

Inside the Profession

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Editor's note: NEHA is committed to providing its members with information specific to the profession of environmental health. The Journal of Environmental Health has taken a major new step in this direction by employing a staff reporter. Rebecca Berg, who has long copy edited the Journal, will be writing in-depth reports on trends and events in the field. Her reports will provide Journal readers with important insights into the profession. They will also be designed to encourage discussion of controversies, challenges, and big-picture issues facing the profession. Readers are invited to participate in these discussions through letters to the editor: Please send your responses, opinions, or comments to Joanne Scigliano, Content Editor, jscigliano@neha.org.

This month we bring you the first of a series on the political face of the environmental health profession.

When Science Crosses Politics, I: The Case of Naturally Occurring Asbestos

In preparation for this story, *JEH* interviewed environmental health professionals across the country on the extent to which politics intrudes on their work. Most said they had never experienced politically motivated pressure to do or say anything that ran counter to the interests of public health. "The health department," said Peter Thornton, environmental administrator in Volusia County, Florida, "is seen as a neutral party. We're not on anybody's side. We don't answer to other agencies, so all we have left is to tell the truth."

The self-image that environmental health practitioners have of themselves—as honest scientists—is to some extent mirrored in the images the public has of them.

"The type of person working in the field," Denzil Inman, a former FDA regional food specialist, told *JEH*, "is very modest. You know: 'We're just humble public servants doing God's work.' [Environmental health professionals] believe if they just do the work and do the best they can, that everything will turn out okay. They are not really about tooting their own horn."

Up to a point, that kind of attitude can earn respect.

"The public in general I think ... trusts environmental health offices," said Dave Robbins, president of Environmental Com-

pliance International, a firm that provides water and wastewater compliance consulting to developers. "I mean, when we are thirsty, we go to the tap, and we fill up a glass of water, and we don't even think twice about whether it's safe to drink."

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Nevertheless, everything does not always "turn out okay." And other images of environmental health, some more unfortunate, also float about in the public discourse. "Environmental health specialists such as myself are often seen as bad guys because we enforce laws," observes Gary Hague, environmental health specialist with the City and County of Broomfield, Colorado. In addition to the stereotype of the "health inspector with the glasses and

the big furry mustache," as Mr. Hague puts it, there is another, almost contradictory stereotype: of health department employees as bureaucratic foot draggers more interested in protecting the industries they regulate than in helping the public. Nongovernmental public health advocates also see an almost constitutional aversion to alarming people.

"Agencies accuse people of crying wolf," Joel Kupferman of the New York Environmental Law and Justice Project told *JEH*. "Well, we would accuse them of crying, you know—"

Anti-wolf?

"Anti-wolf. Right. Exactly right."

In other words, the way environmental health professionals see themselves is not always the way they are perceived. Some of the popular stereotypes are contradictory, but contradictory stereotypes rarely cancel each other out. In fact, contradictions in public perceptions can make a situation that much more treacherous for a scientist who would prefer to put his or her head down and just do the job. Often those contradictions reflect the conflicting interests of stakeholders; environmental health professionals regularly deal with issues that pit some parties' economic interests against other parties' health and well-being. It's easy to get caught in the middle.

So far in this discussion, *JEH* has been tossing around two terms—"politics" and "science"—that warrant a closer look. What is politics? When people use the term in a derogatory way—"just politics"—it tends to refer to pressure exerted on behalf of someone else's "special interest." By contrast, "science" is widely understood as a disinterested and verifiable basis for policy.

Unfortunately, the distinction is not always so clear cut. If knowledge about a controversial environmental health issue is still evolving, the science itself can become deeply politicized. In this month's column, *JEH* looks at the intersection of science and politics in the case of one such issue: naturally occurring asbestos.

This is the story of an ongoing environmental health dilemma involving disputes over risk, testing methods, remediation, costs, and impact on commercial interests. But it is also the story of how these conflicts altered the life path of one environmental health professional. Let's call him Greg Smith—not his real name. When the issue of naturally occurring asbestos came to the fore a few years ago, Greg Smith was environmental health manager for Bellevue County (not its real name) and a dedicated public servant. "I was passionate about issues as they really relate to people," Mr. Smith told *JEH*, "and less passionate about political agendas. And believe it or not, that can get you in trouble."

Because the issues in Bellevue County are ongoing and complex, and because a number of sources spoke to *JEH* on condition of anonymity, all names in this story have been changed.

Background and Prologue

Bellevue County is a scenic and formerly rural area located within commuting distance of a major urban center. Over the past quarter century, it has experienced intense residential development. About 44,000 people lived in Bellevue County in 1970; by 2000, the U.S. Census put the number at over 156,000.

Growth and development issues have been a source of controversy there since the 1980s. People interviewed by *JEH* identified traffic congestion, concerns about the water supply, and the desire to maintain a small-community flavor as motivators for what former coun-

ty board member Paul Stuart characterizes as "a constant flow of antigrowth measures that were going through the petition process and getting on the ballot." The composition of the board itself oscillated from pro-growth to less so—and back again.

When Mr. Stuart was on the board, he says, he was part of a four-to-one majority that supported growth. If local press reports from the time are any indication, the politics on the board were as rough-and-tumble as those in the county at large. Later, Greg Smith notes, "We had a series of board members who were of the no-growth persuasion." It is within this context that Smith locates the tendency of the asbestos exposure issue to crop up, disappear, and recur.

In its natural form, asbestos is a mineral found in rock, and in this solid state, everyone agrees, it does not present a hazard. Crushing the rock, however, can release fibers into the air. "When you ... friate [the rock] with heavy equipment to create a pad for a building site," Smith explains, "there's some dust." The dust is likely to contain asbestos, although there's no agreed-upon formula for determining how much asbestos or how significant a hazard it poses.

Asbestos fibers can be released from the rock in other ways, too. In the 1980s, there had been some concern about dust thrown up by vehicles driving over dirt roads in the area. The U.S. Environmental Protection Agency (U.S. EPA) got involved and paved the roads.

For a while, the dust settled and the issue died down.

"It was very political. It's been a really fun process to observe and be part of."

The Story Breaks

In the late 1990s, a newspaper reporter got a call from Arthur Green, a homeowner worried about large quantities of asbestos-containing rock he'd spotted on his property. Mr. Green also was concerned that construction planned for a neighboring parcel would contaminate

the area with asbestos-laden dust. The reporter researched the story in depth and several months later, the paper—let's call it the *Post*—ran a group of articles about dangers posed by naturally occurring asbestos. The articles investigated the issues associated with construction by Mr. Green's neighbors (which were complex), revisited the issue of dust on dirt roads, and also raised issues associated with a number of stone quarries in the area.

The public discussion of a potential environmental hazard was now out in front ... of the position being taken by an agency charged with safeguarding public health.

"Everything kind of hit the fan at that point," says Scott Burnet, an industrial hygienist who works in the area. The articles came out on a Sunday. People began calling his company—everyone from school districts to developers—on Monday. Mr. Burnet cackles. "It was very political. It's been a really fun process to observe and be part of."

One aspect of the story that caused a stir was the contention that rock outcroppings in Bellevue County contained tremolite, a type of asbestos that was strongly associated with mesothelioma (a generally fatal cancer of the chest cavity lining). It had been previously known that another form of asbestos—chrysotile asbestos—was present in Bellevue County, but the degree to which chrysotile was truly hazardous was a subject of much debate among scientists (Camus & Siemiatycki, 1998; Case, 1998; Costas & Garrido, 1998; Landrigan, 1998a, 1998b). The presence of tremolite (which federal and local health agencies have since confirmed to *JEH*) potentially constituted a much more serious risk.

Jim Davis, a university professor and industrial hygienist who conducted some of

the dust sampling on which the *Post* based its articles, also began receiving phone calls. "The phone didn't stop ringing," he says. "They were not concerned homeowners. They were concerned developers." He was asked to speak at a hearing on the topic, but he lives in a different part of the state, and from the tenor of the calls, he decided, "I was not going to go back to Bellevue County."

Did he actually feel it would be physically dangerous to do so? Or just unpleasant?

"Just unpleasant," Mr. Davis told *JEH*. "Just people not wanting to hear the truth." Davis added that in his opinion, the *Post* series was "very balanced; it wasn't scary headlines blown out of all proportion."

Burnet, a fellow industrial hygienist, isn't so sure. "The *Post*, in my opinion, did blow it out of proportion" and in the process, he believes, did the county a disservice. He is joined in this opinion by Paul Stuart, the former pro-growth commissioner, who thinks the *Post's* coverage sensationalized and "exploited" the issue. Stuart also claims that the *Post* generally has an "antigrowth bent" in its coverage of issues, and he sees antigrowth forces behind these articles.

"I don't think that's the case at all," says John Berlin, author of the articles.

Mr. Berlin points out that naturally occurring asbestos is not an unmanageable problem and doesn't necessitate an end to growth in the county. "You need to be aware of it," he told *JEH*. "If you're going to go in and disturb it, you need to take [mitigation measures]. And if you live in an area like this, you've got to make sure areas are maintained, from roads to roadside cuts, to play yards, and just be aware of it. It's much more manageable and low-tech in terms of controlling it than are lots of other environmental-contamination issues."

Sarah Archer, a citizen activist, agrees with the *Post's* critics that the paper has been key in publicizing the issue and keeping it alive. In her view, however, its activities constitute a public service: "The media has to be a major player in this, to help inform the public and to help shape policy, too. [The *Post*] has influenced public policy in a very big way."

Right or wrong, proportionate to the hazard or disproportionate, the *Post* series spelled trouble for Greg Smith. The public discussion

of a potential environmental hazard was now out in front—calling for investigation of the risk and protection of the public—of the position being taken by an agency charged with safeguarding public health. Smith was quoted in one of the articles saying he had not heard of any reason to consider forms of naturally occurring asbestos other than chrysotile. A classic "outrage" scenario, as defined in Peter Sandman's celebrated discussions of risk communication, was developing (Sandman, 2004). Sandman argues that public outrage is a function of the degree to which people experience lack of personal control with respect to a given risk, dread about the risk (as with a known cancer-causing toxin like asbestos), mistrust of officials, and a lack of responsiveness to their concerns. A key ingredient in public outrage is the perception that public health officials are "whitewashing" a risk or "stonewalling."

"I never felt I was in a position to say there really was a health hazard."

Fallout for Greg Smith

"I never felt I was in a position to say there really was a health hazard," Greg Smith told *JEH*. Keeping in mind recent controversies involving nonoccupational exposure to asbestos as a result of the September 11 attacks (Gonzalez, 2002; Kupferman, 2003; Lyman, 2003), *JEH* pushed Smith a little on the question of risk. Did he feel confident that there *wasn't* a risk? "I felt it was my job to deal with environmental health issues," he said, "and figuring that there *wasn't* an issue..." He added that he thought the concern was "potentially significant" but that he felt it was being misused.

Stuart, who was on the board of commissioners at the time, explains that it was a question of resources: "He'd looked at it, and in his professional judgement, it didn't rise to the level of being the sort of thing he needed

to spend a lot of resources on. I felt he did a very professional job in terms of the way he tried to handle it, but people weren't willing to let him be successful."

A series of public hearings was held.

"They were basically looking for me to say that no more development was merited in some of these areas because of the potential threat," Smith opines. "We ended up with taskforce meetings." The taskforce proposed dust mitigation regulations that Smith agreed to. The regulations called among other things for pre-wetting of work areas to eliminate visible dust, wetting of work surfaces and piles during work, and limits on vehicle access and speed in areas of exposed asbestos-containing rock.

If he didn't believe there was a risk, why did Smith support the mitigation plans?

"Dust control is important when you're doing a lot of grading," he says, "and not just for health reasons. There are a lot of other issues involved, including the safety hazards dust can create on roads and cosmetic problems from dust."

Additional construction projects were proposed, and members of the taskforce pushed for additional mitigation. "Basically they wanted to come to a conclusion that it was still a significant threat and therefore ... anybody who wanted to develop had to go through a lot of arduous plans, ... and, to make a really long story short," Smith concludes, "I was in disagreement." Around and around went the task force—and a technical advisory committee—debating the need for additional measures. Smith held his ground.

Was he a hero sticking to scientific principle in the face of political pressure, a man in denial, or an interested party?

"There was a lot of denial," John Berlin of the *Post* told *JEH*. "The common refrain, even from the head of environmental management, was 'Where are the bodies?'"

Smith puts it a little differently: "As an environmental health professional," he says, "I've been taught to look at the epidemiological evidence." And he saw no epidemiological evidence of increased mortality due to naturally occurring asbestos in Bellevue County.

Later in this article, *JEH* will take a look at what the science and epidemiology say (and

don't say) about the hazards posed by naturally occurring asbestos. For now it's worth mentioning that a spokesperson from a state agency agrees that "as long as the construction crews adhere to the air toxic control measures ... by wetting things, putting in infill, growing things, etc., it should be fine." On the other side, activists point out that construction workers can track dust off site and that systematic enforcement of the measures has been almost impossible. "When you go to Bellevue County," says Sarah Archer, "there's dust everywhere."

In the meantime, elections were held. The four-to-one "pro-growth" majority gave way to a board of more mixed composition. As environmental manager, Smith held a commissioner-appointed post, and his job was soon in jeopardy. A simple majority of three was all that was required to dismiss him. At one point he believed three commissioners seemed ready to do so.

"Part of this has to do with trading of votes among board members," he told *JEH*. "You know, you help me get rid of someone, and I'll help you get rid of someone, whether it's right, wrong, or indifferent."

Do boards of commissioners really work that way? *JEH* was unable to locate board members from the time, none whom now serve, because of term limits. But Paul Stuart confirms that politicking of this kind did go on.

Before the board could act, the majority swung against dismissal. By now, though, Smith had had enough. He realized that with every change in the composition of the board, his job could be in the balance. He was offered the opportunity to resign on favorable terms, and so, he says, "I retired at the age of 53 with a golden handshake."

The State of the Science

The science seems to be very much in flux.

"We've learned so much about asbestos exposure from our work in Libby, Montana [where vermiculite mining has led to high levels of outdoor tremolite exposure]," says Sam Butterfield, a U.S. EPA spokesman, "that the science has totally outpaced the regulations." Nevertheless, he hastens to add, no certain conclusions about risk in Bellevue County can be drawn from the comparison: "[Bellevue County] and Libby, Montana, are apples and oranges—or grapes and water-

melons—in so far as the scope of the public health threat."

Jeremy Stern, a current Bellevue County public health official, is more emphatic about what's not known: "The science of asbestos is in its infancy."

"It's a new area," says Dan Kepler, a professor of epidemiology and preventive medicine who has been doing research on environmental asbestos. "People haven't really grappled with it in terms of specific risk assessments or policy approaches."

"It is so subjective," Mr. Stern adds. "The measuring tools and the theoretical construct to determine when it is or is not dangerous are not there yet, except in the extremes."

"There's a big data gap here that the agencies are only beginning to address," John Berlin of the *Post* says.

Sarah Archer says that's why she and other activists have been pushing "to have more extensive human exposure studies done."

Even the terminology is in dispute.

"There's still a lot of argument over what constitutes a fiber," says industrial hygienist Scott Burnett.

"The word 'asbestos' ... is perhaps the largest part of the problem," activist Arthur Green says. He points out that there are many types of asbestos fiber and believes that the special behaviors, chemistry, and carcinogenic or noncarcinogenic qualities of each fiber type need to be identified.

As several scientists interviewed for this story point out, the study of hazards associated with asbestos exposure has traditionally focussed on occupational and indoor settings. There, a clear-cut association has been found between exposure and mesothelioma. According to Jeremy Stern, exposure also can cause nonmalignant diseases like stiff-lung disease and chronic pulmonary disease. In addition, there's an association with lung cancer, although—as Stern takes care to point out—it's hard to know how much asbestos contributes to that risk since there are other, bigger contributors such as cigarette smoking.

The science is still uncertain or under development in four areas:

1. What amount of inhalational exposure (as opposed to the amount of tremolite asbestos found in the soil) is actually occurring?
2. What sampling and testing protocols are appropriate for gauging that exposure?

3. What level of exposure is associated with disease?

4. What does the epidemiology say about the risk?

In the sections below, *JEH* will take a brief look at each of these questions.

1. The Question of Exposure

"Normally," says Dan Kepler, "if you're talking about air pollution, you know how to measure it; it has a specific pattern. We can calculate cumulative exposure. You can't do that in this situation."

Part of the problem is that the toxin originates in rock and soil. U.S. EPA has defined 1 percent in soil as its "action level" for asbestos.

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"U.S. EPA's 1 percent action level in soil is essentially a guess," says Jeremy Stern of the local public health agency. "But that's not a put-down. We have a potential problem. Therefore we must err on the side of caution."

Nevertheless, the cost of remediating every inch of soil that has 1 percent tremolite asbestos is potentially vast, since large areas of the county and state are likely to contain asbestos at that level. Stern would like to see a "more specific" test of exposure. At present, no one has a formula for extrapolating actual inhalational exposure from soil asbestos levels. One percent in soil completely covered with grass, for instance, probably would not present a hazard. Indeed, U.S. EPA's mitigation measures involve landscaping or paving over exposed areas of tremolite-containing soil. On the other hand, as several people pointed out to *JEH*, it is not necessarily cost-effective or practical to pave over every stretch of soil that contains 1 percent asbestos.

State agencies have done some air monitoring of roads, areas near quarries, and a high school that has been the focus of recent con-

cern. Even air monitoring, however, doesn't say how much asbestos people are actually breathing in. That may vary according to the activities they're engaged in. Jeremy Stern explains: Walking past a dirt baseball field may not mean a high level of exposure, but "sliding into second base" may be a different matter. Both activists and current state and local health officials are calling for "activity-based" monitoring in which students at the school would wear air monitors on their lapels.

2. The Question of Sampling Protocols

Air sampling, according to Scott Burnet, presents its own set of dilemmas. To count fibers in a sample, one has to define what a fiber is in terms of its "aspect ratio" (ratio of length to width). If the cutoff is 5:1, and fibers are present that have aspect ratios of 4:1 or 3:1, those will not get counted. If one sets the aspect ratio too low, it approaches 1:1, which would be a sphere, and the aerodynamic properties change.

If a "fiber" is not airborne, can it be inhaled? Does it become irrelevant to risk? Again, the answer may be a function of the activities in which one is engaged around the fiber.

Burnet says that a lot of the sampling and analytical techniques used in Libby, Montana, have been refined. He also marvels—with amused skepticism—at the lengths to which sampling activities at the Bellevue County high school have gone, even setting up box fans to re-suspend fibers that might have fallen out of the air.

"It's basically look and ye shall find," he says with a laugh. "The more you look, the more you're going to find."

"That's very true," counters Sarah Archer. "That doesn't mean you don't actually go and look at it and study it."

A spokesman for one of the state agencies involved told *JEH* that his agency would like to see a protocol put together that will allow assessment of risk in other parts of the county and the state. For instance, if the rock or soil contains X amount of tremolite and one is engaged Y activity, Z amount of the toxin would be inhaled. Among other officials and activists, there is almost universal agreement on this one point: There is a need for trusted and accepted protocols for assessing exposure levels.

3. The Question of Disease

"I'll tell you a secret," Jeremy Stern says. "Once they come up with these tests, I'm going to then have to point out that ... we still don't know the levels that cause disease." U.S. EPA guidelines do not identify any level of exposure as safe, a stance that Greg Smith sees as contributing to panic. "Because there is no definitive exposure limit," he says, "many people feel that one fiber can cause cancer."

"Very short exposures *can* cause [mesothelioma]," Dan Kepler says. "Wives of workers who just laundered [their husbands'] clothes have developed it. But nobody knows how short.... We know this is a very potent carcinogen; we know it can cause this [disease] with short exposure, but we don't know how to predict things. That makes it very difficult to effect public policy."

Part of the problem is that there seems to be a great deal of variability in the degree to which individuals are susceptible. Butterfield of U.S. EPA told *JEH* that some people in Libby who had been breathing "high, high, high levels of asbestos" for 30 to 40 years were showing no signs of mesothelioma or other lung disease. On the other hand, some people had gotten sick from one-time exposures.

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4. The Epidemiology Question

As mentioned above, Greg Smith based his assessment of the hazard in Bellevue County on the epidemiological record. Both the value

of that record and its actual content are the subject of intense dispute among all parties.

One of the state agencies backs Smith up: "We've done searches of records in [Bellevue County], and we can't find a case of death from mesothelioma or asbestosis that's been attributed to exposure from naturally occurring asbestos," says Karen Anderson, spokeswoman for the state air pollution authority.

But, says Butterfield of U.S. EPA, "one thing we *are* fairly certain of is that there won't be any [epidemiological] evidence ... for quite some time." He points to the long incubation period for mesothelioma.

Jeremy Stern concurs. "What's not understood ... is that we're dealing with a very rare disease that takes 30 years to develop, that we have a very small population, and that to have statistical significance would take more cases than we could have here unless we were dealing with something as deadly as chlorine gas."

"I have to disagree with that," says Sarah Archer, citizen activist. She believes there is epidemiological evidence of increased mesothelioma incidence in Bellevue County. She cites *Post* research showing the nine-year rate per 100,000 near the top among counties in the state. The chart she cites, however, also shows elevated rates in some counties without naturally occurring tremolite deposits.

Either way, Dan Kepler thinks epidemiology is "not a great resource" for assessing the degree of risk and the prospect for future disease. "If we have to wait for cancers to occur in order to say there's a hazard," he adds, "it's too late."

Ms. Anderson points out that people have been living and building in Bellevue County for much longer than 20 or 30 years.

"Right," says Kepler. But development on the present scale—"a major amount of growth and development," he says—is fairly recent.

"So pooh-pooh to them," Butterfield concludes.

Science as Politics

When there are no authoritative answers about the extent of a hazard, the science of the issue may itself become a political football. Almost everyone interviewed for this article claims to be on the side of "the science" and characterizes the motives of other stakehold-

ers as “political.” As a result, the public discourse, especially in the early years of the controversy, has been strongly marked (and obfuscated, *JEH* would suggest) by *ad hominem* attacks.

After the *Post* story broke in 1998, both sides brought in scientific experts. “Of course,” Smith observes wryly, “if my consultant says one thing, and someone else’s consultant says the other, you haven’t gained much.” He claims that the scientists hired by the other side were simply telling their employers what they wanted to hear: “There was a whole series of scientists from the university system. I don’t feel that they were unbiased, and I found fault with their methodology.”

“That doesn’t surprise me,” retorts Jim Davis, a university professor who conducted some sampling for the *Post* story. “The environmental health department is funded by the county, and ... a significant amount of the county commissioners’ re-election funding is channeled by developers. So obviously, if you’re an employee of the environmental

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health department, you’d better keep your mouth shut.”

“Developers have money at stake,” Jeremy Stern echoes.

Paul Stuart, however, sees the “no-growthers” as the aggressors. “The underlying agenda really is to lower the demand for housing.... Part of the way you do that is to sensationalize [the issue]. The natural reaction, if you’re a developer trying to build and sell houses at will is to get your own

experts to evaluate the situation and present it your way.”

As we’ve seen above, Greg Smith also argues that the asbestos issue is a screen for an antigrowth agenda. The fact that state agencies and U.S. EPA have gotten involved (using its federal Superfund authority to investigate at least one site) does not alter his conviction that the concern has been trumped up. Indeed, he sees something like collusion at work: “The people in [Bellevue County] with the quote hidden agenda had the ear of some people in the state and federal governments,” he says. “It was always interesting to me that some of the same soil types that are found in Bellevue County are found in adjoining counties and basically [the state air pollution agency] and U.S. EPA kind of left them alone, figuring that we were easy pickings because we had some board members who were already of the persuasion. We had a couple of board members who were hell-bent on stopping some development.”

What Are Activists For?

“All along,” says industrial hygienist Scott Burnet, “there’s been a handful of key activists who have been driving this whole issue.”

“Honestly,” Karen Anderson of the state air pollution agency says, “some of them don’t even live in the community.”

Indeed, the activists with whom *JEH* spoke for this story may not be representative of what Ms. Anderson calls “the wider population.” If one stops to think about it, this lack of typicality is to be expected. People who are not employed professionally in the matter (i.e., as public health officials, academics, or industrial hygienists) must fit their activities into whatever time they have outside their own jobs and family responsibilities. An issue as complex as naturally occurring asbestos makes demands on time and energy that require an unusual degree of motivation.

“It was difficult to know who had jurisdiction where they could push for the science to be done,” observes Sarah Archer. “That was why I had to write letters to so many different agencies. I was trying to find which of these people had the authority to make this happen.”

Archer felt that in light of new discoveries made in Libby, Montana, about the behavior of tremolite in the air and the lungs, the agencies needed to take a closer look at exposures in Bellevue County. The agencies always responded to her communications, she told *JEH*, but their responses generally claimed that existing measures were sufficient.

“And I always had to keep writing back and saying, ‘but if you’re not doing the correct science, if you don’t know how to correctly define the problem, how do you quantify the problem?’”

In other words, Archer was displaying a quintessential activist trait—extraordinary persistence. Activists may be atypical in other ways, as well:

- They may have a stronger than average stomach for confrontation and conflict.
- They may be angrier than average. Jeremy Stern believes that some of the mistrust with which activists currently greet public pronouncements by agency officials results from a feeling that their concerns have been dismissed in the past.
- Some may be unwavering idealists.
- Some may have a strong penchant to look for and see problems, injustices, or dangers. That is, while the default position, as Peter Sandman (2004) puts it, may be apathy, and most people therefore have a bias against seeing a problem, activists may have a bias in the opposite direction. This trait naturally inclines under-budgeted, overworked, embattled public

When *JEH* put these charges to people on the other side of the issue, it got a chorus of negatives.

Butterfield of U.S. EPA points out that his agency has been looking at naturally occurring asbestos in other areas of the state as well. "Have we gone out and sampled in different areas? Yes we have. And some of them have come up [positive] and have actually gone as far as becoming Superfund sites."

John Berlin of the *Post* says, "There's really a rather simple answer" to the question of why Bellevue County has been the focus of so much attention. Bellevue County and Next Door County to the north are the fastest growing areas that have rock with naturally occurring asbestos. "You have big machinery churning it up around a lot of people. Environmental health officials are going to focus on the area where you're going to get the greatest exposure." He also says that while there is some overlap among people for more protection against asbestos and "slow-growth" proponents ("I'm not aware of any 'antigrowth' movement," he

adds), the people who have approached him on the issue seem to be truly concerned about the hazard.

Sarah Archer says that she is interested in this issue purely from a health perspective. (She works for a health advocacy organization.) And, she says, among the other activists with whom she collaborates, she has not met anybody who's against building in the area. Arthur Green points out that he himself works in the development business.

Although the people pressing for more investigation of the asbestos hazard deny that their motivation is to stop growth, they do seem more sanguine than explicitly pro-development parties, like Paul Stuart, about the implications a large margin of safety might have for construction projects in the area. All of them argue that current mitigation procedures are insufficient to protect the public from the dust thrown up by these projects. Archer has made the following argument to state environmental officials:

Because the science is emerging on fiber carcinogenicity, and because there is enough evidence to cause deep concern about short-term, episodic, spiked exposures to tremolite asbestos, public health agencies should recommend that construction on tremolite asbestos be halted so that more fibers are not dug into, exposed, and dispersed.

Statements like these might seem to confirm the worst fears of the pro-development camp, but it is worth pointing out that this "antigrowth" position does not exactly appear to be an "underlying agenda." It seems, rather, to be a *result* of concern over asbestos.

Another result, according to Paul Stuart, has been that "nobody wants to invest in Bellevue County." The episode has had a "tremendous cost" in terms of sales tax revenues and public services.

That is a result. Is it also an intention? "Yes," Stuart says. "I feel that it is."

JEH put it to him: No one interviewed for

health officials to take them with a grain of salt.

- Activists are often ready to do research and seek out expert help. As Greg Smith notes, his experts were countered with a "series of scientists from the university system."
- Many activists have particular skills or knowledge (e.g., a science background, experience as a former reporter, a day job in public relations) that are powerful tools for acquiring information and making themselves heard.
- Because they are passionately immersed in their issue, activists tend to make greater than average claims on others' time and attention. (By way of illustration, *JEH* notes that its inbox has recently filled up with attachments and e-mail messages beginning with phrases like "Another thing you need to know...."). In other words, activists are distinctly inconvenient.

The fact that activists are atypical of "the wider population" may seem at times to detract from the authenticity of their concerns. But it has been argued that grassroots "experts" are more common than is generally assumed. According to environmental scientist Sylvia Tesh, the best way to understand the intersection of politics and science on volatile public health issues may not be as a conflict between an ignorant public and scientists with their political heads in the sand. "Conflicts over the dangers of environmental pollution," argues Tesh, often play out as "conflicts among scientists, not conflicts between scientists and lay people (Tesh, 1998, p. 98). Tesh concludes that "the problem for health and environment agencies is not how to handle angry people.... The problem is how to make policies when reputable scientists disagree about the dangers of environmental pollution" (Tesh, p. 99).

On all sides of the issue, most people with whom *JEH* spoke are in agreement on one thing: that current plans to conduct personal, activity-based monitoring of asbestos exposure constitute progress. According to representatives of the state agencies, their scientists have been the impetus for this development.

But Archer believes that without the prodding of activists (which included filing a petition with U.S. EPA), the agencies involved might never have reached the point of "doing the science," as she puts it. Will history record that prodding—which has put the county to great expense—as an act of antigrowth mischief or as a profound public service? The answer may depend on whether the presence of a significant hazard in Bellevue County is ultimately confirmed.

this article has admitted to an underlying no-growth agenda.

"My experience with them is that on this kind of an issue they wouldn't be very straightforward about their agenda," he says darkly.

He is seconded in this view by Jeremy Stern, who sees players on both sides of the issue manipulating information. "I think a lot of it is calculated," he says.

"The politics has just been incredible," Scott Burnet adds.

All of which raises the question: Is it naïve to believe in people's good faith? Perhaps. But *JEH* would suggest that in cases like this one, the greater naïveté would be to swallow what people say about each other's ulterior motives. Doing so would make it easy to dismiss the whole business as pure politics on all sides (tempting, no?). Bias, however, is not always the same thing as ulterior motive. The worldview of "slow-growthers," for instance, may incline them to honestly believe that a pollutant is a hazard despite lack of confirmation from epidemiological studies. Likewise, an environmental health director who doesn't like the idea of hurting "the little independent who's just minding his business and doing nobody any harm," to quote Greg Smith, may be inclined to believe that a large margin of safety is counterproductive. The worldviews of both parties might be considered political motivations, but ultimately they are also honestly held.

Smith has asbestos-containing rock on his driveway and drives up and down it, he says, without worrying. In other words, he honestly believes that there is no meaningful risk in Bellevue County and that he did the right thing in refusing to pursue the matter more aggressively than he did.

"All that kind of stuff filters into your psychology," he observes. "You know, can I sleep well at night?"

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What Does It All Mean?

For environmental health practitioners, the issue may be one not only of fact—is the asbestos in Bellevue County a significant hazard?—but also of philosophical approach or, as Jeremy Stern puts it, of bioethics.

"My gut feeling is that there's just not enough asbestos, and there's not frequent-enough exposure ... to constitute a problem." He is not concerned for himself—or for his children—one of whom has played baseball at the high school that U.S. EPA is now investigating. "But," he says, "I wouldn't presume to say that we should use that [gut feeling] as a way of making [policy] decisions."

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After six years of argument, there seems to be a groundswell in the direction of investigating the risk in a systematic way. As noted above, plans are afoot to conduct activity-based air monitoring that will help make soil content values more meaningful. This development seems to have resulted partly from continued demands on the part of activists. (Sarah Archer faxed *JEH* a copy of correspondence from a year and a half ago, in which the state air pollution agency stated, "It is unlikely that an additional extensive air monitoring and soil sampling effort would add to what we already know.") The new focus on "doing the science," as Archer puts it, also seems to have come about because of methods and knowledge U.S. EPA has acquired from its investigations into tremolite in Libby, Montana. And, John Berlin says, "The poli-

tics has matured over the years." The public mainly wants information now, he says, echoing the testimony of everyone who attended a recent informational meeting about the high school site. People are asking the same questions that the scientists are asking: How much exposure is there? What does level of exposure mean in terms of health effects? How widespread is the problem?

Stern says he is pleased that a thoughtful, systematic investigation of the problem is under way. "If it wasn't occurring," he says, "I would have to be a lone voice in the wilderness saying, 'This is wrong.' And it would be politically uncomfortable for me." He draws an analogy to a patient who comes to the doctor with chest pain. Most chest pain is attributable to minor problems like indigestion. Statistically, that is, the risk is low. Nevertheless, the doctor puts the patient in the hospital and runs tests to rule out serious conditions like heart attack and angina. "Since it might be a problem," Stern says, "we have to assume the possibility until proven otherwise.... If it is proven otherwise, and it's presented right, the person says, 'Thank you very much for putting me in the hospital and running up a \$5,000 bill. It shows me that you care, and that you were not taking any chances with something serious.'"

Difficult decisions still lie ahead. Once exposure level data are available, scientists will have to find a way to assess what those data mean in terms of risk, and the community will have to decide what level of risk it can tolerate. U.S. EPA's current 1 percent in soil action level is designed to prevent risk, according to Butterfield. In other words, it incorporates a margin of safety. But mitigation is expensive. "How much do you want to pay to mitigate how much risk?" industrial hygienist Scott Burnet asks.

Thus, science and policy are deeply entwined. The inclusion of a margin of safety in a public health standard certainly is scientifically justifiable, but the size of the margin of safety is a social value, pitting degree of risk imposed on the general public against degree of hardship imposed on commercial interests (Tesh, 2000). That is one of the things that makes environmental health such a difficult profession.

Epilogue and Conclusion

Greg Smith's position as environmental health manager comprised educational, regulatory, personnel, and public relations responsibilities. And of course, he had duties with respect to a slew of issues other than asbestos—food safety, for instance. With that level of complexity involved, he says, "It doesn't take too much for someone to say, 'You're going too fast, you're going too slow.'" No longer a public servant, he now consults, designs septic systems, does water analysis for private parties, and enjoys his freedom from the political pressures involved in "serving at the pleasure of the board." For Smith, the moral of the story may be that public service is simply too political.

Politically effective environmental health practitioners tend to have a talent that distinguishes them from perhaps 99 percent of people on the street.

For environmental health professionals still working in the public sphere, however, the story of naturally occurring asbestos in Bellevue County may re-emphasize a slightly different series of lessons:

- Because many environmental health issues have a regulatory aspect, the practice of this profession often takes place at the intersection of politics and science.
- A political explosion can be just one newspaper article away.
- Environmental health professionals, especially those in management positions, therefore need to be good politicians as well as good scientists.

What does it mean to be a good politician? The job description is complex, but *JEH* would like to emphasize a couple of points that arise out of this story in particular.

First, although environmental health professionals often think of themselves as sticking to "the science," science doesn't always provide an objective foundation for decision making. And second, when the science is uncertain or still evolving, interpreting it often becomes a function of one's worldview. As discussed above, worldviews that bias stakeholders in one direction or another are not the same thing as conscious ulterior motives. The good news is that bias is not necessarily malicious. The bad news is that bias often is unconscious.

An environmental health practitioner is likely to (and has a right to) have a worldview like any other individual. But politically effective environmental health practitioners also tend to have a talent that distinguishes them from perhaps 99 percent of people on the street: the ability to perceive their own biases and to set those biases temporarily aside so as to hear the voices of all stakeholders without distortion.

It's a lot to ask—certainly more than one expects of other parties to such debates, including commercial interests, activists, and even elected officials. But the higher standard reflects a difference in purpose: the goal of other parties often is just to "win," while the goal of environmental health practitioners is to serve the interests of public health and well-being. 🐉

Next time: a story of politics in the regulation of onsite wastewater systems.

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