Scientific Evidence of Asbestos Effect on Health Reflected in New Legislation on Abatement Goals

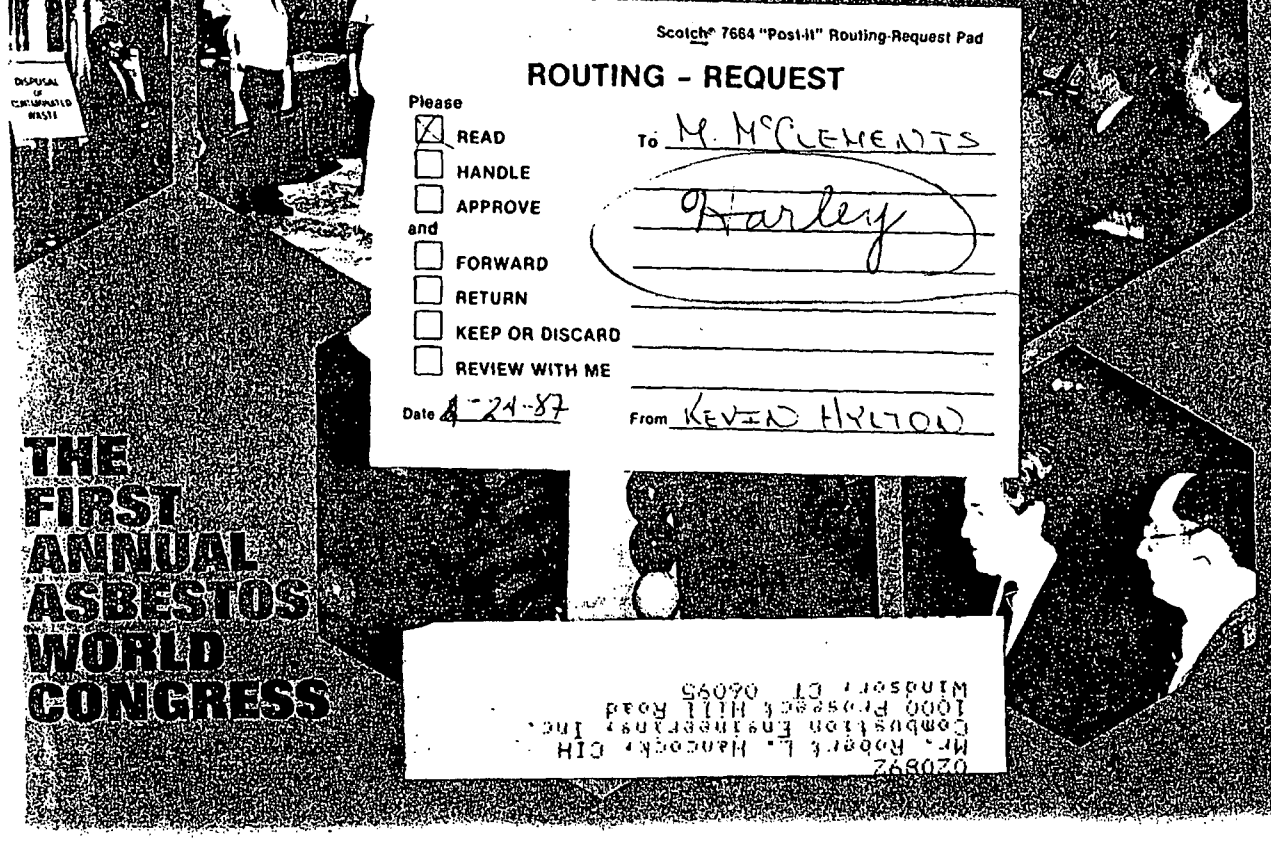
ASBESTOS ABATEMENT

THE OFFICIAL MAGAZINE OF THE ASBESTOS ABATEMENT COUNCIL OF AWCI

MARCH/APRIL 1987

Some Special Comments On Air Monitoring





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TECHNICAL

AIR MONITORING FOR ASBESTOS FIBERS

Asbestos is Only Harmful to Humans Inside the Body So Careful Monitoring for Airborne Fibers—and the Quantity—Are Vital to an Effective Environment

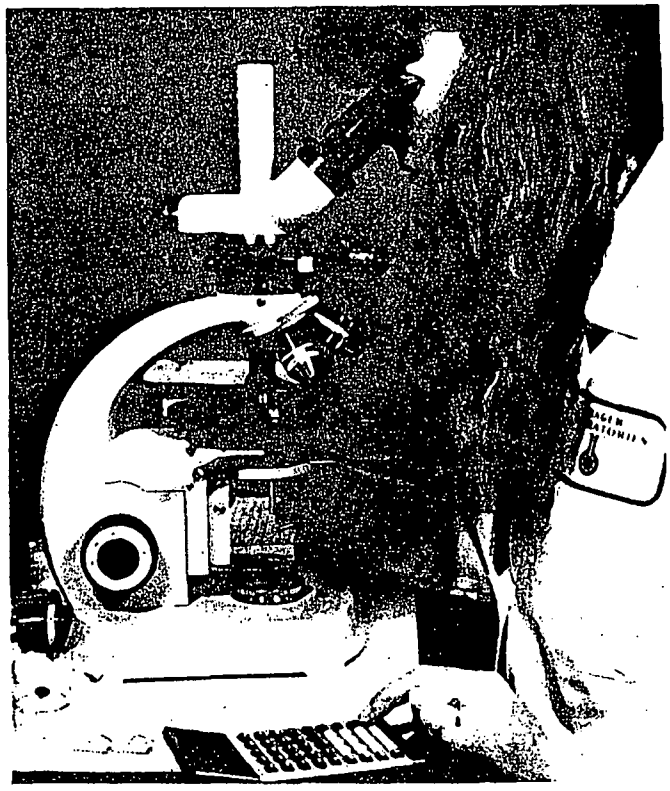
by Robert N. Hager, Jr. CIH, Hager Laboratories, Inc.

Asbestos is only harmful to humans when it is injested into the body. This occurs, in general, by breathing air containing airborne fibers of asbestos. The accepted method for measuring the amount of airborne asbestos dust is to draw a known volume of air through a filter that removes the dust. The amount of dust on the filter is determined analytically and then, the average dust concentration is calculated by dividing the amount of dust found on the filter by the volume of air pulled through the filter.

Although this procedure sounds fairly simple, and it is, there are several questions that must be answered before proceeding.

1. During monitoring, how dusty is the environment expected to be? Is the dust going to be visible in the air, or is this an operation that very little if any dust should be present?

2. How long should the monitoring be? Should air monitoring be for a full



There is a minimum amount of asbestos that can be accurately counted with the use of optical microscopy and only a portion of the filter is used—so it is essential that dust distribution over the filter face be uniform.

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day or is the operation short term, or perhaps a 24 hour sample might be appropriate?

3. What is the purpose of the air monitoring? Is it to determine an eight-hour time weighted average of asbestos exposure, a short term (15 minute) exposure or to determine background levels of asbestos in air?

4. If background levels of asbestos are sought, to what lower level of concentration is it desired to accurately measure the asbestos in air?

We will be talking in more detail about the types of filter, how air is drawn through them and how the dust is analyzed. The importance of the answers to these questions will then become evident.

The Filter . . .

There are two types of filters being used today for asbestos monitoring. One is a 37 millimeter diameter (mm) filter in a three piece plastic cassette and the other is a 25 mm filter in a three piece cassette. A new NIOSH analytical procedure (method 7400) and the new OSHA standard for asbestos regulation require the use of the 25 mm system. The majority of sampling presently uses the 25 mm system and the new NIOSH method 7400.

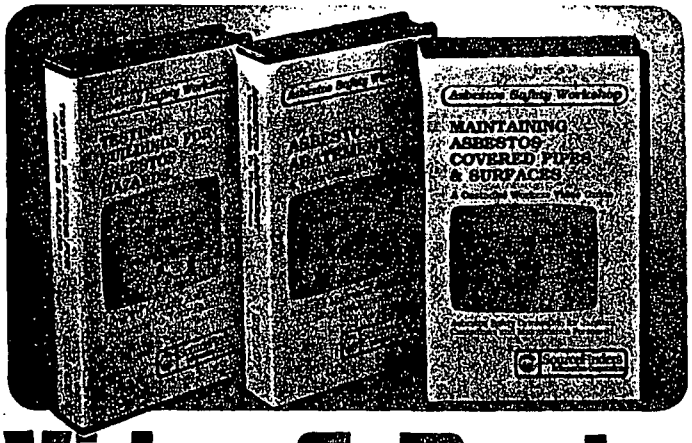
Both systems contain a cellulose filter and allow "open faced" sampling. In open faced sampling, the entire filter face is exposed so that air can be drawn uniformly through the entire surface area. Dust is then collected uniformly over the entire face. The cassette is designed with a ring center section. OSHA recommends this center section be "anti-static" treated, such as coated with graphite. Most manufacturers of the 25 mm cassette provide such a center section cowl. During sampling, the top section of the filter is removed and the center section cowl clamps the filter in place. After sampling, the top section is again attached to protect the filter.

The Pump . . .

Personal monitoring (measuring the asbestos in air concentration of a person while he or she works), is done using a battery operated air pump attached to the person. Air is drawn through a filter cassette system attached to the "breathing zone" of the person, usually attached to the collar. The pump is often clipped to a belt and connected to the cassette by a rubber hose.

Air pumps are manufactured by numerous companies (such as DuPont, MSA and SKC) and are similar in design. A battery pack, charged overnight, will run the pump for eight to ten hours. Air is drawn at the rate of 1 to 4 liters per minute (l/m). The air flow is maintained at a pre-set flow

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rate by a flow controller in the pump so that, as the filter becomes dirtier and more restrictive, the pump works harder to maintain a constant air flow. These pumps must be calibrated so that the reading of the flow meter on the pump is known to correspond to a specific flow rate, in liters per minute.

When background air monitoring is needed, such as validating that a cleaned area is asbestos free, higher flow rate pumps are often used. Then, large volumes of air can be drawn through a filter in a few hours of sampling. These pumps are *not* battery operated and pull air through a filter at a flow rate of 10 to 20 l/m. Large volume pumps do not have flow controllers and the pump flow meter should be checked several times during the sampling period so that constant flow rate can be maintained.

Analysis of the Filter: . .

Filters are analyzed for asbestos fibers using microscopy. Today, most analyses are by optical microscopy but the use of transmission electron microscopy (TEM) is growing. This latter technique can positively identify each fiber to confirm that it is asbestos whereas optical microscopy can only separate asbestos like fibers from fibrous glass. However, the cost of TEM is 20 to 30 times that of optical microscopy. Also, all OSHA compliance monitoring is by optical microscopy.

"Both systems (for asbestos monitoring) contain a cellulose filter and allow 'open faced' sampling."

When analyzing using optical microscopy only a portion of the whole filter is used. The remnant can be stored away indefinitely for future re-testing if desired. Since only a portion is analyzed and only a small percentage of the portion is actually examined at 400 power under the microscope, it is essential that dust distribution over the filter face be uniform. In the calculation of the amount of asbestos, the measured amount per unit filter area is multiplied by the entire area to get total asbestos collected. This is why open faced sampling is necessary.

There is a minimum amount of asbestos that can be accurately counted with the technique. Generally, laboratories and agencies choose a minimum of 10 fibers observed in 100 magnified fields of view of the filter to set the lower limit of accurate quantification. This calculates to approximately 20,000 total fibers collected on the whole filter.

Airborne asbestos is generally measured in fibers per cubic centimeter of air (f/cc). To calculate the average air concentration during a

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monitoring period, one divides the total fibers found by the amount of air in cubic centimeters, drawn through the filter.

Suppose one samples for three hours using a pump calibrated to pull 2 liters per minute through the filter. Suppose the laboratory counted 36,000 fibers on the filter. The total air volume is 2 l/m x 180 minutes or 360 liters. Since there are 1000 cc per liter, this is equivalent to 360,000 cc. Dividing this number into the total fibers, one calculates an average air concentration of 0.1 fibers per cc.

Some numbers that are useful to know are these:

0.2 fibers/cc—The new OSHA 8-hour permissible exposure limit.

0.1 fibers/cc—The "action level" for asbestos exposure when medical monitoring is necessary.

0.01 fibers/cc—Recommended maximum measured concentration for re-occupancy after a removal operation. (Note that an air volume of 2000 liters or more is necessary to accurately measure this concentration).

Air monitoring for asbestos is not difficult once a general understanding of the sampling and analytical techniques is gained. There are many resources to assist you in gaining this information including NIOSH, OSHA, EPA and your analytical laboratory. It is better to take time initially to ask questions than to be trying to explain later why data is not available or not accurate.

CARTER ON ESTIMATING



HARRY CARTER DISCUSSES ASBESTOS ABATEMENT ESTIMATING

The principles of estimating are just as vital in asbestos abatement bidding as in other construction areas. Harry Carter, president of Carter School of Estimating, 22 Sullivan Road, Hudson, NH 03051, is a former professional contract estimator and in his career has performed tens of thousands of estimates for contractors.

If you have a question on asbestos abatement bidding, write to Carter at the above address, enclosing a self-addressed stamped envelope.

Q. I have heard that there is a simple way to figure the surface area of exposed structural steel in commercial buildings. A painter friend once told me that multiplying the floor area three (3) times will give me the exact square footage of deck, joint, and beam. Do you agree with this method—and can it apply to estimating the amount of asbestos that will need to be removed?

A. I believe there is only one system to use when taking off structural steel. I measure each component and piece separately, then I apply square footage to each beam as per the usual guidelines. I then extend all footages and apply proper production rates and material requirements to complete my bid.

LETTERS TO THE EDITOR

Continued from page 4

early as 1979 and may well have done a number of such jobs himself or through his companies before November 1980. The records of the Patent Office do not show that this material information was made known to the Patent Office. As such we are told that the Natale patent may well fall as being unforceable against anyone.

Your attorney's consideration of these matters may provide you with a new insight into the Negative Air Pressure patent situation. If you wish more information, let us know by an inquiry on your, or your attorney's letterhead.

R.W. Marsh
President
Control Resource Systems, Inc.

Dear Editor:

Advertising brochures from several manufacturers of asbestos abatement equipment show workers wearing Army-type web belts to support respiratory equipment, personal sampling pumps, etc.

In the many projects where we have supervised or monitored asbestos removal, we have always observed that web-type belts are extremely difficult to clean of asbestos fibers. Thus, workers must never leave the work area with the belts or else risk contaminating the environment. To do so would negate all the elaborate precautions one must take to prevent asbestos from escaping from the work area.

A more practical type of belt is one made of a smooth material such as vinyl. This type of belt may be easily wiped clean of all asbestos and then reused. In an emergency, one can prepare a make-shift belt by folding duct tape lengthwise and tying it on the worker with a square knot. This suggestion, by the way, came from an experienced asbestos abatement contractor, and we pass it along for the benefit of others in the industry.

J.P. Forsman, Ph.D.
Certified Industrial Hygienst

GLEASON-001140

NEW PROCEDURE USED ON MAJOR ASBESTOS HAZARD

A New Orleans Developer Stumbled on Asbestos—Then Abated the Problem With Such Skill and Imagination That the Project Attracted Praise from State Environmental Officials

When New Orleans real estate developer Gordon Kolb purchased an abandoned warehouse complex near the Mississippi River, he planned to demolish the structure and build a retail center on the side. What Kolb hadn't planned on was undertaking one of the largest asbestos abatement projects ever attempted in the New Orleans area, a project for which he would later garner praise from state environmental officials.

The building, once the home of a National Gypsum factory, had until last year been used by International Building Products, Inc., to manufacture asbestos cement and transite, a siding material composed of asbestos cement. Kolb knew that some asbestos would have to be removed before demolition could get underway. But no one had warned him of the extent of the problem.



Developer Gordon Kolb (standing) earned high marks for his cooperation with City Estate Environmental Officials. Here Kolb speaks to a group of officials including (clockwise from Kolb) Bob Kieferle (Insulation Technologies), Eddie Jackson (Lanier & Asso.), Dr. Shau Nong Chang (Lanier & Asso.), Bill Davis (La. DEQ), Cliff Channey (La DEQ), Lloyd H. Gautreaux (Insulation Technologies), Mike Andry (N.O. Dept. of Health), Dr. Oscar Medrano (N.O. Dept. of Health), E. Kingsley Ikhinmwin (N.O. Dept. of Health), E. Sorrell Lanier (Lanier & Asso.), Stan Middleton (Gordon Kolb & Asso.).

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"I was extremely surprised by the severity of the contamination, based on what I had been told the situation was," said Kolb.

There was good reason for Kolb's surprise. The building's former owners had simply walked away from the site, leaving literally hundreds of tons of asbestos behind. While most cases of asbestos contamination involve limited amounts of asbestos in contained areas, this was different. Evidence of the building's former use was everywhere. Pipes, walls, floors, equipment – all were coated with "friable" asbestos; that is, asbestos that is likely to crumble under hand pressure, releasing the tiny asbestos fibers into the air. These airborne asbestos fibers, when inhaled, are linked to numerous serious and often fatal ailments including lung, colon, stomach, and rectal cancers, and asbestosis, a lung disease. Federal regulations prohibit any demolition which could release these fibers into the atmosphere, leaving Kolb just two choices—forget the project, or find a way to remove the mountains of asbestos that lay inside the warehouse.

Despite the severity of the problem, "We never considered abandoning the project," said Kolb. "We just went out and found the best experts in asbestos removal we could find."

The experts Kolb went to were from Insulation Technologies, Inc. The Harvey-based firm had been active in asbestos abatement projects throughout the southeast for several years, but even after hundreds of projects the extent of contamination in the IBP building was still a shock.

"It was without a doubt the worst case of asbestos contamination we had ever seen," said Insulation Technologies president, Lloyd Gautreaux. "The entire five-block complex was awash in asbestos fibers.

"Most removal cases involve asbestos that was once firmly affixed and has begun to loosen. In that situation, removal is pretty straightforward. Here, nothing had been intentionally applied. There was just a dust that coated every surface in the warehouse, often to a depth of five inches or more."

"The project just would not have been economically feasible using conventional abatement methods," said Larry Zimmer of Insulation Technologies. "The area to be cleared was literally hundreds of times larger than most asbestos removal projects. Instead of a small boiler room or classroom, we were faced with a huge warehouse. We knew we had to find a new way to remove the tons of asbestos fibers inside the building."







Gross contamination of friable asbestos coated every surface in the warehouse, often to a depth of several inches.

The solution came from project manager Bob Kieferle, who proposed sealing off the building completely and using pressure washers to scrub the asbestos off. Kieferle's innovative plan required a special approval from the Environmental Protection Agency before work could begin. Several other agencies were informed of the plan as well.

"We asked for a meeting with Bill Davis of the Lousiana Department of

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Environmental Quality and with New Orleans environmental officials," said Kolb. "We wanted to make sure that everyone involved agreed that the plan we had in mind was the best way to approach to project."

Everyone consulted agreed that Kieferle's plan was a good one. With all necessary permits granted, Kieferle began final planning for what he called "a very challenging project." The combination of the wide open building and the incredible concentrations of asbestos presented numerous challenges to Kieferle's team not usually found in smaller projects.

The first step in the removal process was to break the building down into zones—the building was just too large and too contaminated to attempt cleaning all at once. Kieferle planned the project so that the crews started in the least contaminated areas and worked towards the greatest concentrations of asbestos. The removal crews took advantage of several existing pits to pump the contaminated water into as it flowed off the washed surfaces, carrying the asbestos along with it.

When the actual removal began, crews from Insulation Technologies sealed the entire building with heavy plastic to prevent any release of asbestos fibers into the atmosphere. The outside perimeter of the building was lined with sandbags to prevent any contaminated water from escaping. Then the entire interior was moistened with a sprinkler system to prevent the asbestos from becoming airborne when the removal crew began washing with high pressure sprayers.



Tons of asbestos were carefully bagged and sealed for disposal by the Insulation Technologies team.

The wash water was directed into the existing pits, which were used as settling ponds. After the asbestos settled out of the water, the water was pumped off using a specially designed filtering system which could remove particles as small as two microns. This now-clean water was then pumped into the New Orleans storm drain system. The asbestos left behind was removed and sealed in plastic bags for shipment to a licensed disposal site.

The building contained numerous pieces of contaminated heavy equipment which were moved to a specially designated area and thoroughly cleaned before being removed from the site. Everything that could be moved was brought to this area for cleaning, while all other items were cleaned in place.

Eventually all that remained was an area that Kieferle had designated "Zone 3." Here were the heaviest concentrations of asbestos. It lay in mounds on the floor hip-deep. Pits were filled with it. Walls and other surfaces in this area were so encrusted with asbestos that the 3,000 psi pressure washers used by Insulations Technologies on the rest of the project were useless. Washers capable of generating 20,000 psi were required before Zone 3 was cleaned to the point that Insulation Technologies could declare it asbestos-free.

Eighty-nine days, 30,000 man-

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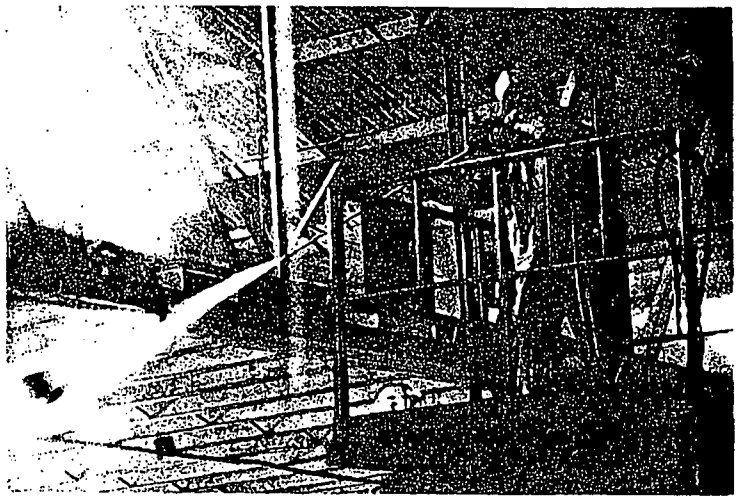
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Workers used high pressure washers to thoroughly clean every inch of contamination from the abandoned warehouse complex.

hours, 1,000,000 (plus) gallons of water, and thousands of plastic disposal bags later, the project was finished. Insulation Technologies removed approximately 380 tons of asbestos from the building before certifying that one of the largest asbestos removal projects ever undertaken in the southeast was complete. Said developer Kolb, "I just can't say enough about the work that Insulation Technologies did on this project. They didn't just go the extra mile, they went an extra ten miles. They were absolutely expert and professional at what they were doing."

The successful completion of the contract and the cooperation exhibited among all the parties involved drew praise from Bill Davis of DEQ. Calling Kolb's approach to the project "a refreshing change," Davis said, "The efforts displayed by Gordon Kolb, Lanier and Associates, the Environmental Section of the New Orleans Health Department, and Insulation Technologies are worth noting and even emulating. Through a combined effort, the job was done right and the City of New Orleans turns up as the winner."

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their workers are either certified by a different State with a certification and training program or have attended an EPA-approved training course.

EPA already has approved a number of training courses for supervisors and workers. EPA-funded training facilities located at Georgia Tech (Atlanta), Kansas University (Kansas City), Tufts (Boston), the University of Illinois (Chicago), the University of Texas (Arlington), the University of Utah (Salt Lake City), Drexel University (Philadelphia), and Rutgers (Piscataway, N.J.) offer EPA-approved training courses for both supervisors and workers. The University of California, Berkeley is funded by EPA and will offer EPA-approved courses when it opens later this year.

In addition, EPA is funding the National Association of Minority Contractors to conduct training courses in New York (August 5-8), Detroit (September 16-19), and Los Angeles (November 18-21) this year. These courses will have EPA approval.

The National Asbestos Council (NAC) and the Committees on Occupational Safety and Health (COSH) are receiving EPA funds to conduct abatement worker training courses. These programs are designed for non-supervisory workers in the abatement industry. Both groups' training courses have received EPA approval. NAC can send field personnel to a particular project location to train workers on-site.

Training courses approved by any State certification and training program are EPA-approved courses under the ASHAA program for contractors in States without training requirements. For example, the Association of Wall and Ceiling Industries (AWCI) training course is approved by Alabama. As a result, the AWCI course is acceptable in Alabama and in all States without certification and training programs.

In addition to all of the above, EPA has developed interim criteria to evaluate the adequacy of training courses whose sponsors wish to seek EPA approval. These 1986 interim criteria will be used to evaluate training courses not approved by any State certification and training program. EPA will not review training courses already approved by a State program. These state approved courses are acceptable under the ASHAA program as outlined above.

Regional Asbestos Coordinators (RACs) in the ten EPA Regions will review training courses submitted for approval under the ASHAA program. Training course sponsors seeking approval should contact the nearest EPA Regional Office for details. In addition, the Regional Asbestos Coordinators will have available a schedule of courses at EPA-funded centers for interested contractors.

In summary, all contractor firms that are State certified may conduct ASHAA work in States where they are certified and in any State without certification and training programs. Contractor firms that are not State certified but have attended an EPA-approved course may conduct ASHAA work in States without certification and training programs.

EPA urges all interested contractors to receive suitable training as quickly as possible. EPA believes that the training courses offered at the EPA funded programs provide excellent opportunities for contractors to enhance their staff's knowledge of state-of-the-art asbestos abatement practices. Please call or write the contact persons listed below to inquire about EPA funded training opportunities. In addition, the phone numbers and addresses of EPA's Regional Asbestos Coordinators are listed.

ASBESTOS INFORMATION AND TRAINING CENTERS

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AHERA: SCIENCE HAD NOTHING TO DO WITH IT

Congress Moved Vigorously into the Asbestos Controversy in Response to EPA's Inaction So Science Had Little to Do with AHERA: Now EPA Must Conform to Congressional Specifications—and Dates

By Michael J. Bennett

Science had no more to do with the passage of the Asbestos Hazard Emergency Response Act (AHERA) than goodness did in Mae West's acquisition of her furs.

The principal finding of the law does reflect, though, many of the concerns voiced by scientific critics of the Environmental Protection Agency (EPA). It was the agency's 1982 regulation, which required schools to inspect for the presence of asbestos and subsequent refusal to issue detailed specifications for dealing with the mineral, that led to passage of AHERA.

"As a result of this lack of regulatory guidance from EPA," the law states, "some schools have undertaken response action without knowing if their action is necessary, adequate or safe. Thus the danger of exposure to asbestos continues to exist in schools, and some exposure may have increased due to the lack of Federal standards and improper response action."

The words paraphrase the warnings of Dr. Robert N. Sawyer, the acknowledged authority on asbestos response programs, and Dr. Malcolm Ross of the U.S. Geological Survey. Ross' 1985 paper is still the definitive historical analysis of research into the health effects of asbestos. Neither does the law take into account an outpouring of scientific studies within the past two years.

The unfortunate result finds the United States as the only country in the world still seeking an eventual ban on chrysotile or "white" asbestos, the type found in 95 percent of all buildings. But the law, at least, does recognize the fact that there were different types of asbestos. That may influence EPA's regulation of the mineral used in hundreds of thousands of public and commercial buildings as fire retarding, insulating and sound proofing material. That idea, however, upset representatives of environmental and union groups at a meeting called by EPA to announce its intention of developing the numerous regulations mandated under the law through a "consensus" or "negotiation" process involving all the affected interests. Indeed, William Borwegen, safety and health director of the Service Employees International Union, which first petitioned EPA to issue detailed specifications and then sued the agency when it refused to do so, denounced the scientists who have proven the

Continued on page 36

(Editor's Note: Michael J. Bennett often writes definitive articles on asbestos abatement for Asbestos Abatement Magazine, as well as other national publications. He is editor of a national newsletter on asbestos, and is currently at work on a book.)

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threatening and may, induce, at worst, only some slight discomfort. If any obstruction of the lungs is present, cigarette smoking is much more likely to be the cause.

Since it is not a tumor or a virus or a bacteria-caused ailment, but a reaction of lung tissue to the presence of mineral fibers, it can be diagnosed with 100 percent certainty only by biopsy. X-rays may show white lines indicating abnormalities, but they usually look the same as they do in a variety of other illnesses. Dr. Raymond Murphy, an occupational lung specialist at Boston's Faulkner Hospital, calls X-ray intepretation in cases of slight or early asbestosis "one of the most subjective in medicine."

Dr. Barry Levine, a lung specialist at Harvard Medical School, agrees: "It's a rare phenomenon to find true asbestotic disease... A person with obstructive lung disease (a cigarette smoker's disease such as emphysema) can be read as having an X-ray compatible with asbestosis."

It wasn't until the 50s and 60s that studies were published in England and the United States implicating asbestos as a cause of lung cancer and mesothelioma, a rare cancer of the lining of the lung. But even then, cigarette smoking was far more heavily implicated.

The first study was conducted by Sir Richard Doll of Oxford University, internationally honored for his epidemiological studies conclusively proving cigarette smoking causes lung cancer. Doll studied workers with at least 20 years exposure to the mineral in textile plants, and found the disease was experiencing 10 times the lung cancer deaths of non-asbestos workers at tahe same age.

Selikoff tracked down in the 60s most of the workers who had been carried on the rolls of an asbestos workers union, and found by 1973 the group had experienced a death rate 50% greater than the average white male.

In retrospect, these studies were seriously flawed, even primitive by current scientific standards. To begin with, the comparison to the average white male provided an inadequate "control"—a group sufficiently similar in socio-cultural characteristics as the cohort studied so that any sharp difference in experience can be logically related to the factor, asbestos in this instance, under study. Even in the 40s and 50s, white collar workers were much less likely to be smokers than blue collar workers. Moreover, the general health of the average white male was much more likely to be better, because of access to better nutrition and medical care, than that of black workers who were disproportionately represented in the asbestos trades. Further, almost all the World War II workers had either been too old to be drafted, or even more significant, unable to pass the physical.

Another difficulty with the studies, little appreciated at the time but seen now as very disturbing was the impossibility of assembling complete cohorts, groups with all of the workers exposed in a particular workplace. Up to one third were missing in the groups studied by Selikoff 20 years later. Moreover, the assumption was made that the three different types of asbestos, chrysotile, crocidolite and amosite, although different in their mineral characteristics, the length and diameter of the individuals fibers, would have the same biological effects in humans.

Even then, the Selikoff studies did make the central point that asbestos, while dangerous, was infinitely more dangerous in combination with cigarette smoking. Selikoff's published studies of the time estimated the increased risk as being 80 to 90 times higher. "(H)ad it not been for cigarette smoking, many of these deaths would have been avoided," Selikoff wrote in one paper.

(In the next edition of Asbestos Abatement Magazine, Mr. Bennett will discuss the work by Dr. Selikoff more closely and trace the development of the asbestos controversy to present times.)

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SCHOOL HAZARD ACT: MORE CERTIFICATION EMPHASIS

The New Asbestos School Hazard Abatement Act Provides Money For Schools to Address Their Asbestos Problems While Placing Greater Emphasis on Certification For Qualified Contractors

President Reagan signed the Asbestos School Hazard Abatement Act (ASHAA). The ASHAA legislation established a loan and grant program to assist primary and secondary schools, both public and private, in conducting asbestos abatement activities. Only those schools with a severe asbestos hazard who could not afford to abate the hazard on their own were eligible for loans and grants.

The ASHAA legislation authorized the Environmental Protection Agency (EPA) to spend $600 million over a seven year period. In fiscal year 1985, the first year of the program, Congress appropriated $50 million for loans, grants, and EPA technical assistance activities. On June 7, 1985, EPA awarded $45 million in loans and grants to 340 schools throughout the country.

This year, Congress has appropriated another $50 million. In doing so, however, Congress has included an additional requirement that schools must meet in order to receive ASHAA loans and grants.

Aware of instances of poor quality abatement work, Congress is requiring that schools receiving federal funding in 1986 *hire only those asbestos abatement contractors who are either State certified or who have attended an EPA-approved training course.* Specifically, the 1986 ASHAA program requires at a minimum that all supervisors and a majority of non-supervisory workers must be State certified or have attended an EPA approved training course.

In states with asbestos abatement certification and training programs, the Congressional requirement means that contractors whose employees meet that State's requirements may conduct ASHAA work. The fourteen states that currently have programs are Alabama, Alaska, Arkansas, Illinois, Iowa, Kansas, Maryland, New Jersey, Ohio, Oklahoma, Rhode Island, South Carolina, Tennessee and Washington. Since contractors in Tennessee require only supervisors to have training, EPA is requiring for the ASHAA program in Tennessee that a majority of a firm's workers receive training as well.

EPA estimates that within a year an additional 9 States will have active programs. California, Georgia, Louisiana, Michigan, Nebraska, New Hampshire, New York, Utah and Vermont all have recently passed legislation.

In those States without certification and training programs, schools receiving ASHAA funding may only hire those contractors whose supervisors and greater than 50 percent of

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FACT FILE #1

ASBESTOS INDUSTRY AND REGULATORS STILL HEAD-TO-HEAD ON SAFETY ISSUE

The federal government won't back down on its contention that all forms of asbestos are potentially dangerous. And the asbestos mining industry is pushing ahead with its counter-claim that the issue is far overblown and that some forms of asbestos are more lethal than others.

One other thing is certain: the asbestos mining industry, particularly in Canada, isn't warming to the move by the Environmental Protection Agency to shut down all forms of asbestos mining, milling and manufacturing.

It's firmly behind the hiring of Hill and Knowlton, the famous public relations agency, to combat the medical findings and studies which link asbestos exposure to cancer and other forms of lethal diseases.

The battle came to a sort of head last June when the Occupational Safety and Health Administration released its new asbestos regulations in The Federal Register. In the regs, the government's thrust was evident: no "safe" forms of asbestos exist... and that includes Chrysotile, known as "white asbestos."

As for the other forms, Amosite, or "brown asbestos," and Crocidolite, or "blue asbestos," no one is pushing the idea that these forms are unsafe.

Much of the controversy between what is dangerous and what isn't can be traced to some studies which point out the differences in fibers between Chrysotile and its more dangerous family members. "White asbestos" allegedly features fiber bundles that are longer and more flexible, while the "brown and blue" types have fiber bundles which are far more brittle and which tend to break down into thinner (and more dangerous) fibers.

The argument that Amosite and Crocidolite were probably the more dangerous of the three types was quickly re-stated, particularly by industry sources, as not all asbestos types should be labeled equally dangerous. With the publication of the new OSHA regs, that argument quickly got the official boot.

OSHA labeled such industry representations as "inconclusive and inconsistent." A study by Dr. John Davis, of the Institute of Occupational medicine in Edinburgh, Scotland, reported that "chrysotile produced the greatest number of mesothelioma tumors at every dose tested ... both by fiber number and by fiber mass..."

Despite the stringency of the new regs, they've still not been accepted unanimously. The Building and Construction Trades Department, AFL-CIO, claims the standards will need to be made even tougher through court review. And the Asbestos Information Association has, along with the AFL-CIO, filed a petition for review of the standards.

The union organization filed a petition for review in the Fourth Circuit Court of Appeals, contending that the best permissible exposure level to protect workers is 0.1 fibers per cubic centimeter. The action level should be half of the amount adopted, the suit claims.

FACT FILE #2

AIHA PUBLISHES GUIDELINES ON ASBESTOS ABATEMENT

The best way to minimize human exposure to asbestos during and after an abatement project is with careful planning; clear and complete specifications and quality supervision, according to a newly published report of the American Hygiene Association (AIHA).

The report also suggests that due to their scientific and technical backgrounds, only certified industrial hygienists, professional engineers and registered architects meeting necessary educational and experience requirements are qualified to manage asbestos abatement projects.

Entitled, "*Recommendations for Asbestos Abatement Projects*," the report is the first public position on the most professional and practical approaches to this subject to come directly from the scientists with expertise in the field of handling hazardous materials. It is a planning guideline for industrial hygiene professionals, contractors and building owners and managers who are faced with asbestos abatement issues.

These concerns are addressed in the report:

- Who is most qualified to be involved at the various levels and stages of asbestos abatement/risk assessment efforts
- Major technical issues related to the successful completion of an asbestos abatement project.

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- Critical points of asbestos abatement projects and necessary input at each stage.
- Personal and respiratory protection, analytical methodology, toxicology, organization and leadership as part of an asbestos abatement project
- The current best and most practical solutions to problems of asbestos project management, supervisions, decision-making and risk assessment.

Six AIHA technical committees participated in the Asbestos Task Force which developed the recommendations, led by co-chairmen Robert E. Sheriff, CIH and Frederick W. Boelter, CIH, PE.

A list of Accredited IH laboratories is available from the Accreditation Coordinator at: American Industrial Hygiene Association, 475 Wolf Ledges Parkway, Akron, OH 44311-10187. You can contact the Publications Department at the same address for buying copies of the guidelines on asbestos abatement.

FACT FILE #3

COUNTER ATTACK ON NEGATIVE AIR PATENT BEGINS AS INDUSTRY CONFUSION REIGNS

To say that the asbestos abatement industry is reeling under the implications of the U.S. Patent Office's granting of a patent on negative air would be to understate the issue.

Ever since Patent No. 4,604,111, "Particulate Contamination Control Method and Filtration Device," was awarded to Anthony Natale, the industry has been boiling.

Upon receiving notification of the patent grant, Natale's GPAC Inc. announced that contractors hereafter would be required to pay a $25,000 licensing fee to use his patented, proprietary system. To many people in the industry, that smacked of monopolizing the industry.

Now the counter attack—the legal end of it anyway—has gotten under way.

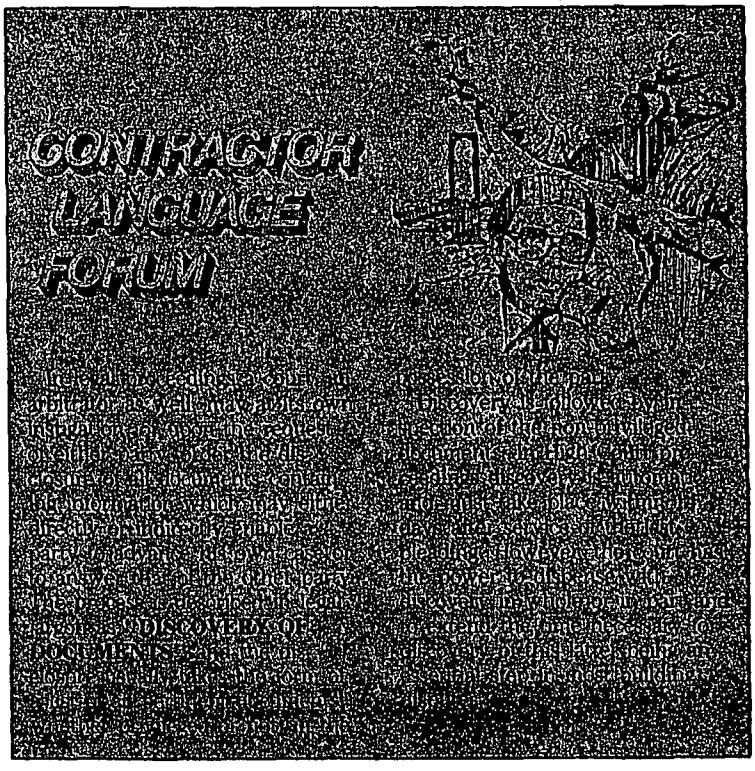
CRSI Environmental Systems, of Michigan City, IN, has announced that acting in conjunction with Brand Asbestos, Inc. the two companies have filed a lawsuit to stop Mr. Natale. On December 5, 1986, the companies filed suit with the clerk of the U.S. District Court for the Eastern District of Pennsylvania. The two executives behind the legal move are Al Eaton, of Brand Asbestos, Inc., and R.W. Marsh, president of CRSI, and they issued a press release detailing the litigation.

Naming Brand Mid Atlantic Inc. as plaintiff and Anthony Natale, Microtrap, Inc., Duall Maintenance Co., and GPAC Inc. as defendants, the lawsuit has asked for a declaratory relief on the following accounts:

1. Patent invalidity
2. Attempted monopolization and monopolization
3. Conspiracy to monopolize and unreasonably restrain trade
4. Unfair competition
5. Intentional interference with contractual relations
6. New Jersey antitrust law violations.

Certainly, this latest action portends of a long and costly court battle to test the validity of the patent. Because the industry will be restrained in the interim, the litigants have asked the court for an injunction to halt Natale from imposing his licensing fee/cost structure.

One result of this has been quick action by the State of New Jersey. Upon notification that Natale had been granted his patent, the state required all abatement contractors cur-



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rently working on projects to obtain the necessary licensing.

Now the State has rescinded that order. By special notice the State will no longer require abatement contractors to show proof of a license in order to bid on State asbestos projects.

At the same time, John Conrad, president of Global Consumer Services, is attacking on another front. He has already paid the $1,500 filing fee with the U.S. Patent and Trademark Office to re-examine the patent.

Like many others in the industry, Conrad insists that the negtive air technology is virtually public domain. Insisting that a patent is only good until challenged, Conrad had asked others to join him in the re-examination action and help share the costs.

"There is a new U.S. Patent and Trademark Office procedure," he advised, "that allows businesses to challenge each other's patents without litigation, and although the process can be expensive for the challenged patent holder, the fee for requesting the re-examination is only $1,500.

"Re-examination, if you compare it with any legal procedure, is a bargain," Conrad said, "although it has its limitations. The requester, which would be a committee of contractors, has few chances to argue his or her side; most of the debate is between the patent office and the original patent holder. But if the evidence is strongly in favor of the requester, Natale's patent could be overturned and determined to be void."

If you are interested in participating with Conrad's move, you can get additional information by calling toll-free 800-233-6228.

FACT FILE #4

ASBESTOS HAZARD EMERGENCY RESPONSE ACT (AHERA)

Susan Vogt, the U.S. Environment Protection Agency's deputy director for Tax Substances, explained it at the Asbestos Abatement Council's recent World Congress. Furthermore, the EPA announced it with a series of public releases.

Still the heads wagged. They are all certain that litigation will fly as sure as friable fibers.

Still, EPA's effort is not entirely unprecedented. Confronted with Congress' demand for prompt regulations to flesh out the recently enacted Asbestos Hazard Emergency Response Act (AHERA), the agency wants to enlist interested groups in a form of "consensus" process.

What gets the wags shaking their head and looking for the emergence of the first lawyer is the immensity of the task. AHERA takes in more that 700,000 buildings in about 35,000 school districts. That's a lot of school boards and officials, teachers, students, contractors, design professionals, consultants, etc.

In the face of EPA's regulation making responsibility is the hard fact that school officials are starting to court the money it will take to abate the problem—and they don't like the totals. More and more, officials are leaning toward a procedure that will allow the asbestos to be maintained in place vs. the more expensive removal step.

Industry followers point to the unions, environmentalists, etc. who can be expected to take an opposite tack. For the most part, they want the asbestos removed and want little credence given to support any EPA leaning toward the idea that some forms of asbestos (ie., "white" or chrysotile asbestos) are not so dangerous as other forms.

"All forms of asbestos have the ability to kill," one union official said, firmly. "That means it should be removed."

With this kind of expected polarization, EPA's opting for a "consensus" set of regulations seems the most prudent course to follow. The question that many have is: what's the response of the side that doesn't get its ambitions reflected in the final regs? Does that side head for the nearest courtroom? Certainly, they'll have that right, although Vogt expressed a hope that combatants won't follow that course.

Congress caught on to the EPA's conduct in spurring school boards to take action against asbestos without providing the necessary guidance for the school board to follow. What resulted was a chaotic situation in which school districts took actions without knowing if they were correct, adequate, or even safe. There is mounting evidence that many of the removal strategies produced far more dangers than the existence of the asbestos in the first place.

As a result, Congress has mandated some very strict deadlines and is holding EPA's environmental feet in the fire so that asbestos activity can be carried out in an organized, safe, and efficient way.

Publication of proposals are set for April 20, 1987. These are to include: 1) inspection; 2) assessment; 3) response "using the least burdensome methods"; 4) implementation; 5) surveillance and reinspection; 6) maintenance; 7) transportation and disposal of wastes, and 8) the development of school management plans that can be approved by the states' governors.

By April 30, 1987, EPA must also come up with a model accreditation program for asbestos workers so states, only a dozen or so who have such plans now, may enact the program 180 days after the beginning of their next legislative sessions.

The eight rules must be in final form by Oct. 17, 1987. By Oct. 12, 1988, laboratory accreditation for air sampling must be completed, and by July 9, 1989 the schools must be ready to begin implementing the program.

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leases may allocate legal responsibility between the owner and tenant for certain dangers, and even for removal of hazards or abatement of hazardous conditions. Thus, neither owners nor tenants can assume they are immunized from responsibility without a very detailed analysis of their legal and contractual obligations. This analysis might include the circumstances and documentation involved in the acquisition of the property, in leasing relationships, and in the use of outside contractors.

The type of liability that can be encountered is illustrated by the following. In connection with a renovation project in Texas, 166 construction workers claimed that they were exposed to asbestos, and filed suit against the owner of the project, the contractor and the professional firm involved. Although the workers merely claimed exposure, and could show no actual injury (due to the long manifestation period of asbestos-related disease), the workers' claims were settled at $1.6 million. Inadvertent disturbing of ACM can also cause project delays and shutdowns, as well as violations of the law. One Connecticut contractor was criminally charged with violation of the Clean Air Act for disturbing ACM during demolition of a building. Finally, insurance coverages and financing may be impaired by the presence of ACM, and certainly by its careless handling.

Preventing Problems . . .

In order to prevent problems, a combined legal and technical approach is necessary. It must be remembered that preventing contamination, injury and claims is considerably less legally hazardous and less expensive than defending claims at a later date or finger-pointing in an attempt to avoid the imposition of liability. The following are some suggestions for approaching the problem of disturbing ACM and creating hazards:

1. Become familiar with the problems presented by ACM and legal and technical approaches to the problems presented.
2. Determine whether hazard(s) exist and the extent of any dangers that are present or possible ("hazard assessment").
3. Determine available options for dealing with any such danger (removal; encapsulation; enclosure; operations and maintenance programs; etc.)
4. Examine lease relationships to determine the allocation of responsibility for repair and maintenance.
5. Owners and tenants should ensure that each party is aware of any potential dangers, in order to avoid inadvertent contamination of the building by disturbing ACM.
6. In-house and outside maintenance personnel and contractors should be made aware of existing and potential dangers and the need for avoiding inadvertent contamination.
7. Notification systems for advising

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employees of present and potential hazards should be examined.

8. Reasonable steps must be taken to abate any present hazards, control presently non-hazardous materials, and to plan to avoid contamination. Each situation must be carefully analyzed. Any abatement efforts should be carefully planned and documented, both technically and legally.

9. Contractual relationships with outside contractors should be structured to avoid situations which could increase liability, and to properly allocate responsibility.

10. New leases with tenants should take account of actual and potential building conditions and allocate responsibility.

11. Renovation and repair projects must receive particular attention to avoid disturbing ACM.

12. Insurance coverages of owners and tenants should be analyzed to determine the extent of coverages available for removal of ACM and/or protection against claims.

13. Insurance coverages of outside contractors should be analyzed to ensure that any claims resulting from their actions can be covered. Many policies exclude coverage for asbestos-related claims.

14. Analysis should be made of legal remedies which may be available to recover the cost of removal ("cost recovery").

Conclusion...

Once proper technical and legal planning is implemented, all parties will be able to carry out their responsibilities in a prudent manner and avoid creating situations which may impose significant liability. In the past, quick "solutions" have often created more problems than existed beforehand. This potential must be eliminated in order to avoid unacceptable legal consequences. The definition of the problem presented and avoiding inadvertent contamination requires a cooperative effort among the building owner, its maintenance people and tenants, and outside contractors. The professional team will often include legal counsel, safety professionals, and insurance advisors. Only through a complete analysis can technical errors and legal liability be minimized.

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