOWSKYJ
Superintendent

ASSOCIATION OF ALASKA SCHOOL BOARDS
326 Fourth St., Suite 510 • Juneau, Alaska 99801 • (907) 586-1083

ASBESTOS SURVEY

School District	Information Gathered
Adak	Removal project will be under way this summer through H.H.S. at a total cost of $120,000 which included capsulating the pipes earlier this school year.
Alaska Gateway	No asbestos problem
Aleutian Region	No asbestos problem
Anchorage	Approximately $10 million dollars. Asbestos expert, Wayne Tenzel, will be available for testimony January 24 and 25 as well as the first part of February. (Written report will be mailed to AASB.)
Chatham	No asbestos problem
Copper River	No asbestos problem
Cordova	Cost estimates range from $34,000-$38,000 bid (direct contact with contractors) to $80,000 estimates from engineers who will set up removal plans. Usual engineering costs 10-15% of the contract price. Additional factor replacement of material removed - $20,000-$40,000.
Fairbanks	Total cost for all 21 schools in the Fairbanks area is $1,568,045.00. (Written report will follow via mail.)
Galena	No asbestos problem
Haines	No asbestos problem
Kenai	No asbestos problem
King Cove	No asbestos problem
Lake and Peninsula	No asbestos problem
Nenana	No dollar amount has been determined to date.
Nome	No asbestos problem
North Slope	No asbestos problem

School District	Information Gathered
Pribilof Islands	Entire outer skin of school is made of asbestos, but no cost estimates yet. In process of building new school, so hopefully it won't be a problem anyway.
Railbelt	No asbestos problem
Sitka	Only in boiler room of Etolin High School. (Sitka did not report cost estimates)
Skagway	No asbestos problem
Southeast Islands	No asbestos problem
Valdez	No asbestos problem
Yukon Koyukuk	No asbestos problem

NO RESPONSE TO DATE FROM:

Annette Island
Bering Strait
Bristol Bay
Chugach
Craig
Delta/Greely
Dillingham
Hoonah
Hydaburg
Iditarod
Juneau
Kake
Ketchikan
Klawock
Kodiak
Kuspuk
Lower Kuskokwim
Lower Yukon
Mat Su
Northwest Arctic
Pelican
Petersburg
St. Marys
Sand Point
Southwest Region
Tanana
Unalaska
Wrangell
Yakutat
Yukon Flats

ASBESTOS
SAFETY AND HEALTH WORK PRACTICES GUIDE

A Safety Service of the:

Alaska Chapter Associated General Contractors
3201 Spenard Road
P.O. Box 4-2500(99509)
Anchorage, Alaska
(907) 561-5354

In conjunction with:

OSH
Alaska Department of Labor
3301 Eagle Street
Pouch 7-022,(99510)
Anchorage, Alaska
(907) 264-2599

Reprinted with permission from the:
Milwaukee Construction Industry Safety Council
2733 W. Wisconsin Avenue
P.O. Box 08374
Milwaukee, WI 53208
(414) 933-7661

Respirator use, allowed under this section, is on a sliding scale according to exposure levels. Respirator use is allowed as follows, provided that they have NIOSH and MSHA approval:

1. Any respirator must be an approved type. Approval currently is a combined MSHA/NIOSH designation, which means that respiratory equipment is jointly approved by the Mine Safety and Health Administration and the National Institute of Occupational Safety and Health. In the future, it is possible that respirators will be approved only by NIOSH. All approved respirators carry an approval number. Respirators are approved only for specific types of hazard and within certain contamination limits. Make sure that respirators you are using are designed and approved for the hazard encountered and the concentration at which it is encountered.

2. Re-usable or single-use air purifying respirators for use in atmospheres with exposure up to 10 times that limit of 2 fibers per cubic centimeter (cc) of air for an 8-hour exposure or 10 times the limit of 10 fibers per cc for a short exposure.

3. Powered air purifying respirators for up to 100 times the limit.

4. Type C supplied air or pressure demand type respirators where the exposure exceeds 100 times the limit.

Disposable clothing is suggested for employees working in asbestos atmospheres(See Appendix C). In addition, monitoring of exposure levels on both an initial and continuing basis must be performed. Caution signs are required in work areas and all debris must be bagged and labeled before disposal in accordance with the provisions of 04.0102. Medical monitoring is another important part of the program. Every employee exposed to asbestos in concentrations greater than 0.1 fiber per cubic centimeter (f/cc) must have a medical examination made available to him within 30 days of his first exposure and annually thereafter. If an employee terminates his employment, or is terminated, a medical exam must be available to him within 30 days of the termination. All medical records must be retained by employer for 20 years.

APPLICATION OF STANDARDS

The OSH code as written is extremely hard to comply with in the construction industry. They were written for static industrial applications. The entire 04.0102 asbestos standard is part of the 01.0101 verticalized standard and must be adhered to. The effects of asbestos do not show until as late as 20 years after the initial exposure. The legal and moral ramifications of not providing proper protection for employees are enormous. Liability suits in the millions of dollars have already been awarded to exposed employees and their associated costs far overshadow OSH penalties. We are then faced with a two-fold problem in construction operations. First and foremost is whether or not employees are adequately protected and secondarily, are we in compliance with OSH standards? Since the existence of asbestos cannot be determined in the field, and many construction operations which come in contact with asbestos are of short duration we have a difficult time gaining 100% compliance with OSH regulations. This policy can only be a guide to initial employee protection and seeks a method of safeguarding the employee and OSH compliance.

This document is intended to aid in short term, small or low exposure routine situations. It is not intended for use on abatement projects where the scope of the project is solely to remove asbestos from a structure. Because of the many other factors involved in abatement work like EPA regulations, protection of the owners future interest, etc., monitoring should always be conducted for abatement projects.

ASBESTOS POLICY AND SAFE WORKING PRATICES

For the purpose of simplification, we are dividing this sub-section into three areas we have been able to identify where the construction process comes into contact with asbestos.

Notify him that because he had taken these actions you will consider his rights waived unless he informs you within 5 days that he will take a physical. This notice should also be certified mail or personal service with certification. If you use our data base concept you will almost always have a provide medical monitoring since it is extremely unlikely that exposures would fall under the 0.1 fiber limit. If you do not use the data base you will have to air monitor to determine whether or not medical surveillance is required.

EMPLOYEE TRAINING

An important part of any asbestos program must be employee hazard awareness. Employees likely to be exposed must be told about what produces asbestos dust, such as cutting. While all of us are aware of the health hazard, many of us fail to realize that it is so abundant in repair, remodeling, and emergency work. We must instruct our employees in safe working practices, covering thoroughly the following topics:

1) The health hazard.

2) The areas of work most likely to have exposure problems.

3) The importance and proper use of respiratory protection.

4) The importance of treating all suspect material as asbestos until proven otherwise.

5) The importance of having all suspect material tested.

6) The importance of having air tests made.

7) A thorough understanding of OSH regulations.

8) A thorough knowledge of techniques for limiting airborne concentrations.

9) A thorough understanding of personal protective equipment.

DATA BASE CONCEPT

One way to handle the problem of air monitoring is to use a data base concept. The OSH standard is loosely worded about actual monitoring requirements and hard to apply to construction operations.

We feel that the monitoring requirements can be technically met if each company does air monitoring for a range of examples of exposures it deals with. This data could then be applied to different projects with similar circumstances and materials. Each company can in effect establish a data base of probable concentrations for each type of exposure and rpotect their employees accordingly.

Many contractor air samples indicate properly handled asbestos will be below two fibers, the current OSH respirator requirement level. In spite of this we feel that respirators are absolutely required for any work with asbestos containing materials. While the current OSH level is 2 fibers per cubic centimeter, we have reason to believe it will soon be lowered. It is only prudent to provide respiratory protection for all exposures including those assumed to be reasonably low. While it is possible to make an informed decision that air monitoring is not required, we do not feel that the same can be said for the use of respirators. It is a keystone of the data base concept that employee protection be supplied and used for the so called low level exposures (those below current OSH respiratory requirement limits).

When an asbestos exposure situation is encountered you have two choices: monitor or use the data base concept. If you use data basing, review your file for similar situations. Make an informed decision based on past exposure experience. Be sure to allow an adequate safety factor when deciding on a respirator type. If your expected exposure is near the top of the allowable limits for the respirators you have selected, go to the next type up the protective ladder.

ASBESTOS
SAFETY AND HEALTH WORK PRACTICES GUIDE

A Safety Service of the:

Alaska Chapter Associated General Contractors
3201 Spenard Road
P.O. Box 4-2500(99509)
Anchorage, Alaska
(907) 561-5354

In conjunction with:

OSH
Alaska Department of Labor
3301 Eagle Street
Pouch 7-022,(99510)
Anchorage, Alaska
(907) 264-2599

Reprinted with permission from the:
Milwaukee Construction Industry Safety Council
2733 W. Wisconsin Avenue
P.O. Box 08374
Milwaukee, WI 53208
(414) 933-7661

Respirator use, allowed under this section, is on a sliding scale according to exposure levels. Respirator use is allowed as follows, provided that they have NIOSH and MSHA approval:

1. Any respirator must be an approved type. Approval currently is a combined MSHA/NIOSH designation, which means that respiratory equipment is jointly approved by the Mine Safety and Health Administration and the National Institute of Occupational Safety and Health. In the future, it is possible that respirators will be approved only by NIOSH. All approved respirators carry an approval number. Respirators are approved only for specific types of hazard and within certain contamination limits. Make sure that respirators you are using are designed and approved for the hazard encountered and the concentration at which it is encountered.

2. Re-usable or single-use air purifying respirators for use in atmospheres with exposure up to 10 times that limit of 2 fibers per cubic centimeter (cc) of air for an 8-hour exposure or 10 times the limit of 10 fibers per cc for a short exposure.

3. Powered air purifying respirators for up to 100 times the limit.

4. Type C supplied air or pressure demand type respirators where the exposure exceeds 100 times the limit.

Disposable clothing is suggested for employees working in asbestos atmospheres(See Appendix C). In addition, monitoring of exposure levels on both an initial and continuing basis must be performed. Caution signs are required in work areas and all debris must be bagged and labeled before disposal in accordance with the provisions of 04.0102. Medical monitoring is another important part of the program. Every employee exposed to asbestos in concentrations greater than 0.1 fiber per cubic centimeter (f/cc) must have a medical examination made available to him within 30 days of his first exposure and annually thereafter. If an employee terminates his employment, or is terminated, a medical exam must be available to him within 30 days of the termination. All medical records must be retained by employer for 20 years.

APPLICATION OF STANDARDS

The OSH code as written is extremely hard to comply with in the construction industry. They were written for static industrial applications. The entire 04.0102 asbestos standard is part of the 01.0101 verticalized standard and must be adhered to. The effects of asbestos do not show until as late as 20 years after the initial exposure. The legal and moral ramifications of not providing proper protection for employees are enormous. Liability suits in the millions of dollars have already been awarded to exposed employees and their associated costs far overshadow OSH penalties. We are then faced with a two-fold problem in construction operations. First and foremost is whether or not employees are adequately protected and secondarily, are we in compliance with OSH standards? Since the existence of asbestos cannot be determined in the field, and many construction operations which come in contact with asbestos are of short duration we have a difficult time gaining 100% compliance with OSH regulations. This policy can only be a guide to initial employee protection and seeks a method of safeguarding the employee and OSH compliance.

This document is intended to aid in short term, small or low exposure routine situations. It is not intended for use on abatement projects where the scope of the project is solely to remove asbestos from a structure. Because of the many other factors involved in abatement work like EPA regulations, protection of the owners future interest, etc., monitoring should always be conducted for abatement projects.

ASBESTOS POLICY AND SAFE WORKING PRATICES

For the purpose of simplification, we are dividing this sub-section into three areas we have been able to identify where the construction process comes into contact with asbestos.

Notify him that because he had taken these actions you will consider his rights waived unless he informs you within 5 days that he will take a physical. This notice should also be certified mail or personal service with certification. If you use our data base concept you will almost always have a provide medical monitoring since it is extremely unlikely that exposures would fall under the 0.1 fiber limit. If you do not use the data base you will have to air monitor to determine whether or not medical surveillance is required.

EMPLOYEE TRAINING

An important part of any asbestos program must be employee hazard awareness. Employees likely to be exposed must be told about what produces asbestos dust, such as cutting. While all of us are aware of the health hazard, many of us fail to realize that it is so abundant in repair, remodeling, and emergency work. We must instruct our employees in safe working practices, covering thoroughly the following topics:

1) The health hazard.

2) The areas of work most likely to have exposure problems.

3) The importance and proper use of respiratory protection.

4) The importance of treating all suspect material as asbestos until proven otherwise.

5) The importance of having all suspect material tested.

6) The importance of having air tests made.

7) A thorough understanding of OSH regulations.

8) A thorough knowledge of techniques for limiting airborne concentrations.

9) A thorough understanding of personal protective equipment.

DATA BASE CONCEPT

One way to handle the problem of air monitoring is to use a data base concept. The OSH standard is loosely worded about actual monitoring requirements and hard to apply to construction operations.

We feel that the monitoring requirements can be technically met if each company does air monitoring for a range of examples of exposures it deals with. This data could then be applied to different projects with similar circumstances and materials. Each company can in effect establish a data base of probable concentrations for each type of exposure and rpotect their employees accordingly.

Many contractor air samples indicate properly handled asbestos will be below two fibers, the current OSH respirator requirement level. In spite of this we feel that respirators are absolutely required for any work with asbestos containing materials. While the current OSH level is 2 fibers per cubic centimeter, we have reason to believe it will soon be lowered. It is only prudent to provide respiratory protection for all exposures including those assumed to be reasonably low. While it is possible to make an informed decision that air monitoring is not required, we do not feel that the same can be said for the use of respirators. It is a keystone of the data base concept that employee protection be supplied and used for the so called low level exposures (those below current OSH respiratory requirement limits).

When an asbestos exposure situation is encountered you have two choices: monitor or use the data base concept. If you use data basing, review your file for similar situations. Make an informed decision based on past exposure experience. Be sure to allow an adequate safety factor when deciding on a respirator type. If your expected exposure is near the top of the allowable limits for the respirators you have selected, go to the next type up the protective ladder.

04.0102 —ASBESTOS

(a) Definitions.

For the purpose of this section.

(1) "Asbestos" includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

(2) "Asbestos fibers" means asbestos fibers longer than 5 micrometers.

(b) Permissible exposure to airborne concentrations of asbestos fibers.

(1) Standard effective July 7, 1972. The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed five fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(2) Standard effective July 1, 1976. The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed two fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(3) Ceiling concentration. No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(c) Methods of compliance.

(1) Engineering methods.

(i) Engineering controls. Engineering controls, such as, but not limited to, isolation, enclosure, exhaust ventilation, and dust collection, shall be used to meet the exposure limits prescribed in paragraph (b) of this section.

(ii) Local exhaust ventilation.

(a) Local exhaust ventilation and dust collection systems shall be designed, constructed, installed, and maintained in accordance with the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2–1971, which is incorporated by reference herein.

(b) See § 1910.6 concerning the availability of ANSI Z9.2–1971, and the maintenance of a historic file in connection therewith. The address of the American National Standards Institute is given in § 1910.100.

(iii) Particular tools. All hand-operated and power-operated tools which may produce or release asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section, such as, but not limited to, saws, scorers, abrasive wheels, and drills, shall be provided with local exhaust ventilation systems in accordance with subdivision (ii) of this subparagraph.

(2) Work practices.

(i) Wet methods. Insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers in excess of the exposure limits prescribed in paragraph (b) of this section, unless the usefulness of the product would be diminished thereby.

(ii) Particular products and operations. No asbestos cement, mortar, coating, grout, plaster, or similar material containing asbestos shall be removed from bags, cartons, or other containers in which they are shipped, without being either wetted, or enclosed, or ventilated so as to prevent effectively the release of airborne asbestos fibers in excess of the limits prescribed in paragraph (b) of this section.

(iii) Spraying, demolition, or removal. Employees engaged in the spraying of asbestos, the removal, or demolition of pipes, structures, or equipment covered or insulated with asbestos, and in the removal or demolition of asbestos insulation or coverings shall be provided with respiratory equipment in accordance with paragraph (d)(3)(iii) of this section and with special clothing in accordance with paragraph (d)(3) of this section.

(d) Personal protective equipment.

(1) Compliance with the exposure limits prescribed by paragraph (b) of this section may not be achieved by the use of respirators or shift rotation of employees, except:

(i) During the time period necessary to install the engineering controls and to institute the work practices required by paragraph (c) of this section;

(ii) Laundering:

(a) Laundering of asbestos contaminated clothing shall be done so as to prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section.

(b) Any employer who gives asbestos-contaminated clothing to another person for laundering shall inform such person of the requirement in (a) of this subdivision to effectively prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section.

(c) Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and labeled in accordance with paragraph (g) of this section.

(e) *Method of measurement.*

All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400–450 × (magnification) (4 millimeter objective) with phase contrast illumination.

(f) *Monitoring.*

(1) Initial determinations. Within 6 months of the publication of this section, every employer shall cause every place of employment where asbestos fibers are released to be monitored in such a way as to determine whether every employee's exposure to asbestos fibers is below the limits prescribed in paragraph (b) of this section. If the limits are exceeded, the employer shall immediately undertake a compliance program in accordance with paragraph (c) of this section.

(2) Personal monitoring.

(i) Samples shall be collected from within the breathing zone of the employees, on membrane filters of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(ii) Sampling frequency and patterns. After the initial determinations required by subparagraph (1) of this paragraph, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of employees. In no case shall the sampling be done at intervals greater than 6 months for employees whose exposure to asbestos may reasonably be foreseen to exceed the limits prescribed by paragraph (b) of this section.

(3) Environmental monitoring.

(i) Samples shall be collected from areas of a work environment which are representative of the airborne concentrations of asbestos fibers which may reach the breathing zone of employees. Samples shall be collected on a membrane filter of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(ii) Sampling frequency and patterns. After the initial determinations required by subparagraph (1) of this paragraph, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of the employees. In no case shall sampling be at intervals greater than 6 months for employees whose exposures to asbestos may reasonably be foreseen to exceed the exposure limits prescribed in paragraph (b) of this section.

(4) Employee observation of monitoring. Affected employees, or their representatives, shall be given a reasonable opportunity to observe any monitoring required by this paragraph and shall have access to the records thereof.

(g) Caution signs and labels.

(1) Caution signs.

(i) Posting. Caution signs shall be provided and displayed at each location where airborne concentrations of asbestos fibers may be in excess of the exposure limits prescribed in paragraph (b) of this section. Signs shall be posted at such a distance from such a location so that an employee may read the signs and take necessary protective steps before entering the area marked by the signs. Signs shall be posted at all approaches to areas containing excessive concentrations of airborne asbestos fibers.

(ii) Sign specifications. The warning signs required by subdivision (i) of this subparagraph shall conform to the requirements of 20" x 14" vertical format signs

(3) Annual examinations. On or before January 31, 1973, and at least annually thereafter, every employer shall provide, or make available, comprehensive medical examinations to each of his employees engaged in occupations exposed to airborne concentrations of asbestos fibers. Such annual examination shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second ($FEV_{1.0}$).

(4) Termination of employment. The employer shall provide, or make available, within 30 calendar days before or after the termination of employment of any employee engaged in an occupation exposed to airborne concentrations of asbestos fibers, a comprehensive medical examination which shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second ($FEV_{1.0}$).

(5) Recent examinations. No medical examination is required of any employee, if adequate records show that the employee has been examined in accordance with this paragraph within the past 1-year period.

(6) Medical records.

(i) Maintenance. Employers of employees examined pursuant to this paragraph shall cause to be maintained complete and accurate records of all such medical examinations. Records shall be retained by employers for at least 20 years.

(ii) Access. The contents of the records of the medical examinations required by this paragraph shall be made available, for inspection and copying, to the Assistant Secretary of Labor for Occupational Safety and Health, the Director of NIOSH, to authorized physicians and medical consultants of either of them, and, upon the request of an employee or former employee, to his physician. Any physician who conducts a medical examination required by this paragraph shall furnish to the employer of the examined employee all the information specifically required by this paragraph, and any other medical information related to occupational exposure to asbestos fibers.

APPENDIX A

THE NEW OSH STANDARD

On Friday November 4, 1983 OSHA issued an Emergency Temporary Standard (ETS) on asbestos. These emeregency requirements will remain in effect for six months under the rules governing the issuance of Emeregency Temporary Standards. This means that it will be in effect until May 4, 1984.

During this time period we expect OSHA to go through the formal rule making process in order to cause a permanent change in the existing standard. We would be very much surprised if this formalization process resulted in a final standard with provisions much different than those outlined in the ETS.

The complete text of the Emergency Temporary Standard is printed after this explanation.

The ETS does not effect the data base concept since we are providing employee protection from zero exposures on up. It does, however, reduce the margin of error and place an even greater emphasis on careful work procedures.

It requires additional employee training and lowers the permissable exposure level (PEL) to .5 fibers from the current 2 fibers per cc of air. This is a 75% reduction in the amount of asbestos that an employee can be exposed to without respiratory protection. The .1 fiber action level for medical surveillance remains unchanged.

In addition the approval level for each type of respirator is reduced to a multiple of the new lower PEL.

Single use repirators have a maximum concentration approval of 5 fibers per cc (10 times .5) rather than 20 fibers (10 times 2) for as long as the ETS is in effect. Our data base indicates that about 5% of all construction exposures could exceed the 5 fiber limit on single use respiators.

Full face piece purifying and powered air purifiers are approved up to 50 fibers per cc (100 times .5) rather than up to 200 fibers (100 times 2). Any concentration over 50 fibers requires the use of airline respirators.

Appendix B

RESPIRATOR PROGRAM FOR USE IN CONJUNCTION WITH POSSIBLE ASBESTOS EXPOSURE

Because of the possibility of asbestos exposure during repair, remodeling and emergency work, we recommend that the following items be part of the equipment furnished crews involved in these projects:

1. Respirators
2. Disposal Bags and Decals
3. 20" x 14" Caution Sign
4. Protective Clothing

The most important part of this entire program is the immediate use of respiratory protection by personnel contacting possible asbestos containing materials.

Steps to be followed in respirator use:

1. Select a respirator designed for use in asbestos atmospheres and carrying a NIOSH-MSHA approved number.
2. Instruct and train employees in:
   a. The asbestos health hazard
   b. The use of respirator stressing the importance of a tight fit.
   c. Respirator maintenance and cleaning.
3. Set up a procedure for Respirator Use and Work Area Surveillance. These duties can best be assigned to the crew foreman on most construction activities.

OSH requires a written respiratory protection plan whenever respirators are in use. Your company can establish such a program by reviewing the requirements of OSH code 04.0102.

A publication of the Milwaukee Construction Industry Safety Council entitled "Contractors Guide to Respirator Use and Written Respirator Programs" will be useful in your fit-test efforts.

Appendix C

SIGNS AND PROTECTIVE CLOTHING

Areas where work with possible asbestos containing materials must be marked by 20" x 14" Caution Signs (yellow, with black letters) containing the exact wording called for in the standards. Contact us or your trade association for help in obtaining these signs.

A label must be attached to all bags containing asbestos material before disposal. Help in obtaining these labels is available from many trade associations.

Protective clothing can also be of the disposable type and offer several advantages:

1. Low initial cost
2. Ease of storage
3. No laundering costs
4. No danger of contamination during laundry operations
5. Ease of disposal

For more information contact:

Alaska Chapter Associated General Contractors
3201 Spenard Road
P.O. Box 4-2500-(99509)
Anchorage, Alaska
(907) 561-5354

DOSH
Alaska Department of Labor
3301 Eagle Street
Pouch 7-022(99510)
Anchorage, Alaska
(907)264-2599

CONTRACTORS GUIDE TO RESPIRATOR USE
AND
WRITTEN RESPIRATOR PROGRAMS

A Safety Service of the:

Alaska Chapter Associated General Contractors
3201 Spenard Road
P.O. Box 4-2500(99509)
Anchorage, Alaska
(907)561-5354

With co-operation and
technical assistance from:

OSH
Alaska Department of Labor
3301 Eagle Street
Pouch 7-022,(99510)
Anchorage, Alaska
(907)264-2599

Innovative Safety for an Innovative Industry

I-RESPIRATOR TYPES

A respirator is a device designed to ensure the wearer of a breathable non-contaminated supply of air. There are two basic types of respirators, those that purify the existing atmosphere by filtering contaminants out and those that provide clean air from an outside source. There are several types of respirators within each of the above categories. A basic respirator program starts with a thorough understanding of the respirators available and the uses and limitations of each.

Air-Purifying Respirators remove the contaminants from air before breathing by filtering out contaminants, such as dust, fumes and mists. The simplest form of respirator in this category is commonly known as a single use or disposable respirator. These units are low cost and offer protection for certain types of low level exposures. They are generally used for dusts and fiber removal. As with all types of respirators, each manufacturer's product is approved for only certain types of contaminants and specific exposure levels.

The next most complicated type of air-purifying respirators is also designed for dusts and mists and features removable purifying elements. It is reusable as long as the elements are changed and it is properly maintained and cleaned. It is generally approved for higher concentrations than the single-use respirator. It can be purchased in quarter-mask, half-mask and full-face piece styles. Each style offers, successively, more protection with the full-face piece offering some protection for the eyes as well.

Closely related to the above respirator style are chemical cartridge and cannister respirators for gases and fumes. These respirators feature replaceable filter units and come in quarter, half and full-face styles. The filters remove harmful gases and vapors by way of a chemical reaction that absorbs or renders them harmless. Each filter element is effective only against a specific hazard or class of hazards. Filter cartridges are color coded according to a universal scheme, enabling the user to positively identify the proper cartridge for the hazard present.

The last type of respirator, in the air-purifying class, is known as a powered air purifying unit. This is a high efficiency mechanical unit. Powered air purifies come in half-mask and full-face mask or hood styles. A fan forces contaminated air through a filter and pure air into the face piece. Depending on the approved cartridges used, they can be effective for particles and gases or vapors.

It is important to note that none of the air-purifying respirators can be used in oxygen deficient atmospheres, since they do not supply air. They are also only effective against the particular contaminant and the concentration they are approved for.

The second major category of respirators are termed air supply units. As the name implies, they provide their own source of air from an outside supply. They can be used in high concentrations of most any type of hazardous substance.

The values, we have been discussing, represent a term in Industrial Hygiene known as a TLV or threshold limit value. When we say carbon monoxide is regulated by OSHA at concentrations of 50 PPM, we mean that it has a TLV of that amount. A TLV is the concentration value below which workers, exposed for extended periods of eight hour days, are assumed to suffer no ill effects. Concentrations above the TLV are considered dangerous and require contractor action either in the form of engineering or administrative controls. TLV's are also referred to as PEL's (Permissable Exposure Limits) when talking in terms of OSHA compliance.

Another commonly used term in Industrial Hygiene is TWA or Time Weighted Averages. PEL's are usually expressed in terms of Time-Weighted Averages. A time-Weighted Average is simply an average of the various exposures occuring during a normal work day. Using a TWA and carbon monoxide as an example an exposure of 4 hours at 75 PPM and 4 hours at 25 PPM yields a time-weighted average of 50 PPM or no excessive employee exposures. Occasionally, hazardous substances, which are regulated on the basis of Time-Weighted Averages, have upper exposure limits (UEL) which cannot be exceeded without proper employee protection.

IV TESTING EQUIPMENT AND METHODS

Effective health protection requires that monitoring of concentration levels be done. No effective program can exist without an accurate idea of the contaminant levels present in the work environment. Since respirators are only approved and effective for specific concentrations, the hazard concentration must be established even to make an accurate selection. The types and methods of air monitoring are varied, ranging from simple units for spot checks to sophisticated continuous monitors. Equipment suppliers can help you choose the exact type of monitoring equipment for your needs and the hazards you are encountering. Most of the time, they will train your employees in the use and maintenance of the equipment. It is important to know exactly the kind and extent of service the manufacturer will provide before purchasing any monitoring equipment. It is also possible to have monitoring handled by an outside consultant.

V ENGINEERING vs ADMINISTRATIVE CONTROL

The cornerstone of any Construction Program, involving Industrial Hygiene, Respirator Protection and Hazardous Substance Control, is an understanding of the relationship between Engineering and Administrative Controls. OSHA law requires that Engineering Control be applied first, wherever possible, to hazardous-substance situations. Engineering controls are methods of reducing the amount of contaminants in the work environment by controlling and modifying the source of the contaminant. They include such things as isolation, enclosure, ventilation and dust collection. Perhaps the most feasible administrative control for construction operations is substitution. Wherever possible, non-hazardous and non-toxic substances should be substituted for harmful ones. This truly limits the hazard at the source. The Construction Health Specialist is always alert for ways and places to substitute.

For example, the problem caused by asbestos has been virtually eliminated in new construction, through the use of new materials. The application of engineering controls can also be effectively achieved in many cases by changes in the work processes. The use of engineering controls require imaginative and innovative thought.