

US EPA ARCHIVE DOCUMENT

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EPA Interviewer: Good morning. We're interviewing Dr. Barry Johnson, who is an adjunct professor at Emory University. We're here to discuss Dr. Johnson's participation in the Superfund program, and this is part of the Superfund 25th anniversary history project. Dr. Johnson, good morning.

Johnson: Good morning to you.

EPA Interviewer: Let's start with talking a little bit about your affiliation with the Superfund program and how you got started with the program.

Johnson: My affiliation was with the Agency for Toxic Substances and Disease Registry [ATSDR]. That's an agency of the U.S. Public Health Service. It was created by the Superfund law in 1980. I served from 1986 through 1998 as the agency's Assistant Administrator and in effect was the agency's Director during that period of time, so my involvement with Superfund is from the standpoint of ATSDR and from the public health issues that are contained in the 1980 statute and then the 1986 amendments to Superfund.

EPA Interviewer: I understand that you're known as being the architect of ATSDR and its role in CDC [Centers for Disease Control and Prevention]. That role started out as being fairly small in 1980 and you had a big hand in helping change its scope and role. Could you talk a little bit about the process of doing that and what eventually happened in the 1986 amendments?

Johnson: The 1986 amendments to Superfund really increased the responsibilities in the area of public health, and the Congress was hearing from communities and from grassroots groups that the public health implications of uncontrolled hazardous wastes were quite profound. Citizens were concerned about cancer rates that were allegedly increasing in populations who lived around hazardous waste sites. So, in 1986, these public health responsibilities directed at ATSDR were really increased, both in number as well as in consequence.

To give you a little bit of history—and it's not an altogether positive history—ATSDR, as I have just said, was created by the original Superfund statute in 1980. And with the incoming Reagan Administration, which was opposed to growth in government, one of the first things that they faced was what to do about Superfund in general, which they disagreed with, and to structure a new agency was something that was not part of the Reagan agenda. So they basically just sat on structuring the agency until 1982 to 1983, when a lawsuit was taken to federal court, and the Department of Health and Human Services was sued for failure to organize and structure and provide resources to ATSDR as the law required, and so

the litigants were an interesting group. It was the Environmental Defense Fund, which is one of the great and very active environmental organizations, and they were joined in this suit by the American Petroleum Institute and what was then called the Chemical Manufacturers Association. So you had some interesting bedfellows, so to speak. The outcome of that was a decision from a federal judge that ordered ATSDR to be structured per the law and mandated it be given the resources to start up. With that history again—still during the first term of the Reagan folks—OMB [Office of Management and Budget] determined that the best location to place ATSDR was in Atlanta and to yoke it administratively with CDC.

One of the great misunderstandings with regard to ATSDR is that it's part of CDC. That is factually incorrect. It is a separate agency. But given various political concerns about ATSDR's implications for Superfund, it was decided to keep it small and to yoke it to the Centers for Disease Control here in Atlanta. And so there was a person who had dual titles and dual responsibilities. One person was the Director of CDC, and then that very same person also bore the title and responsibility of Administrator of ATSDR. And that is still the arrangement today here in the year 2005, although the administrative closeness between CDC and ATSDR has become much, much tighter than in 1986.

So one of the first challenges that faced us in 1986 was to put the agency together. What does the law require? And it was no great mystery as to what the law required. It was written by people who really knew what public health was about. And I don't think that the architects of that language were persons within the Congress or even their staffs. I think it came from the Environmental Defense Fund and other groups who knew what public health is supposed to be.

So, as an aside, I teach public health policy here at Emory University, and I know and have read all of the major federal environmental statutes, and I can say, based on my opinion, that Superfund has the most substantive and the best thought through public health content of any of the federal environmental statutes. It is very specific as to the public health approaches to be taken, and these approaches include surveillance, community investigations, what are called public health assessments, applied research, education responsibilities for physicians and citizens in general, and it's a pretty darn impressive piece of public health right imbedded in the middle of Superfund.

EPA Interviewer: Can you talk a little bit about the process? If the President and the White House didn't want to see a new, independent agency established and yet, we get this, what you've termed as a marvelous public health statutory framework in the law, talk a little bit about how that happened and what the dealings were with Capitol Hill.

Johnson: Well, there were very difficult dealings everywhere, and it wasn't just with Capitol Hill. Superfund and the public health part had some supporters. And so some of the original people involved in Superfund—I wrote down some notes last evening—was Senator Stafford, one of the architects of Superfund. He and his staff were very supportive of the public health component of Superfund. Unfortunately, almost before the ink was dry on the bill, he had decided to leave the Senate, and so you had to look around to find people then, and even today in the Congress, who understood the role of public health in Superfund, and were willing to help sustain the responsibilities and the resources to support the public health component.

I'm talking about ATSDR, but I also should be saying within the context of public health, certainly, EPA has a very key piece of that, and what EPA does in terms of site characterization, site remediation, is very much in the spirit of what's called primary prevention, and that is in the public health context; you eliminate the hazard. And so EPA has a very key piece of that public health agenda. So does the National Institute of Environmental Health Sciences [NIEHS] through their worker training program—training of people who clean up hazardous waste sites—and their basic research grants program, which has really added to our body of knowledge of the association between hazardous substances and human health and ecological impacts. So all of this constitutes a very substantive piece of public health. In the 1986 era, with the White House not having much support for Superfund in general, it was a very challenging proposition to be able to outreach to supporters in Congress. In the early days, again going back to 1986, the relationship between ATSDR and EPA was awkward, and I'm trying to put this very diplomatically, and it was awkward...

EPA Interviewer: I had written in my notes that the early days were rocky.

Johnson: [*Laughing*] The early days, indeed, were rocky, and we...

EPA Interviewer: Is there anything—a particular story that comes to mind that would tell people just how rocky it was? I mean, I was up in Boston EPA, so I had an idea, but maybe you have a story you could share with us.

Johnson: Well, I think the EPA in the early days—again I'm talking about the period of 1986 and 1987—EPA was concerned that somehow ATSDR was going to be casting and making judgments about sites—their cleanup—and in effect being possibly an impediment to what the EPA understood quite correctly to be their responsibilities. That was never our intent, but there was this misunderstanding about, "What is this agency, ATSDR, supposed to be doing? And aren't we here, at EPA, the lead on all Superfund things, and who is this independent group out of the Department of Health and Human Services?"

So I would go to some early 1987 meetings with EPA and some held in front of the public, and there would be this debate on the stage about what is ATSDR and how are you going to possibly interfere with the cleanup process. And these were statements put very clearly on the table and sometimes in front of the public, and so you'd have to try to respond, "Look, we are independent. That's how Congress meant it. We will certainly want to work closely together, but EPA, you're not going to tell us what to do, and we are not going to tell you what to do. We're going to work as partners." And so Walt Kovalick was, I think, assigned by the EPA Superfund office to kind of try to figure out what it was that ATSDR was going to do or not do. And so we had lots of contacts with him.

One of the early interesting debates was over what's called "toxicological profiles." And EPA saw these as being duplicative and unnecessary. And so I've got the legal responsibility under the law to produce toxicological profiles, which are statements of the known science about the substances found at National Priorities List [NPL] sites. I had that legal responsibility as written in the law. And so I would go up to the Capitol Hill and meet with a staffer and the staffer would say, "Oh, by the way, EPA came by this morning, and they said

these profiles were wasteful, and moreover they infringe upon EPA responsibilities. Why don't you drop them?"

And I would say, "How do I drop them if they're written in the law? Moreover, they shouldn't be dropped." And so we would have these kinds of debates. And it came down to a meeting on a pleasant afternoon at the old EPA Headquarters building—at a meeting between me and the Assistant Administrator for Toxic Substances, and I knew this was going to happen. I blocked his name [Jack Moore] but, and I'd known him from his previous work at NIEHS, and we were pretty good colleagues, and I said, "We aren't going to drop the profiles. We can't. We'd be in violation of law," and I said, "How can we work through this?"

And he said, "Well, just don't try to duplicate what EPA is already doing."

And I said, "That is certainly not our intent." But we had this sort of cutting of the cake, and we divided up the cake in terms of what ATSDR's profiles should look like and how we saw them being organized, the principal audiences, including physicians, for these documents. And that meeting really resolved the issue of: (a) "Are we going to do the profiles?"—the answer being, "Yes," and (b) "What are they going to look like?" and (c) "To what extent will they infringe upon EPA's own document development processes?" And over the years, things worked out really rather harmoniously, I believe.

EPA Interviewer: Talk a little bit, as long as we are on the issue of tox profiles. Tell us a little bit about how these have contributed to the general understanding of chemicals and exposure and disease and all of that

Johnson: Well, the tox profiles were developed with the thought of, "Who's going to use them?" And one of the big debates here in Atlanta—and it's not always been a totally cooperative relationship between ATSDR and CDC, particularly the environmental health part of CDC—and to some extent, that represented a clash of cultures, and the CDC was uncomfortable with the profiles, certainly in the beginning. I was under pressure at the level of some of the environmental health leadership here at CDC to make the tox profiles into a two-page statement written by graduate students at the cost of \$500 per profile. If you read what the law requires in a tox profile, it was just a ridiculous stance that I was now being confronted with, and I had been recruited for the position of ATSDR Director by my Administrator, who also, of course, served as a CDC Director, Dr. James O. Mason. Dr. Mason resolved it by saying, "We will follow the law. We will always follow the law." And that resolved that issue and many others.

EPA Interviewer: With the two-page image, tell us what the average tox profile—how big it is.

Johnson: Well, it depends of course on the substance, and you have substances like PCBs [polychlorinated biphenyls] where the profiles should be best characterized and measured by the pound, and they are very large documents, because there's a lot that's been published about PCBs. The profiles we determined should be something—again, this is circa 1986—we determined that the profiles would be something akin to the documents being produced by the World Health Organization, and those documents contained information about the chemical structure of a substance, why it was used. We add to that: why it was found in hazardous waste sites, what's the toxicological information that has been published in the

peer-reviewed literature, what's the human health information that's in the peer-reviewed literature, what kind of exposure information do we have, [and] how do we measure exposure to a particular toxicant? And so this is kind of the main core of information that is contained in a toxicological profile. And they are documents that have been extraordinarily useful from what we know, certainly by the risk assessment community. And the largest subscriber to the tox profiles are EPA staff, and those are the dear people who have to deal with the day-to-day issues and make difficult and critical decisions on cleanup levels and so forth, and they need up-to-date, thoughtful, peer-reviewed science to apply to their tasks, and that's what the profiles have done. We deliberately put up front in the profiles what we call a public health statement, and that was meant to be something that a community group could turn to at the very beginning of some of these frankly massive documents and find out, "Well, what does this substance do to my health?" And in roughly 1992, we began adding sections on children's health in each of these profiles. They've turned out to be an enormously helpful resource to many kinds of persons—risk assessors, researchers, academics, and so forth—all because of Superfund. Without Superfund saying these profiles should be developed, they wouldn't exist.

EPA Interviewer: That's kind of a statement on Superfund and what a ground-breaking law it was when it was passed in the 1986 amendments. One of the other responsibilities of ATSDR that you mentioned was health assessments.

Johnson: Yes.

EPA Interviewer: And the requirement to do health assessments. Talk a little bit about how these health assessments differed from EPA's risk assessments. I think that was one of the points that you mentioned was a bit of a rough spot to get over.

Johnson: It was a very difficult communication. EPA had its own documents called "Health Assessments." And yet the law, Superfund, specifically mandated health assessments to be done by ATSDR of every site placed on the National Priorities List. And we also had responsibilities under the Resource Conservation and Recovery Act to do "health assessments" when requested to by states or by the U.S. EPA. So there was this background on health assessments. When you read very carefully the language in Superfund, it didn't really say clearly what a health assessment was supposed to be. And in addition, we've got EPA saying, "Well, we do health assessments, too." And that became a point of confusion when you went into a community meeting, and so forth, so we—soon after 1986—decided to start calling them "public health assessments" as opposed to simply "health assessments."

A public health assessment was the agency's attempt to go into a community and look at the health of the community as it might have been impacted or not by releases from a Superfund site, and so public health assessment began by looking at exposure scenarios. We made contact with the state and local health departments. Are there any unusual patterns of disease reported here? We would work with community groups to try to hear from them in terms of specific health problems. Is there a cancer concern that the community might have? And these were qualitative in the public health tradition of trying to diagnose the health of a community as it might have been impacted by a hazardous waste site. Now we also felt—and this is again a point of contention with EPA—we felt our authorities as a public health agency included other possible environmental hazards that might have impacted the health of the

community that was attributing that to a Superfund site. So if we went into a community and the problem was not the Superfund site, but some source of pollution down the street, maybe a large chemical company, then we would investigate that as a health impact. People were still alleging health problems, but not, we felt, linked to the Superfund site. Well, EPA, particularly EPA regions, had great difficulty understanding that, and I would go into meetings with the Superfund Directors Win Porter, Elliot Laws, and say, “Fellows, I know you’re not happy with this. What are we supposed to do as a public health agency?”

And they would say, “Well, you can do whatever you want to do. We just aren’t going to fund it.”

And I would say, “Well, first of all, you’re not funding it. The Congress is funding it. You’re the pass through.” And that didn’t engender any great positive response either, but we eventually worked through all of that. And, indeed, ATSDR became and still is an agency that has sufficiently broad authority—if it is a matter of hazardous substances—to go more broadly than Superfund. And so that was one of the rocky paths that we had to trod, EPA and we together.

EPA Interviewer: As I recall, one of the helpful things that ATSDR did was an annual report that kind of rolled up all of these health assessments and began to make some observations on a broader basis of what was going on with public health as it might relate to hazardous substances. Can you talk a little bit about those annual reports?

Johnson: Well, the annual reports were required under the Superfund statute, and they turned out, as you suggested, to be really important documents for being able to begin synthesizing the public health impact of hazardous wastes and in, more specifically, Superfund sites in particular. And after doing this for three or four years I thought, and some of the agency’s staff felt, that we were beginning to see a pattern of emerging health problems associated with hazardous waste sites and the problem being impact on reproductive health. Now the Superfund was passed on the basis of health concerns from the good people of Love Canal and other communities, and often that agenda of concern was focused mainly on cancer. And, in fact, that’s where the whole field of toxicology was in the mid-1980s. Much of it was directed toward carcinogenesis, what causes cancer, etc. And so with these annual reports, we began seeing things, studies, published studies, of reports from communities about adverse reproductive outcomes, things such as stillbirths, birth defects, lower birth weights, and so forth. And that was the story that we took to the Congress for the first time. And in the early 1990s, and with the first Bush Administration, George H. W. Bush, there was an attempt to say to the Congress, “There are no health problems around these sites.” And these were assertions made by trade associations and others. I don’t criticize them for saying what they thought was the case, but they were wrong, and so we had this emerging body of information, again, principally reproductive health problems, that we took to the Congress in Congressional testimony. And after two or three rounds of testimony, particularly in the House, before Congressman Sherwood Boehlert’s committee, the assertions that there are no health problems went away, and it had to go away because it was untrue, and it was untrue based upon published science at ATSDR, NIEHS, EPA, and, in particular, state health departments.

Now one of the things ATSDR did and many things of which I'm personally very proud, we helped build a toxics program within state health departments. And we did it through awarding grants. And so we built, I think it was in 33 or 35 state health departments, the capacity for them to go out and investigate some of these problems of hazardous substances. Again, hazardous waste sites being certainly a primary concern, so they began doing these investigations. The State of Massachusetts and the State of New Jersey did wonderful investigations of populations of people around waste sites, and they came back with a very clear message: "We've got some problems here—again, in terms of reproductive health. So we conveyed all of this for the first time to the Congress through hearings, and I think that really put to rest this old question about are there health effects, and the answer is: "Yes, depends upon the kind of site, depends upon other conditions, but there is a consequential important public health role that is being played through the Superfund program."

EPA Interviewer: You talked about the educational role and the role with physicians and the medical community. Tell us a little bit more about how that played out during this time when the whole sense of environmental health was still in an emerging kind of awareness.

Johnson: Well, I think many of us would say that it is still an emerging awareness within the medical community, but thanks to EPA and the Public Health Service, ATSDR, CDC, NIEHS, and others, I think physicians are certainly more aware. And part of that has come about from access of citizens, individuals, Web-based resources like ATSDR's and EPA's. And so citizens who think there might be an environmental problem that's affecting their health or their children's health can now go into a medical setting and speak very knowledgeably. And so the physicians have learned that they had better be on the same plane, at least knowing something about environmental hazards. Well, the Superfund law, as amended in '86, stated that ATSDR should do physician education, and so we designed what are called case studies in environmental medicine, and they describe a number of things, the impacts, of say lead on children. Lead is found in many of the Superfund sites, and the whole area of children's health and toxics was something that we felt physicians should know about, so we developed these case studies in environmental health, and we were able to get them linked to continuing education credits through another part of the Public Health Service, called the Health Resources and Services Administration, HRSA. We were able to link these case studies to continuing education credits that physicians have to acquire. They became best sellers, and so we were able, again working with EPA on the development of these case studies, to provide a resource that physicians really liked, and so they used them. And I think that increased the awareness of environmental hazards in the medical and health communities.

EPA Interviewer: I believe that I read somewhere that ATSDR was also given an authority to do actual medical care and medical testing. Was that ever invoked? Was that ever used?

Johnson: Oh yes. It was an authority we took very seriously. One of the great—and I have very few—one of the greatest disappointments I had during my tenure with ATSDR was toward the end of my career in the Public Health Service, we were unable to get a medical surveillance program in place, and I'll come back to that point in a minute or two. But ATSDR on many occasions went into communities, and where we felt there was a sufficient basis for medical examinations, we would provide them, and we would try to work through local health

care providers. And we did that quite a few times. When I say a sufficient basis, there needed to be some evidence of exposure. People can feel that they have some kind of health problem and it may or may not be attributable to a particular environmental hazard, but clearly there has to be some exposure to that hazard, if there's going to be an impact. And so we would go into some communities and could find zero evidence of any kind of release of substances, any kind of exposure pathway that may have occurred that communities could have been exposed through, and so in those instances, we felt we were loath to in effect, say, "All right. Go line up at the doctor's office, and we'll give you comprehensive medical evaluations." So we did some of that where we felt it was merited. There was an incident in the mid-1990s where for whatever reason a pesticide that was approved for outdoor use only began being used indoors, and I forget the name of the pesticide...

EPA Interviewer: It begins with an "m." It was used down in the south to stop bugs; termites, I believe.

Johnson: But it began in Ohio. You're absolutely right, and I wish I remembered the name of the pesticide, but I don't. It began in Ohio.

EPA Interviewer: Malathion?

Johnson: Malathion. Thank you. It began in Ohio where a pesticide applicator went south and bought large amounts of this pesticide and used it in some public housing, I think, up in central Ohio, and lo and behold, this material was extraordinarily effective against different kinds of roaches and other kinds of pests indoors. Extraordinarily effective, which was one of the reasons why it had to be used outdoors, it was so powerful. So people were happy as could be for a while until they began reporting sick, and it was sick from this exposure to Malathion. And so the State of Ohio, the U.S. EPA Region 5, ATSDR, and the Centers for Disease Control all came together and identified the hazard. We did medical examinations. We did blood work and other things to characterize the extent of exposure. We did a number of things with children in particular, providing them medical examinations, and then the problem moved south, and for whatever reason...

EPA Interviewer: He couldn't sell it. He could no longer use it in Ohio. *[Laughing]*

Johnson: I guess he drove south or something, but the same kind of thing began happening in southern Mississippi, and also around Memphis, Tennessee. And so there was a period of one year when these four agencies were really immersed in trying to assess the health impacts and the remediation of these homes—done very, very well by EPA—and it was a public health mess for about a year. And that's another example where we did get the medical community involved, in particular, pediatricians, and so working through state health departments where we had built this prior link of cooperation and provided them with resources, the state health departments, particularly in Ohio, were really—and Tennessee—were wonderfully well prepared to work with communities. Health effects of pesticides, Malathion, in particular, so we had this structure that we had put together of federal/state health departments—and it worked.

EPA Interviewer: We've talked a lot about some of the obstacles and frustrations and a lot of the constructive productive areas of ATSDR and EPA that you have worked with. Is there anything else you'd like to talk about today?

Johnson: Well, I hinted at one of my disappointments and that was in regard to what in the statute, that is to say, Superfund, calls "medical surveillance," and there's very clear authority in there for ATSDR to implement a health surveillance program where it is merited. We thought that such a program was clearly merited for releases from the old Hanford nuclear facility. The releases were of iodine 131 back in, I think, the 1950s, and iodine was released from that facility for a number of purposes. It was one of the weapons facilities, and it got caught up in the winds, and so you had radioactive iodine being cast about by the wind, and it would settle on grasslands. And you would have dairy cattle eat the grass, and you would pass along the iodine 131 in the milk from those dairy cattle or beef cattle, and there would be human consumption, particularly by way of drinking milk. So there's a clear pathway of human exposure. The amounts that were estimated raised in ATSDR's mind a concern that some kind of—almost 50 years later—some kind of medical surveillance program to tell people that there was a hazard, albeit small, but there was a hazard of thyroid disease that might be associated with their earlier exposure to iodine 131. And so what we wanted to do was put in effect a public information program telling people, and there was one group called "the Downwinders," a community group—grassroots group—very concerned about the health issues pertaining to the Hanford facility. We wanted to put in place a medical surveillance program, where people could come in and actually have thyroid function measured and routine examinations for any sign of thyroid pathology, expecting that people would have some interest in their personal health and would take advantage of this program. Well, we tried, and the Department of Energy [DOE], which was responsible, and still is, for Hanford, was to fund this, and it was a very, very difficult proposition. We got the issue up to Capitol Hill, and amongst other things, the cost of this was alleged to be too great. It was roughly a \$1 million program to operate annually, with a \$3 million start up, so you're looking at \$1 million or less out of a multibillion dollar agency, DOE, in the interests of the people's health, and we just found it very, very [difficult]—and the program never came into existence—to get a closure on it. But it was a major, major disappointment, because a substantial number of Americans had been exposed to this radioactive substance. We know the linkage between exposure to iodine 131 and thyroid disease, including thyroid cancer, and yet we couldn't get one of our own government agencies to recognize what we felt was a significant public health concern, so it did not go anywhere, and that was a great disappointment to me. Still is.

EPA Interviewer: It raises in my mind one of the unique aspects of Superfund, or at least to me it's a unique aspect of Superfund, and that's how local communities get involved. Where you have grassroots groups and how knowledgeable they become, and you've mentioned that a couple of times about how knowledgeable they've become. Talk a little bit about how ATSDR interacted with the citizenry and how they responded.

Johnson: Well, we interacted in myriad ways. I just made a few comments about major disappointment. One of the great satisfactions that I had personally was working with communities, and it was not always a positive-outcome relationship, but there was a genuine attempt to get communities and community representatives actively involved in what we would do in communities. That is to say, if a public health assessment was to be undertaken at a particular site, we would invite the community groups to participate. "Are we going out,

community group, and looking at the wrong health input? We think we are hearing you say you are concerned about cancer. Is that really what we are supposed to hear?" So there would be a real attempt to dialogue with the communities.

Now sometimes a community for whatever reason would say, "Well, you're part of the federal structure. You really don't want to help us. We hear from other groups, grassroots groups, that you mislead us," and so forth. And sometimes you would have to go in to work to improve communications. But over all, getting citizens and getting community groups involved in decisions and actions and follow-ups that affected them was something we felt very passionate about. And so we put together within ATSDR a community involvement branch. We put together and strengthened our regional operations. We had ATSDR staff in each of the 10 EPA regions working very closely with EPA Superfund staff, so it was a genuine attempt, not just to contact but to actively engage communities in the public health efforts in communities. And sometimes those efforts in communications were not totally successful, and some of the most difficult communities to work with were those that presented a health problem as their concern, and when you started peeling back the layers of their concern, it would turn out to be something quite different, not a Superfund problem. And very often what would come out would be the real concern was lack of access to health care, and as you know, many communities around Superfund sites are impoverished, and having access to local health care was a real and remains a significant issue for them.

[Recording paused]

Johnson: As I was saying, for some communities, the real issue was not exposure to contaminants released from Superfund sites. The real issue was, "We want access to health care. We are poor; we are impoverished, for whatever reason, we've been dealt with by levels of government unfairly. We don't have health care." And so we would try to work within the health care system to improve—but not often were we successful, because that involves going in and trying to establish health clinics, and the agenda becomes one that's very, very different. And there were a few sites where we actually were able to put in place some health care that was more accessible by communities, and this was probably a half-dozen communities, at most. And so you had to work through what the real concerns were. And that again involved getting the community involved, and that's something that I personally really encouraged within the ATSDR. I really pressed hard on that, and I'm very pleased with how the agency responded.

Again, I'm sure there are communities that feel that we miserably failed them, and maybe we did, but it was not without our attempt. We even added community representatives to our board of scientific counselors, a group of prestigious scientists independent of government. And they would come once or twice a year and advise us on how well we were doing in terms of our science, our science policies. And we heard from communities that they wanted to hear more about that, so we brought them into the process of being part of that whole scientific counselor review process, and I think that was very positive. People began getting a better idea as to what science needed to be done to answer some of their real concerns. That's, I think, one of the major differences between us and maybe some other public health groups. That we really did understand that we were going to be doing things impacting the health and well-being of people in communities, and they ought to be at the table when decisions are going to be made that might impact them, and

they ought to be there to help shape those decisions and be involved in the decisions, recognizing that the bottom line is what the law permits and who has to fulfill certain responsibilities. But those were sometimes very difficult meetings, but always, I think, positive intent.

EPA Interviewer: You've been away from ATSDR, from the government, for a little while now, and I wonder if you have any reflections on what could have been done differently, what challenges remain. Let's start with what could have been done differently.

Johnson: Oh what an interesting question. I think the basic structure of ATSDR, which was organized around our primary responsibilities written into Superfund, that the organization of the agency went pretty well, and I'm rather satisfied with how that turned out. I think working with state health departments more broadly in terms of their toxics agenda was something that we fell a bit short on. Again, 33 to 35 state health departments, but sometimes that might come down to one person or two persons. I think some extra effort there is something that we could have undertaken. I think we had some challenges in getting enough resources to do some of the applied research, that is to say, of some of the epidemiological studies of community populations exposed to hazardous substances. But again, particularly from around Superfund sites, we would have liked to have done more there than what we had the resources to do.

I think building up a stronger political base was something I would liked to have achieved, but I have to say, those were very, very difficult times. You have a Republican President and a Democratic Congress, and then when we had a Democrat[ic] President, we had a Republican Congress, and you had all these challenges. And you knew that you were under constant oversight and observation by community groups, grass roots organizations expecting a level of performance that sometimes exceeded the possibilities of investigation, particularly, epidemiological investigation, and I think I would have liked to have strengthened the surveillance program.

And one of the things we did, bearing in mind that this is the Agency for Toxic Substances and Disease Registry. Well, where is the disease registry? And at the 11th hour in 1980 when the statute was passed, ATSDR was created, I think, as people were walking out of the door having come to some agreement. Yes, there will be something called "Superfund." Of course, that name came later, and so they created this public health organization, and there was this belief that people around hazardous waste sites were uniformly at risk of serious and grievous illnesses, so we'll separate, register them and we will know who they are, and we will be able to go back and give all kinds of medical treatment, because the principal primary responsible parties should be paying for all of this. Again, this is the stuff of 1980. So we'll add this disease registry to this group's name. Well, as EPA later identified it, something like one out of four Americans lives within a mile or couple of miles of an NPL site. So you can do the arithmetic there. One out of four of now 300 million people all in a disease registry? Then what are you going to do with it? What we did was in lieu of that.

We, at some NPL sites, had sufficient information that exposures had occurred for a particular contaminant, let's say trichloroethylene, TCE, that we put together an exposure registry, not a disease registry, and the differences there are more than simply semantic. We went into some communities that had common exposures from Superfund sites to

trichloroethylene, and we simply registered them into a health base. We would go back periodically and look to see if any kind of abnormal health problems had surfaced. And we committed to doing this over a long period of time. And some interesting things came out of that in terms of what appeared to be elevated rates of things such as diabetes, birth defects, etc.. I would have liked to have done far more surveillance. We did not have the money, and it was an idea difficult to sell within CDC, within EPA, and within the National Academy of Sciences. Yet we did it on a limited basis, and it turned out to be rather helpful in a public health context.

Those are some of the things I would have liked to have done differently, but I have to say not too many things, and that may be a statement of stupidity on my part. But given the mandate that we had and the really challenging political problems that we faced, the agency did, I think very, very well, and I'd give that agency the credit for putting a public health foundation to the Superfund statute. And it's a foundation, in my opinion, that's exceeded only one other major environmental problem, and that's air pollution, and we've got a really strong database now on what air pollution does to the health of people, and it's a database that's emerged principally over the past 20 years and really has emerged over the past 10 years. You start looking at the Clean Water Act and start looking at some of the other environmental statutes. You don't have as much public health data and information as you do now for Superfund, and that's something, I think, that ATSDR and EPA should be very cognizant of and, in my case, proud of.

EPA Interviewer: What do you see as the most formidable challenges facing ATSDR in the coming years?

Johnson: Existence. The relationship with CDC is one that continues to transition. The decision was made early on that ATSDR, although one of the seven agencies of the Department of Health and Human Services, in fact would not be structured or supported as a true independent agency. Who made that decision? Why it was made, etc? I don't know, but I know from the time I came in to ATSDR in 1986 the desire was to integrate the environmental health programs within the CDC structure, and so ATSDR would be merged into other environmental programs, and as you mentioned earlier about the attempt, I think it was in the early 1990s, to reauthorize Superfund.

There was very, very significant time and resources given to just phasing out ATSDR and making it part of CDC, and I felt that was certainly against what the law intended. I can understand some of the purposes of CDC and perhaps others, but the law is clear in terms of a separate agency, and I felt that it was, frankly, beneficial to EPA to have us something sort of outside the CDC structure, and there was a difference in culture. I teach the students here and I don't think it's... I certainly do not think it's heresy; what I teach is public health. The Public Health Service has had not a particularly outstanding record in terms of environmental health, and that may sound very negative, but the public's health has so many dimensions to it, and there are so many priorities that the public health community has to face. We're talking now about bird or avian flu. We're concerned about bioterrorism. We have the ongoing problem with recurring diseases. Tuberculosis has come back as germs become more resistant to antibiotics, so the public health agenda is always packed. And so the environmental health part of that agenda spends an awful lot of time trying to get attention, because the leadership of the health agencies [is] largely a medical leadership, and it's one

that has been up through medical training, medical education, not paying a whole lot of attention to environmental hazards, so to a large extent the environmental agenda has been defaulted to the U.S. EPA.

Having ATSDR away from some of that public health structure, I frankly thought was in the best interests of EPA, of communities, and of others. We deliberately try to be a little different. I see now the agency being pulled more and more into the CDC structure. Given the times, that may be appropriate. I'm not going to guess or second guess other persons' decisions, but there ought to be... I've written editorials in a journal that I edit. I've argued that ATSDR and its resources in fact ought to be pushed back into EPA, because that's where all of this began. I know that, because I was there. I'm an old person. I was there. [Laughing] At the time EPA was created, a significant part of the public health experience left: medical doctors, epidemiologists, the surveillance folks, a significant part of the public health community leaders left the EPA early on, and so EPA went years—this is not meant to be a criticism—without having the requisite public health experience. So that's a problem.

EPA Interviewer: And a very valuable observation, I think, for people who will be listening to this in the future. We are at the end of my list of items to cover. Is there anything else that you would like to bring up that you think people ought to be aware of, or that you'd like to say in closing?

Johnson: Yes, a very thoughtful question. I'm not sure I have an equally thoughtful response. I think we in this country are so fortunate that we've had the resources to try to improve our environmental protections. I wish we were more into the mode of sustainable development than what we, as a nation, are. I think a number of these health issues pertaining to specific kinds of environmental hazards would be less of a problem under a paradigm of sustainable development. I don't see that emerging just yet in this country. I think in lieu of something like that—a kind of major policy shift—I think it's really important that environmental hazards are recognized as having the potential for adversely affecting the health of people in this country, and it's therefore important to have a strong public health whether it is through EPA's good work or it is through some kind of other arrangement. We really need to have the health people involved when some of these decisions are made in terms of prioritizing our environmental hazards, providing remediation and prevention, outreach. The whole area of environmental remediation is one that I think Superfund has really advanced and one of the great outcomes from Superfund. I think having the human health picture part of the larger picture of ecological damage and protection against environmental hazards really needs to be at the table, as I've said over the years.

We need to also guard against weakening what are really strong and purposeful environmental statutes and protections. I worry a lot about how some of these changes in regulatory stances may weaken our protections against human outcomes. I think we—as an example, on global warming—I think we've been absolutely blind to what we ought to be doing in terms of national policies, and so the battle goes on for keeping ourselves in a situation as where our environment does not come back to, literally, kill us.

EPA Interviewer: Well, thank you for your observations, and thank you for your contributions over the years. I've appreciated having this chance to sit with you.

Johnson: Thank you.