

What took thousands of lives and killed an industry was management's failure to insist on its own responsibilities.

What Asbestos Taught Me About Managing Risk

by Bill Sells

As a manager with Johns-Manville and its successor, the Manville Corporation, for more than 30 years, I witnessed one of the most colossal corporate blunders of the twentieth century. This blunder was not the manufacture and sale of a dangerous product. Hundreds of companies make products more dangerous than asbestos—deadly chemicals, explosives, poisons—and the companies and their employees thrive. Man-

have taken more than warnings to prevent the tragedy.

In my opinion, the blunder that cost thousands of lives and destroyed an industry was a management blunder, and the blunder was denial. Asbestosis—a nonmalignant lung disease brought on by breathing asbestos fibers—had been known since the early 1900s, and the first indications of a connection between asbestos and lung cancer appeared in the 1930s. But Manville managers at every level were unwilling or unable to believe in the long-term consequences of these known hazards. They denied, or at least failed to acknowledge, the depth and persistence

of management accountability.

Had the company responded to the dangers of asbestosis and lung cancer with extensive medical research, assiduous communication, insistent warnings, and a rigorous dust-reduction program, it could have saved lives and would probably have saved the stockholders, the

industry, and, for that matter, the product. (Asbestos still has applications for which no other material is equally suited, and, correctly used, it could be virtually risk free.) But Manville and the rest of the asbestos industry did almost nothing of significance—some medical studies but no follow-through, safety bulletins and dust-abatement policies but no enforcement, acknowledgment of hazards but no direct warnings to downstream customers—and their collective inaction was ruinous.

The fundamental lesson I've learned in my 30 years in the asbestos and fiberglass industries is that, to be more than an empty gesture, responsibility must be overt, proactive, and farsighted. At Manville, denial became endemic to the corporate culture, so much so that even after top executives had recognized health and safety as a critical issue, many middle- and lower-level managers continued to hide behind rationalizations and the letter of what they took to be the law.

I am not going to write about what and when Manville managers knew or didn't know about the dangers of asbestos. In one sense, it hardly matters because the standard for product liability that I see applied today—partly as a result of the asbestos litigation—seems to build on the principle that companies are responsible for product hazards whether or not they knew about product dangers. This is a retroactive standard, of course, but it is the same standard we apply to every other management activity. We expect executives to anticipate and preevaluate market trends, capital requirements, staffing needs, research, new product developments, competitive pressures, and much, much more. We also expect them constantly to question their companies' practices

Managers at every level refused to believe in the long-term consequences of known hazards.

ville's blunder was not even its frequently cited failure to warn workers and customers of what it knew to be the dangers of asbestos during the 1940s, when so much of the damage to workers' health was done. Given the exigencies of war and the widespread indifference to environmental dangers at that time, it would

For more than 30 years, Bill Sells was a manager and executive with Johns-Manville and the Manville Corporation, where he ended his career as a senior vice president and president of the Fiber Glass Group. He now runs his own environmental management consulting firm, Sells & Associates, Inc., in Evergreen, Colorado.

and procedures. When executives fail to foresee the future at least enough to prevent business setbacks, they pay a penalty in compensation, promotion, or job security. Now juries and the courts demand no less in the area of product liability. For the New Jersey Supreme Court, not even "unknowability"—the absence of any scientific evidence that a product may be harmful—is an adequate defense.¹

To protect employees, customers, stockholders, society, and the business itself from product and production hazards, managers must go well beyond appearances, union demands, and the letter of the law. They must anticipate and lead the drive to head off environmental hazards and risks. They must study, analyze, assess, communicate, and prevent the damage their methods and products might cause.

I am not speaking on some abstract moral plane. I learned these lessons the hard way, as a participating eyewitness to some of the worst outcomes a corporation can experience. Employees and customers suffered disabilities and died, and Manville was eventually required to help fund a personal-injury-settlement trust fund with \$150 million in cash, \$1.6 billion in bonds, 80% of the company's common stock, and, beginning in 1992 and continuing for as long as there are claims to settle, 20% of company profits.

Remarkably, however, my experiences as the manager of an asbestos plant and later as the head of Manville's fiberglass group also taught me that what is now called product stewardship—the active acceptance of product and production responsibility—yields short-term as well as long-term benefits, among them profit, survival, and even competitive advantage.

I went to work for Manville in June 1960, fresh from college and four years in the Marine Corps. When I joined it, Manville was the largest producer of asbestos products in the United States and the largest producer of asbestos fiber in the

Western world, with 500 product lines and 33 plants and mines across the United States and Canada. To me, Manville seemed an ideal employer—an old-guard, blue-chip industrial giant, a member of the *Fortune* "500" and the Dow-Jones industrial average. "The bluest of the blue," *Forbes* once called it.

Since its founding in 1858, Manville had specialized in asbestos, a "miracle" substance with unique properties—fireproof, lightweight, durable, strong, an excellent insulator—that made it indispensable for hundreds of industrial and commercial applications. During World War II, the government declared asbestos a strategic material, and its use mushroomed. So did its misuse. In wartime shipyards, workers installed asbestos below decks in conditions of intense heat and dust described by one eyewitness as a glimpse of hell. Even outside the shipyards, asbestos plants and fabricating shops tolerated dust stan-

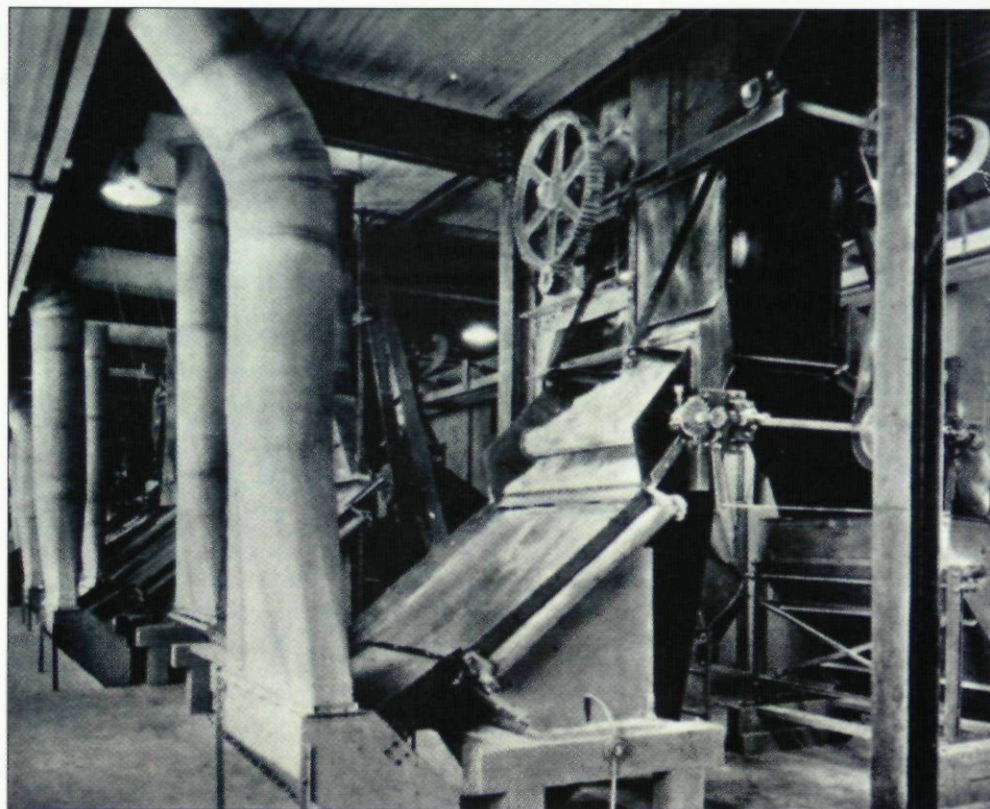
dards that were later shown to be far too high.

Later, often decades later, the people who worked in those plants, shops, and shipyards began to develop asbestos-related diseases, including several forms of cancer. Tens of thousands were disabled or died. Claims that they and their survivors brought against the company came

Working conditions in wartime shipyards were a little glimpse of hell.

to hundreds of millions of dollars. In 1982, Manville filed for Chapter 11 protection and was on its way to the top of *Fortune's* list of least admired corporations. The company was reorganized in 1988, and its stockholders—many of them Manville workers or retired workers—lost as much as 98% of their equity.

In 1960, I was ignorant of company history; I knew very little about the dangers of the product, which



Interior of asbestos plant circa 1930.

1. *Beshada v. Johns-Manville Products Corp.*, 90 N.J. 191, 447 A. 2d 539 (1982).

few employees understood well and still fewer discussed; and of course I had no inkling of the future. I started in sales, moved to marketing, and then, in 1968, I switched to production as a manager in training. After some brief hands-on experience as a supervisor at the Manville, New Jersey, plant, I packed up my family and headed for Waukegan, Illinois, to see if I could turn around a plant that made asbestos-cement pipe and ranked at the bottom of the heap in both productivity and profit.



Asbestos miners circa 1930.

The plant lay at the back of a sprawling complex built in the 1920s, its view of Lake Michigan obscured by a landfill several stories high. The road wound through this mountain of asbestos-laden scrap, and as I drove it for the first time, I stopped to watch a bulldozer crush a 36-inch sewer pipe. A cloud of dust swirled around my car.

Corrugated asbestos-cement panels covered the outside of the nearly windowless building. Inside, a forklift picked up a pallet of finished couplings and moved off in the dingy light, leaving a trail of dust. People told me things had improved. At one time, they said, you couldn't see from one end of the building to the other. But I saw asbestos dust on every ledge and purlin, and I wondered what I had gotten myself into.

Waukegan was a grueling experience right from the start. In sales, when you stop work, the selling function stops. In a continuous manufacturing operation, the machines keep running and endless problems devour every moment, night and day. Whenever the phone rang at home, I would hold my breath until

I knew it wasn't someone calling from the plant. No one ever called with good news.

The task I'd been set was to increase productivity, but over the next two years, I discovered that low productivity had its roots in more basic problems. For example, conventional wisdom had it that the plant's poor performance was due to poor labor relations and a recalcitrant union that blocked productivity improvements. The truth, I learned, was a good deal more complex. For one thing, the plant's profit squeeze had caused previous managers to defer proper maintenance, which greatly increased downtime. For another, the lack of proper maintenance in the area of dust control was seriously affecting employee behavior. For a third, Manville's management culture had developed an unhealthy streak of cynicism. Too many engineers and middle managers had come to the conclusion—incorrectly, as events were to show—that workers were necessarily a part of the problem and not of the solution, that money could not be found for adequate upkeep, and that change was impossible.

Sometimes just by chance, sometimes by self-education and determination, sometimes in sheer desperation, I managed to turn most of this conventional wisdom on its head. But my learning curve was a series of painful shocks and confrontations.

To begin with, I lost my innocence about asbestos-related diseases. I encountered several new words: *dusted*, *red case*, and *mesothelioma*. *Dusted* was a shop-floor term for a person incapacitated by asbestosis. Severe lung changes, identified by X ray during physical examinations, were called *red cases*. When the doctor found changes like these, he would direct me to assign the worker in question to a "nondusty" area, which was a good deal easier said than done.

People at the plant seldom talked about asbestos diseases. Everyone knew who had high past exposures,

and there was dismay but no surprise when a dusted worker got lung cancer. In the early 1960s, however, a new disease called mesothelioma struck several people who were not red cases. It was hard enough for people to get used to the progressive nature of asbestos-related diseases and learn to live with the possibility of permanent disability or death. Mesothelioma, a cancer of the lung or stomach lining, was a new and even more insidious threat. It came without warning; it sometimes occurred in people whose asbestos exposure had been minimal; and it was swift, untreatable, excruciating, and invariably fatal.

Deaths had already begun to occur in the workforce by the time I arrived in Waukegan, and I came to be a regular visitor at Victory Memorial Hospital. A young man just 25 years old, with a wife and children, died of mesothelioma. Others developed lung cancer. I got to know the doctor who treated most of these cases, and I started borrowing his medical journals and read dozens of articles on the subject. I began paying more and

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more attention to dust collection and abatement, hoping to bring Waukegan up to the standard of more modern plants. I pushed dust-reduction programs, and I organized a cleanup of inaccessible ledges and hard-to-reach beams and sills to reduce the levels of background dust. I even started wearing my own respirator in high-exposure areas, though, like everyone else, I was not nearly skeptical enough about the levels then considered "safe."

One memory still haunts me. Early one morning, I stopped at the hospital to see one of our lathe operators with mesothelioma only to be told that he had died a few hours before. The family was upstairs, and my heart was pounding as I walked into the room, acutely aware of my role

as representative of the management system responsible for this premature death. The man's wife had known for months that this day was coming, but the finality of death and the uncertainty of the future were written all over her face. Her young son stared solemnly at her and then at me. I managed a few words of thin

Workers lived in fear of disease – and of losing the jobs that put them at risk.

comfort, but I still remember the woman's face and my own feeling of helplessness.

A few days later, I learned that another plant in the Waukegan complex was going to close for good, and that set me up for another stark realization: our workers lived with two quite different kinds of fear.

The announcement was set for 11:30 A.M., and I arrived early. Clearly, the word was out. Groups of employees stood around talking, and I headed for the conference room as quickly as I could. Turning to go up the stairs, I found a man old enough to be my father sitting by himself with tears streaming down his cheeks. His face too came to haunt me over the years. People might dread the possibility of lung cancer or mesothelioma, but they also dreaded the possibility of losing the very jobs that put them at risk. And it was my responsibility to protect them from either outcome.

As this realization sank in, however, I began to see that these two responsibilities did not have to be at odds with each other. On the contrary, they were closely related, just like my two business goals.

My primary business mission in Waukegan was to improve plant profitability; my secondary objective was to gain union cooperation and support. Since people rarely do their best work for an employer who neglects their welfare, an improvement of environmental conditions was clearly essential to achieving either end. This seems like common

sense today, but it was not accepted wisdom in the late 1960s.

Labor relations, productivity, dust abatement, profitability, health and safety – it struck me that at some level these were all the same issue. If there was anything at all I really wanted to know about the plant, the answer was always somewhere on the shop floor – perhaps not in one place or with one individual or in sophisticated technical terms, but there nonetheless. By getting to know more of the workers and more about their work, I

realized that key operating indicators like downtime, material usage, quality, and productivity were as much a function of attitudes as they were of mechanics. I remembered what I'd been told about recalcitrant unions, and I suddenly saw that we had the labor relations we deserved.

Another piece of conventional thinking that plagued the Waukegan pipe plant was the whole question of maintenance.

Despite its early neglect of the problem, Manville had become a pioneer in industrial dust collection by the late 1940s. It had developed what were in effect gigantic vacuum cleaners with hundreds of dust fil-



Russian asbestos rocks.

ters and dozens of dust lines reaching out to dust hoods on every machine in virtually every corner of the plant. When profits got tight, unfortunately, Waukegan managers began to defer maintenance, and, in the early days, I took the same dead-end approach. Instead of replacing a damaged dust line, we mended it with duct tape. Instead of replacing

or rebuilding a dust collector, we sent mechanics to shovel their way in every weekend and jerry-rig repairs. Soon we were spending most of our time retaping the tape and repairing the repairs, which put the maintenance curve out in front of us to stay. I watched us repeat the same repairs over and over again when the only real problem was the lack of proper repairs to begin with.

For more than a year, I was captive to the conventional notion that equipment that doesn't make a product makes no contribution to profit, but slowly I changed my mind. First, I saw that a cleaner plant would function more smoothly and help to reduce downtime. Then, as the morale and productivity benefits of a better plant environment became more and more apparent, I became a convert to the idea of cleanliness for its own sake. Finally, early one Sunday morning toward the end of my second year, the plant engineer and the production superintendent called me in to examine a massive breakdown. It was clear to all three of us that we couldn't go on the way we had, and pretty soon we were walking through the plant with a pad of paper, making a long list of everything that needed fixing. The list included a massive general cleanup.

We had already taken steps to reduce airborne fiber levels and clear away the accumulated dust of decades, but there was much still to do. The plan called for large investments in maintenance and dust-collecting capacity as well as dozens of practical improvements. We described in detail all the environmental improvements we required and presented our analysis to the division staff in Manville, New Jersey. They offered practical suggestions, private advice that I not try to do everything at once, and the cynical prediction that if I were foolish enough to present the plan to top management, I'd get tossed out on my ear.

In fact, top management knew more than middle management about the importance of environmental quality. At my next semi-annual meeting with chairman and

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CEO Clinton Burnett and members of his staff, I conducted a tour of the plant and then laid out my plan, complete with charts and drawings. Or at least I started to. Before I had finished, Burnett interrupted to ask how much the whole thing was going to cost. With only the tiniest catch in my voice, I told him half a million dollars. "Fine," he said, turning to his staff. "Does anyone have a problem with that?"

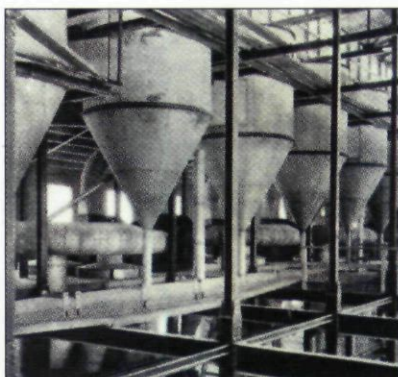
With our capital expenditures approved, we proceeded to rebuild, replace, clean, or otherwise refurbish nearly everything in the building. We made big improvements and thousands of small ones. We installed experimental cardboard dust hoods to test for effective configurations before fabricating permanent hoods of metal. We repaired our dust collectors thoroughly and properly, and we installed air locks and built stairs in place of ladders.

As dust counts fell, so did our costs. We had probably made not a single change that someone hadn't thought of years earlier; the difference was that now we were actually making them. As a result, people began to identify other problems and fix them. The plant's productivity rose. People seemed to *care* more than they had before.

But even as we turned the corner on productivity and began to win our own small battle to save Waukegan from closing, the war as a whole was already lost. Negative public percep-

company, had come 50 years too late. During the 1970s and 1980s, I had to say good-bye to every member of my Waukegan administrative staff. They had become my friends, and now, one by one, they contracted mesothelioma and died.

In retrospect, it seems self-evident that clean air and a clean environment should have top priority in as-



Dust removal in asbestos plant circa 1930.

bestos plants, especially in plants where some workers have already fallen ill and even died from asbestos-related diseases. But all through the decades of the 1940s, 1950s, and 1960s, managers skirted many of the real issues and gave surprisingly short shrift to others. Denial is itself an insidious disease. Once given a toehold, it finds its way into management acts and decisions at every level.

For example, it was common practice in Waukegan to test for dust under the best possible circumstances to make the plant look good on paper. It took a lecture by a medical expert at a plant managers' meeting to make me see that the only way to monitor dust emissions meaningfully

was to test our *dirtiest* products and equipment under the *worst* conditions, which is exactly what we began to do in about 1970, when we implemented our grand environmental plan.

Another thing I often saw people do was hide behind procedures and standards when common sense would have served them better as a guide. I remember writing a request

for funds to repair a dust hood on a coupling lathe and having one of my engineers attach a report stating that he had tested the area and found dust levels within company guidelines. There was nothing *wrong* with his report. Procedurally it was quite correct. But just to make sure my request would be approved, I took his pen and wrote on the report that I could see dust in the area.

If an organization's culture encourages denial, problems get buried. Corporate cultures are built by successful people, good men and women who are often pillars of their communities as well as business leaders. The executives at Manville were good people too, and nevertheless they fostered a culture of self-deception and denial. Consider all the various forms this took:

First was the conviction that asbestos was inherently useful, necessary, and therefore "good." I remember hearing colleagues argue that the world could never get along without it; substitutes were not economically viable and never would be. Today 18 asbestos companies have filed for bankruptcy, asbestos is effectively eliminated from commerce, and asbestos-free substitutes exist for every former use.

Another powerful form of denial was the conviction that we were already doing everything possible to reduce risk. Manville acknowledged that the product was potentially harmful but insisted that employees, unions, customers, regulators, scientists, and insurance companies all knew of the dangers. Furthermore, we had modern dust-collection equipment and a standard for airborne fibers that bettered the national standard at the time by half. We also issued regular bulletins about acceptable procedures and exposure levels. What more could we possibly do?

I have already shown how that attitude led to a pernicious form of self-deception in some older facilities like Waukegan, where cost consciousness or an individual manager's failure to think ahead led to ineffective dust abatement. But even at the new plants, where state-of-the-art equipment really did keep

We cleaned or replaced everything in the building, and as dust counts fell, productivity began to rise.

tion of asbestos was growing, and the market was beginning to crumble. By the late 1970s, asbestos plants were closing down right and left. In 1982, Manville filed for Chapter 11 reorganization, which was finally granted in 1988.

Our ultimate acknowledgment of the asbestos problem in the 1980s, which even then was grudging and halfhearted in some parts of the

dust to a minimum, we might have asked whether our airborne-fiber standards were really adequate. True, in the late 1960s, the allowable limit set by the American Conference of Governmental Industrial Hygienists was 12 fibers per cubic centimeter and Manville's was 6. But did we know that number was low enough? Were we funding research to find out? The answer is no. By 1972, OSHA had set its standard at 5 fibers per cc and then lowered it to 2 in 1976. By 1986, even 2 had been reduced 90% to an allowable level of 0.2 fibers per cc.

Worse yet, while environmental standards in most Manville plants were perhaps low enough to protect our own workers, there was a big additional health problem farther downstream in fabricating shops and among people installing asbestos products like brake shoes.

A third form of denial was the tendency to believe that the fault lay elsewhere. During World War II, for example, the U.S. government controlled the use and applications of asbestos as a strategic and critical war material. Surely the government should bear some responsibility for the ensuing problems. The government eventually escaped responsibility by claiming "sovereign immunity," but that claim might have failed if Manville had assumed more responsibility at the time—during the war—and tried to persuade the shipyards to improve working conditions. Protests might not have solved the problem—with ships burning and sinking almost daily, those in charge clearly put production ahead of potential long-term health hazards—but a paper trail of responsible warnings could have saved the company by involving the government in subsequent product liability claims.

Another potential scapegoat was tobacco. In 1979, a study revealed that asbestos workers who smoked suffered 50 times more asbestos-related lung cancer than those who did not. Surely the tobacco industry too should share responsibility. Ironically, the cigarette manufacturers found refuge in the government-mandated warning labels that have

served them as a defense against product liability claims.

A fourth form of denial derives from the very nature of corporations. Companies exist to go on existing, and corporate existence is a matter of monthly and quarterly goals. Manville managers never knowingly took any action that placed their customers or stockholders at risk over the short term. The long-term consequences of their actions were another matter.

Finally, there is a form of denial called

"Don't tell me what I don't want to hear." Early in my career, my boss chided me because I strongly disagreed with him on some issue. "Bill, you're not loyal," he said. And I said, rightly, I think, "No, no, you've got it wrong. I'm the one who is loyal."

Every CEO needs to remember that what he or she knows is only a small part of the legal equation. Today's legal standard also convicts people for what they *should have known*. Manville did not violate the written law, but juries found that the company did violate the public trust. *Caveat vendor* has replaced *caveat emptor* in the courts.

In 1972, I left Waukegan for Manville's Denver headquarters to manage all Manville pipe production; in 1974, I became general manager of the industrial products division; and in 1978, I was appointed vice president for production and engineering. Then, in 1981, I took charge of the Fiber Glass Manufacturing Division. Predictably, I encountered dozens of large and small production headaches, but after years of dealing with health issues in the asbestos business, it was a joy to tackle normal business problems again.

Fiberglass was by then the leading profit producer in the company. Although widely seen as an alternative to asbestos, fiberglass is, in fact, only a partial substitute. Like asbestos, fiberglass will not burn, but it will melt at high enough temperatures. Like asbestos, fiberglass is an excellent insulator, but it will not stand

up to the intense wear and other demanding applications that gave asbestos such industrial value.

Fiberglass differed from asbestos in another critical respect as well. Despite more than 40 years of scientific studies, there was little evidence connecting fiberglass to anything more serious than irritation

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from prolonged exposure. Most recently, in the early 1980s, a government laboratory in Los Alamos, New Mexico, had carried out an inhalation study using laboratory animals, which gave fiberglass a completely clean bill of health. Even lung irritation from the high experimental dosages appeared to be completely reversible once the animal was removed from the exposure. After more than 20 years with asbes-



Asbestos hauling towers circa 1930.

tos, I was now dealing with a truly benign substance.

Of course, we were taking no chances. The environmental controls in our fiberglass plants were well maintained and extremely effective, and workplace monitoring was routine. The product also carried a warning label about the potential for irritation.

During the early 1980s, Manville consolidated fiberglass marketing and manufacturing into a single Fiber Glass Group, and I became group president. Encouraged by Dr. Bob Anderson, who was Manville's

corporate medical director, I became a strong proponent of aggressive scientific research.

In October 1986, Bob was in Copenhagen attending a symposium on man-made mineral fibers chaired by Sir Richard Doll, a world-renowned epidemiologist. The conference was uneventful until its last few moments. In his concluding remarks, Doll summarized the most important presentations and then ended with this comment: "If I now abandon the firm basis of scientific judgment...I do so because I know that, in the absence of such a conclusion, many people may think that the whole symposium has been a waste of time. Let me therefore add...accepting that [fiberglass and other man-made mineral fibers] are not more carcinogenic than asbestos fibers, we can conclude that exposure to fiber levels of the order of 0.2 respirable fibers per [cubic centimeter] is unlikely to produce a measurable risk even after another 20 years have passed."

Confirming the fact that low exposure to man-made mineral fibers would not produce measurable risk was not news, and exposures, espe-

cially in fiberglass, were extremely low. But 0.2 was the *asbestos* standard. What Doll had done was to establish a link between a known carcinogen and fiberglass!

Bob called me immediately, and the first words out of his mouth were, "Bill, our lives may have just changed forever." We both knew from experience that once a public perception is created, changing it can be extremely difficult. I hung up the phone and thought, I don't deserve two of these in one lifetime.

The best scientific and health information available indicated to us

that fiberglass posed little if any risk to workers or users. But wasn't it possible that Manville executives reached the same conclusion about asbestos in the 1930s? I leaned back in my chair, ran through all the perceived failings of the asbestos industry in my head, and compared them to the situation we were now facing with fiberglass.

Had we done enough scientific research? Were our environmental controls and conditions the best in the world? Had workplace monitoring given us an accurate assessment of risk for factory workers as well as fabricators and installers? Had our audits found all the environmental and safety problems? And were we fixing these problems as soon as we found them?

I kicked myself mentally on realizing that our score wasn't an A+ but, unfortunately, more like a B. If anyone should have known better, it was I. But at least there was no question about what we had to do now. First and foremost, we were going to communicate.

Manville's new president, Tom Stephens, was well schooled in the roots of the asbestos tragedy. Like me, he had learned more than a little about corporate denial and more than a lot about corporate responsibility. Within hours, we had posted Doll's remarks on all plant bulletin boards and begun the process of communicating with all our customers, first by phone

and then in person. This was the first move in a communications campaign that continued for years, to the mystification of many. From the start, for example, our fiberglass competitors criticized us for not thinking through what they called the "probable impact of our actions." But we did think them through. Our competitors did not understand the history of asbestos.

Doll's remarks were only the first of many challenges. In June 1987, the International Agency for Research on Cancer (IARC) met in France, debated human and animal scientific studies separately, and

concluded that the human evidence was not sufficient to consider fiberglass a possible cause of lung cancer. But on the basis of animal implantation work—glass fibers that were surgically implanted directly into the body cavities of laboratory rats—and over the protests of scientists who felt that inhalation tests were more accurate predictors of a potential hazard, the IARC classified fiberglass wool as "possibly carcinogenic to humans."

The IARC cautions that its findings are not to be considered assessments of risk, but the difference between hazard and risk is often confusing. Hazard defines the potential to produce harm; risk reflects the probability that this hazard will be realized. For example, radiation is hazardous, but when your dentist covers you with a lead shield and takes low-dosage X rays, there is little if any risk. The IARC is chartered to assess hazard only. By U.S. law, however, IARC findings automatically trigger a lot of state and federal product-safety regulations, and the trigger goes off without any risk assessment. Moreover, the regulations require companies to communicate the hazard, not the risk. Outside of scientific circles, these rules create a great deal of confusion.

In October 1987, the International Program on Chemical Safety (IPCS) of the World Health Organization declared that animal-inhalation studies were the most relevant way of assessing potential hazards to human beings. That finding agreed with our own convictions on the subject, but it would take several years to complete new studies and several more for the IARC to consider the new evidence.

We included the IARC finding in our product literature and added a "possible cause of cancer" warning label on all fiberglass-wool products.

"I will tell you the truth," I told all our customers, "and if I don't know, I will tell you I don't know, along with what I am doing to find out." Put very simply, our communications policy was, "You'll know when we know." We gave regular briefings on fiberglass safety and health to customers, employees,

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cially in fiberglass, were extremely low. But 0.2 was the *asbestos* standard. What Doll had done was to establish a link between a known carcinogen and fiberglass!

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union officials, community leaders, and regulatory agencies by phone, letter, brochure, videotape, live television, and group meetings.

If there wasn't one crisis, there were three. We finally realized that truth, like beauty, was in the eye of the beholder. Regulatory agencies, the media, nonfiberglass competitors, and the fiberglass industry—all interpreted the truth to serve themselves. At the time, I didn't understand this aspect of the problem, and it led to conflict and frustration. Take the regulatory agencies:

The IPCS conclusion that inhalation was the preferred method for assessing a potential hazard led the fiberglass industry to fund a new inhalation study. We assembled a panel of independent scientists in Denver, and for two days they hammered out a protocol to achieve the highest possible scientific standard for the study. Then we signed a contract with a laboratory in Geneva, the only one in the world that met the panel's quality standards.

We sent the protocols to the appropriate regulatory bodies in advance of the study and routinely briefed them on its progress. After two years, the tests concluded with entirely negative results—no evidence that respirated fiberglass fibers affected the rate of lung cancer in laboratory rats. We were elated.

But the regulatory agencies did not find the results as conclusive as we did. Scientific conclusions are based on assumptions—change the assumptions, and you get a different conclusion—and the protocols and assumptions of this study were industry's, not OSHA's or the EPA's. The scientists who consulted for us had designed an extensive chronic-inhalation study using state-of-the-art inhalation technology. We knew that a positive finding would establish fiberglass as a hazardous substance, and while we didn't expect that outcome, we were prepared for the possibility. We were not prepared for the regulators' response to a negative finding, which seemed merely to arouse their automatic skepticism about industry intentions. They seemed to feel that a study that found no hazard in the

product could not, by definition, be "most protective" of society.

It taught us that we should have involved the regulators in the formulation of assumptions and protocols. A negative finding that was based on their own assumptions would have been more difficult for them to pick apart.

The media presented another challenge. When the inhalation study came in with negative results, we declared victory in our internal publications and wanted the media to do the same. We continuously presented our view of truth to the press by explaining the IARC's hazard-assessment process, the difference between hazard and risk, the physical differences between asbestos and fiberglass, and our conviction that fiberglass posed little if any risk to workers. But reporters are even more suspicious than regulators. By adding our own side of the story to every disclosure, we managed to convince them they were getting less than the whole truth. As a result, they grasped at any source of negative information or simply reminded their readers of the IARC's original classification. We got headlines like, "Evidence Grows on Possible Link of Fiberglass and Lung Illness" or "Could Fiberglass Become the Asbestos of the 1990s?" The lesson that taught me was never to give in to pressure to try to make ourselves look good in risk communications.

Let public relations do that work for itself. In risk communications, stick to the facts.

Nonfiberglass competitors were yet another problem. Our candid communication policy delighted many of them. The more we disclosed, the more information they had to twist and distort with customers. The issue also gave them an umbrella to put some new competitive products on the market (none of which, by the way, were subjected to hazard or risk assessment). We had to use legal means to

stop the most blatant distortions, and most attempts to sensationalize the issue backfired. Our best weapon was our communication policy itself, because most customers understood that we were telling them everything we knew.

We learned that truth is relative, but we also learned that a consistent, conscientious commitment to the truth is a weapon powerful

Reporters were even more skeptical than regulators and grasped at every shred of negative information.

enough to overcome relativity, cynicism, and a great deal of fear. Driven by business as well as liability concerns, our customers wanted us to keep them up-to-date, and that was a perfect fit with our you'll-know-when-we-know policy. As customers began to depend on us for the latest news on fiberglass and health, relationships steadily improved, and I started receiving letters from customers supporting our actions. Our policy was so effective that its critics changed their tune from "You are going to destroy the industry" to "You must be doing this to gain competitive advantage."

Through all the turmoil and adverse publicity, fiberglass has remained the preferred material for residential insulation and has retained or improved its market posi-

Our you'll-know-when-we-know policy overcame cynicism, doubt, and fear.

tion in the industrial, commercial, filtration, and aerospace segments. In fact, 1993 was one of the best sales years in the history of the fiberglass-wool industry.

In its product liability defense, the asbestos industry argued that it did not violate the law. The law required no warnings; a supplier's liability


was limited to simple negligence. Moreover, the medical data were not conclusive until the 1960s. While technically correct, this defense was tied to the legalities of the past, and in the mid-1970s, with the benefit of hindsight, juries began to make judgments on the basis of what companies should have done, should have known, and should have disclosed. Increasingly, they judged the asbestos industry guilty of not meeting this new, higher, retroactive standard and required it to pay punitive damages for its failure to do so.

When I learned to fly an airplane on instruments, I was taught that my senses were always wrong and that the instruments were always right. As managers, our senses are

finely tuned to deal with short-term changes and seldom help us with the blind landings that are still years away. When the pressure to cut short-term costs is high, it simply goes against the grain to increase spending for environmental controls with an uncertain long-term payback. What I learned as a businessman in the asbestos and fiberglass industries was that the instruments of long-term guidance are called principles. More specifically, they're called responsibility and product stewardship.

Product stewardship—defined as product responsibility extending through the entire stream of commerce, from raw material extraction to the ultimate disposal of a used-up

or worn-out product—can cost a lot of money. But so can the alternative. Moreover, product stewardship probably represents the legal standard of tomorrow. Environmental regulations grow steadily tougher, and the imputed knowledge from these regulations will almost certainly carry over into the area of product liability.

I cannot possibly say how many companies are putting themselves and their employees and customers at this kind of risk today. I think I do know that voluntary product stewardship adds up to competitive advantage over the short term and a greatly improved chance of survival and profit into the future. 

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Judges for the 1994 McKinsey Awards

The 1994 McKinsey Awards winners will be announced in the January-February 1995 issue of HBR.

For the past 35 years, the McKinsey Foundation for Management Research, Inc., has offered awards recognizing the two best articles published each year in the *Harvard Business Review*. The awards commend outstanding and readable works that are likely to have a major influence on the actions of top managers worldwide.

HBR is pleased to announce the distinguished board of judges for the 1994 McKinsey Awards:

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