Bill Pease / An original developer of Scorecard.org / 2001

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Abstract

Bill Pease, while working for Environmental Defense Fund (EDF), was a lead developer of Scorecard.org. Scorecard.org is a website for the public disclosure and local mapping of data from sources such as the U.S. Toxic Release Inventory (TRI), Superfund sites, Clean Water Act, etc. This interview is a biographical discussion with Pease about the extent of his involvement in the development of Scorecard.org and the future of environmental disclosure systems.

Keywords: GIS, environmental information, Scorecard

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Interviewee biography: An original developer of Scorecard.org, currently works on internet activism and tools for non-profits.

Interviewee institutional affiliation: GetActive.com, Environmental Defense Fund

INTERVIEW BODY:

ERICH SCHIENKE: What I want to do is talk a little bit about your background and find out a bit about that, and then how you came to Scorecard– in terms of the TRI (Toxic Release Inventory). How you have considered the user in this process, and how that notion has changed over time. To start, could you let me know what your background is professionally and in education?

BILL PEASE: Sure. I have a pretty hybrid background. I'm reasonably well-educated. I went to Yale. I got a degree in English literature. I went to Oxford on a Rhodes scholarship. And then basically got politicized while living in Europe, and instead of pursuing a career in academics and in academic humanities in particular, I came back to the United States and I started working for a grass-roots political organization called ACORN – the Association of Community Organizations for

Reform Now – and I did what's called Campaign Leadership Development for them. They're a low-income organizing effort that tries to develop leaders in poor communities and basically organize those communities around issues that range from traffic signs to local political participation to environmental issues – a broad range of things. Absolutely community-based. As grass-roots as you can get. I did that for seven years.

ERICH SCHIENKE: When was this?

BILL PEASE: I graduated in '75. I went to Oxford till '77, then did community organizing until '84. During the Reagan Administration, I basically burned out – you don't earn a lot of money working as a community organizer. And so I got a job through a friend of mine who was a Rhodes scholar, working for the Dukakis Administration in Massachusetts as a special assistant to the guy who was running their department of environmental management. I ended up becoming responsible for some big environmental planning projects for the state of Massachusetts which included responding to a solid waste landfill capacity crisis and developing a hazardous waste management plans for the state – things like that. I did it for about a year and I realized that not only myself, but most of the people I was working with were generally clueless about the underlying science, and so I decided I would really benefit from further education, so I applied to Berkeley, got into their energy and resource group – a smaller group – interdisciplinary environmental science. I loved it when I got back into this environment. While I was studying, I was also working for various regulatory agencies out here. I worked for a while for the San Francisco Regional Water Quality Control Board doing toxics and polluting control for San Francisco Bay. I decided that environmental toxicology and environmental health risk assessment was the thing that really interested in me. I decided to stay on for a Ph.D., switch to the school of public health, and ended up getting a doctorate in what they call environmental health sciences in 1992. While there I was working for other state regulatory agencies that were less regulatory and more into science type stuff. I worked for the Office of Environmental Health Hazard Assessment writing risk-assessment documents on specific chemicals, doing hazard identification and various types of risk assessment and technical development. This was from '88-'92. I got my degree in '92. I was hired by Berkeley to run a research program that I got funded from a private foundation that was taking a look at pesticide use in California and what the health impacts were on workers and the general public and ecosystems, and what the alternatives were for moving to less toxic forms of pest control.

ERICH SCHIENKE: Was this post-medfly in L.A.?

BILL PEASE: Yah, this was post-medfly. It's always been an issue here in California since it's such a heavily agricultural state. It represented a really interesting project for me because somebody wanted to fund it, they wanted it based in science, so they really wanted a toxicological and risk assessment expertise, but they also wanted useful output from that type of academic work for improving how the policy process worked.

ERICH SCHIENKE: So you did more science?

BILL PEASE: I did more science. They also needed somebody taking a look at–how do you improve on a set of tools that are available to policy makers. So we were doing things like using available risk assessment science to rank pesticides by their environmental toxicity so you could go do a worst-first type management approach.

ERICH SCHIENKE: A worst-case-scenario sort of situation?

PB: Well, no, if you want to reduce pesticide use, you don't go for the high-volume ones, you go for the high-toxicity ones. Low-volume, high-toxic. Basically sorting out what's the right way to prioritize what you go after with any regulatory risk management program. Also, what's the smartest set of tools to use? Up until that point basically, most pesticide regulation being done here was being done the same way it's done federally, which is put a compound into a special review process, wait a decade, and maybe you get some controls. So we were looking at options like do a risk-based environmental tax on pesticide use so you start to signal to the user community which are the least attractive pest-control options. You don't remove it from them entirely, but basically you make them pay. So I did a variety of projects like that, produced a number of research reports. It involved convening state holders groups, all the environmental groups in California, all the agricultural groups in California. It was very interesting. In the end I decided that Berkeley is not a great place to pursue a career that integrates science and policy because you don't really get rewarded really well in an academic environment for all the stuff I was doing which was mainly oriented in changing the world. [laughs] So I decided to leave. I got the folks who were funding me to continue to fund me, but allow me to take my operation to Environmental Defense. So I joined Environmental Defense in 1995 as their senior scientist in their environmental health program.

ERICH SCHIENKE: Where is EDF located?

BILL PEASE: Well they're headquartered in New York City, but they have offices in like ten places across the country, and there's an office in Oakland. I already had some previous working relationship with some of the attorneys there because earlier in my career I had spent a lot of time analyzing the impact of the statute in California called Prop. 65 which basically gives out right-to-know information to folks.

ERICH SCHIENKE: Was that right-to-sue as well?

BILL PEASE: Yah, it was basically a right-to-sue as well. It's a right-to-nail-somebody if they haven't warned you about a potentially significant hazardous exposure. So I moved into Environmental Defense and when I arrived they really didn't have much going in the environmental health arena generally, but they had good strategic evaluations about things that hadn't worked, like the slow chemical-by-chemical pace of regulation, the reliance on the government regulatory apparatus to impose any sort of control compared to what kinds of changed behavior you could get if you did things like change the underlying incentives governing information disclosure or risk assessment. Information disclosure was basically one branch of their interest- and market-based incentives. So if you could put a label on a consumer product that indicated it contained a carcinogen, that's basically a combination of information disclosure and market pressure to get reduction in use of that particular chemical. So strategically, they were very much aligned with the kind of stuff that I wanted to do. I had a lot of environmental science background which they needed, and so we got funding to start to provide services to community-based environmental organizations who were desperate for technical assistance in assessing of the different types of polluting behavior going on in an area, which were the most significant? Which were the highest risk either to the workers or the surrounding community? That introduced me to a situation where organizations like the one I used to work for would be regularly calling and essentially asking for very similar kinds of information: what chemicals are used in this area? What kinds of health effects could they cause? Which are

the worst ones if we needed to worry about thing, how should we prioritize our campaigns in trying to change?

ERICH SCHIENKE: This is throughout the country, or regionally?

BILL PEASE: Yes, this is throughout the country. And basically there are two or three people with Ph.D.'s in environmental toxicology working for the environmental community. There's just none out there. People not getting any response to their questions. They were all coming through us, and it became clear to me that there was enough commonalty in what people were interested. I was also always going to the same sources for how to answer their questions. There ought to be a smart computer-based way to make information available to communities in a more accessible and actionable format. I initially had the idea that we would build a stand-alone application – something you could download on the web and install on your own machine – and it would offer you a tool for acquiring information about toxics in your community and then tell you which things were bad and which things were the top priority.

ERICH SCHIENKE: This was before such an application was produced by, say, the EPA/TRI?

BILL PEASE: The TRI was in existence – you could use it, but right-to-know net was what people were using at that time and so you had access to raw environmental data, but you didn't have it intersected with the health effects information. You didn't have it aggregated geo-spatially at all in terms of being able to see what was going on in a community relative to others. It was very user-unfriendly because it was basically a modem-based dial-up system that you almost always had to wait for answers from and stuff like that. So it had been a good, successful example, I think, of an early application of information technology to information distribution in that it met the needs of the information seekers. So if you were a reporter, or a very skilled community-based activist, you could get into RTK Net, get information about pollution behaviour that was going on in your community, and at least have the basis for a story or a campaign that you were going to write about. But you still had a lot of work to do. You, yourself had to do all the interpretation and aggregation. Which of these chemicals cause cancer? RTK Net's not telling you that. EPA's not telling you that. Of the chemicals that are causing cancer, which are likely to result in the highest amount of human exposure and actually cause a health risk? Well that's actually another added layer of interpretation which is highly valuable, but almost impossible to attain from the raw data sources. And then what can you do about it? Well, there's no kind of cook book response available to people. So I had this idea – I gathered together a team, most of which actually still work with me – and we set about trying to find out and get advice from people about what's the smartest way to try to make this information available? We knew what kind of information we wanted to make available, but what's the smartest way to make it available widely? I knew I needed a database-backed web service. I knew that's what I needed because those are the components.

ERICH SCHIENKE: What year was this?

BILL PEASE: This is '95. So I looked at database-backed services online and actually it's still true if you do it, you will still get from Google or Yahoo a hundred pages, ninety of which will point you to a guy named Philip Greenspun, who at that time was a graduate student at the Massachusetts Institute of Technology. And he was building web-based services.

ERICH SCHIENKE: Was he the one who started ACS (Open ArsDigita Community Software)?

BILL PEASE: Yes. So he was a very early collaborative web-based service designer. I got into communication with him. He was very interested in the project and he immediately convinced me and the other technical team here that the stupidest thing to do would be to build stand-alone even web-distributable application that required a lot of overhead on the part of someone to acquire, install, operate and understand, when the alternative of simply providing the information on a browser base was so clearly much more doable. So with Philip, I basically convinced Environmental Defense and my funders to fund a joint project collaborating with Philip where we built Scorecard. We basically built it over an eight month period beginning in '96, launching it in April of '98. So we launched on Earth Day in April of '98 and basically it was a phenomenal success. It got record traffic for any non-profit .org web site.

ERICH SCHIENKE: Oh it did?!

BILL PEASE: Oh yah, it definitely did, because it was so new and so cool, just putting in your little zip code and learn something about it, and then do something, like send a fax to the polluters. There was a level of interactivity which few publishers online at that point had managed to get to – a level of personalization that few web sites had because it had the ability to localize content down to your zip code and basically deliver you a custom report on your area that was different from somebody else in a different zip code, even though it's using the same code and same database. So it was on Yahoo's cool site. It got all kinds of awards that cool sites get, and that helped it establish it as one of the main online resources for environmental activists and for people interested in environmental information generally. The response, in terms of the press coverage, the new opportunities for fund raising, the ability to integrate it in with programmed activities that Environmental Defense was pursuing in related areas was so great that it allowed us enough leeway to build the service into something much bigger. It started out as TRI only, and it has subsequently grown into the best online environmental atlas. So you can now find out about air pollution or water pollution or super-fund sites animal waste – not all problems of environmental concern, but all problems of public health concern for which there are actual available data sets. So there are still problems that aren't covered, but that tends to be because there's no data. About the only problem that we don't cover where there's probably some data available is drinking water contamination. The site has evolved into the online environmental atlas. It's now regularly ranked as the number one environmental site by most folks who construct rankings like that. If you type "local pollution" into Google or Yahoo, you will get Scorecard. There are about 25,000 different web sites out there that link to Scorecard. They tend to be media, education, government, and other non-profit org sites.

ERICH SCHIENKE: Does the EPA link to it a lot?

BILL PEASE: The EPA links to it extensively, so if you're on EPA's site looking up a factory in their environ-fact system, there will be a link to Scorecard's profile. If you're on EPA looking up a chemical, there will be a link to Scorecard's chemical profile. So it's very well integrated as an information source around the web and is basically a major asset for Environmental Defense as it establishes for them as an organization, because they like to pitch themselves as scientists, lawyers and economists doing the right thing to protect the environment, and I said this is a perfect example of a smart technical project that facilitates folks who have no previous environmental

awareness, getting basic information about their community, but it also really works very well for other main segments, many of which we hadn't really anticipated at the beginning. It works well as an organizing tool. It works really well for companies that are selling clean production processes because they can do things to manage their sales effort by saying, show me everybody who's releasing benzene into air in this country. Well I've got a device that deals with it, and go to them. So it facilitates in a way that any good information service does transactional opportunities on top of it, even if we're not specifically involved with them.

ERICH SCHIENKE: Do you think it has inspired EMPACT at all?

BILL PEASE: Well yes, although EMPACT has never really gotten anywhere in my judgment. It's kind of mired in customized information disclosure specific to the needs of a particular community. It inspired another EPA project which has also failed called the CEIS – Community Environmental Information Service, which is EPA's version of doing something similar where you used to be able to give it a zip code and it would give you back a summary of what information is available about that area from all these underlying EPA databases. It would give you a little information about drinking water quality and toxics and stuff like that. They failed to be able to operate the service and it's been offline for about eight months. I'm not quite sure why.

ERICH SCHIENKE: Is that about the time Bush came into office?

BILL PEASE: No, it has more to do with their Notes as a publication platform for managing complex data, which was a stupid choice.

ERICH SCHIENKE: Oh they used Notes?

BILL PEASE: They tried to publish the system using Notes. It was pretty much a disaster. Scorecard really doesn't have any competition on the raw data side. EPA's environ-fax system constitutes a much more extensive regulatory resource, but doesn't – and won't ever, I'm sure because of the policy involved in making risk statements – ever do a better job than Scorecard does on integrating chemical health effect and toxicity related information because they just can't get stake-holder consensus – that they should be able to say that something's a carcinogen and that its risk is 'X'.

ERICH SCHIENKE: Like the CDC hasn't really development a disease cluster in quite a few years.

BILL PEASE: Yah, although that's different because that's epedemiology. This is more stuff you could easily do if you believed in risk assessment. Science thought that there was a kind of consensus point of view. EPA doesn't have a consensus point of view about the applicability of risk assessment. On the one hand it's got this raw data reporting systems that you can gain access to that includes much more detailed information than Scorecard does, but they'll never be able to provide what people want. What people want is, "Tell me how bad it is." And this can be in one of two ways. One is interpret the specific health effects associated with this chemical exposure, or it can be, how bad is my area, relative to some other. A cruder ranking system. EPA doesn't like to rank either. So those types of very publicly-oriented uses are not something we really have to fear competition EPA in. The area in which EPA has done the most work that overlaps with what we do is if you've seen the TRI environmental indicators project, this is the project where they're

trying – and this is classic for EPA – trying to meet the same need that we meet in regards to TRI, which is tell a community whether things are getting better or worse, and don't just rely on gross pounds of toxics reported over time. They've developed a little ranking system that assigns a numerical weighting to a chemical's release numbers and allows you to rank in that. It's not web based. It would never work with Scorecard, again, because as a compromise that EPA has made to its stake-holders, it's not risk-assessment based; it's just hazard-ranking based. It means that you get these meaningless numbers out of it which do allow you to rank things, but don't allow you to talk about what's the cancer risk or what are the chemicals involved?

ERICH SCHIENKE: It's after the fact.

BILL PEASE: Well, it's not even risk-assessment. We do after the fact risk-assessment. They do after the fact risk/hazard ranking, but it's not compelling because no one understands what the numbers mean. We can make a statement like, "You're at a cancer risk due to the chromium releases from this facility, according to standard risk-assessment practice is 100 in 1,000,000 and the EPA standard is typically 1 in 1,000,000." Or something like that. They will, for that same facility, give you a number of say 2.8 billion ... without units. It's like, what is it? Nobody uses it because nobody knows what it means. So on the government side, there's very little ability to move into the arena of useful interpretation of raw environmental data. And then on the non-profit side, there's almost no capacity to compete with Scorecard. It would be stupid. I mean, nobody differs enough between all the environmental organizations to warrant producing a competitive version. The only effort to compete with it has been from the chemical industry. They have a site they call – what's it called – chemicalguide.com. So this is a system that also purports to profile chemical facilities – it doesn't include all TRI facilities, just the chemical manufacturing sub-sector. It was an effort on their part to counteract the pressure they found themselves under on a account of Scorecard's success, which is basically to tell their own story at a facility level for the host communities. And the ironic thing is that even with a name like chemicalguide.com, you go onto that service, you look up a facility – it's hard to even find if there's one in your area – but when you find a facility and its profile, 90% of the profiles do not mention specific chemicals whatsoever. About the most that they'll ever say about chemical activities on a site is, "Here is an aggregate view of our TRI releases since the beginning of TRI, so '88-'99, and it's going down, so everything's great." But you'll never find specific chemicals mentioned or where they're going. And you typically will find what are the public service activities that company employees engage in, and what kind of planning do they do to ensure the safety of the community – that sort of thing. But it's not competition. Nobody links to it. No reporter would ever use it. It's really not a resource. It's clearly more of a propaganda publication system. So there really is right now no competition and what Scorecard is currently doing is finding additional ways, for example for Environmental Defense, additional ways that both the environmental data can be distributed and the services that the site can offer can be expanded. On the distribution side, we make available the content of Scorecard to Environmental Defense for incorporation into press releases. So if they send out a press release to any community in the United States, they can say, "Here's a situation in your community." That is a major source of traffic to Scorecard, those press releases that are geo-spatially organized.

ERICH SCHIENKE: So the user level is more the press and...?

BILL PEASE: Well yes, the press and, well, it varies. I think what we've learned over time with Scorecard is that there are probably four or five big user constituencies. There's the general

information person coming in from a Yahoo search or a link on some news site to find out about pollution in their community. There's the community activists who are using it to support certain types of organizing environmental justice or otherwise, or anti-super-fund or anti-toxics facility. There's the professional science community. We get a lot of use by people who are doing studies trying to link health effects to release patterns and stuff like that and they use our aggregate data. We have the whole commercial community which I've talked to you about who are looking to see where might there be markets for services they generate that offer solutions to environmental problems. We have an animal waste section – I get suggestions all the time from people with solutions about what to do about pig poop. Can I distribute that out to our audience? That type of thing. And then we have the higher end organizers who are working in various areas where there is occupational safety and health or for other environmental organizations. Other environmental organizations now utilize it. If Sierra Club wants to produce a report on the top twenty cancer cities, I would never call them that. They can call it whatever they like. They get all their data from Scorecard. They do their own analysis. But at least they're utilizing the correct information about whether a compound is called a carcinogen, and what its current TRI data is. That sort of thing. And we've extended it internationally, so Canada is now a comparable product. They went online right around Earth Day this year. They have a Canadian equivalent of TRI. The National Pollutant Release Inventory. We basically just duplicated Scorecard and plugged in the Canadian data. And we're actually in conversations with the Japanese branch of the World Wildlife Federation to do something in Japan when that information is supposed to become publicly available which is about 18 months off. The Australian equivalent to EPA's service uses us not as a source of releases, but as toxic chemical health effects. In Britain, Factory Watch uses us as a source of information about health effects. So we have a pretty good intersection with most of the other major online chemical information distribution services.

ERICH SCHIENKE: You still have a hand in all of this?

BILL PEASE: Yes. The site is basically paid for by Environmental Defense. It's their site. If somebody takes action or sends a message to a Congress person, the message they're sending reflects and Environmental Defense campaign. Like, "Support this piece of legislation," or something like that. If they get somebody to join or contribute, they get the member or the contribution. But all the data and all the software is done by us. Basically, they're a client at this point.

ERICH SCHIENKE: That makes sense. What were some of the major roadblocks, politically or scientifically in producing Scorecard?

BILL PEASE: Honestly, I don't feel there was much. By the time I came along it was pretty clear that if you had the nerve to do a screening level risk assessment, the technology was all in place to make it happen. You had lists of chemicals with their cast numbers and the health effects they can cause. Produced by regulatory scientific agencies. You had separate from those a list of chemicals by facility by areas that they are being released into, constructed by TRI. You had environmental organizations that had campaigns where, if pollution is the problem in the community, here's the right message to send to the appropriate regulatory target. All we really did was integrate the three of those. And the major technical obstacle was how to do that online, which is not trivial. But actually it's a hell of a lot easier to do it online than in any other media. You couldn't do it anywhere else. I mean, Scorecard is literally a database-backed web site. It's capable of producing about 800 page types. However, literally it is capable of producing about 1 trillion different pages

because each of those page types can hold just the information that's relevant for that zip code or that county or that state or that census tract. You have this incredible resource in that there's the ability to dynamically generate all these reports from a fairly thick stack of reports using underlying data and that becomes maintainable over time. The incredible thing that has led to Scorecard's tremendous success is that most environmental organizations that produce stuff tend to produce stuff that is a "report." That means that it's locked up in this static form. That essentially makes its component pieces rarely available for wider use or distribution. You can't take a piece and publish it on the web, stick it in an email message, stick it in a press release. That's one limit that they've confronted. The other limit is that when a new year of data comes out, which there always is, you've got to go back and revise the whole report. In Scorecard's case, we don't have to revise. All our reports remain the same unless we decide there's a higher value thing that we would like to do. All we would need to do when TRI updates is basically pull out the '98 data set and drop in the '99 data set and, boom, you've got current, reliable content.

ERICH SCHIENKE: You don't really keep multiple years of information?

BILL PEASE: We keep a record of historical aggregate, so you could learn if you're on an county level or a facility level, total releases in '88 were X and now in '98, they're Y and so much percent has changed. But I don't believe in reinventing the wheel. Enviro-Fax basically has a facility by chemical by year ability to archive TRI information that I don't need to reinvent. What people come to me looking for is what's the situation right now with the big picture of how it's changed over time. So I can tell you about total recognized carcinogens in an area: are they up or are they down? I'm not going to give you the information about which ones, in 1988 in that set, were up or down compared to now; I'm just going to tell you about what the current ones are. Right now. Those are choices you make all the time when you're building these things. Scorecard's still pretty informationally complex. You don't want it to be too overwhelming. You want it to serve a lot of user groups. You want it to be accurate. It has to be absolutely scientifically bullet-proof. But you really want to be sure you're not overwhelming people with stuff that they could get elsewhere and in taking on yourself a major data maintenance requirement. Basically with TRI data, a company can come in and change its historical record for what it had been doing in 1991 any time. I don't really want to be keeping that up to date. It's just not high enough value. So you make a choice about which are the highest value information components. And that needs to be done in the context of the strategy of Environmental Defense. What are their current campaigns? Where do they want to direct attention? Stuff like that.

ERICH SCHIENKE: I know you mentioned there were five types of user groups. A couple of arguments have been leveraged against Scorecard saying that often it's too complex for people to use.

BILL PEASE: I would agree with that. I would say that there is a value, and I can show you an example that we've come up with of a simpler version of Scorecard that is all zip code provided. Scorecard is a very deep site. It can be very intimidating if you end up being sent into it at a deep level before you've seen a summary of community information. Even with what you see if you give it a zip code. It's relatively complicated. I think that's mainly an editorial choice on Environmental Defense's part. There would be ways of developing even simpler versions of the geo-spatial information at a higher level that told a shorter, more cogent, generally a more understandable story that would literally only require the effort to figure out what's the actual

content of one of those reports. What should it look like? We'll program a page and, boom, it will be available for everyone in the country. It's more in the editorial presentation and the strategic presentation. I think Environmental Defense's main goal in the course of Scorecard has always been to establish itself as the ultimate resource. They feel that they can't afford to play fast and loose. You know, the site keeps track of recognized carcinogens as opposed to suspected carcinogens. Nobody else does that. Well, why? It's because if you challenge me, I can show you the level of authority behind this list versus the lower degree of consensus behind this list. In terms of providing support in terms of a regulatory arena, which is one of the things it was designed to do. It suffers therefore in terms of its general accessibility. I get on average ten emails messages from Scorecard users a day. I never get, "What the fuck's going on?" I really don't! I always get, "What an incredible resource! What a great site! Here's the question I've got. Can I do this that or the other thing?" I think there is a good argument for taking the kind of content that's available in Scorecard and finding other places maybe even on Scorecard itself to syndicate simpler versions of it, it has not proven to be a real problem in regard to whether the people find the site useful or not.

ERICH SCHIENKE: Well, at the EMPACT conference in Philly in August, a lot of people were always pushing people towards one clique or another. I always felt that the user was continually underestimated.

BILL PEASE: That's generally true, although I do think that getting somebody quickly to something that's understandable is clearly high-value. But my main problem with the EMPACT stuff is that how I do that if I'm in Burlington, Vermont is not the same way as if I were in Wisconsin. That's a user interface and a system design problem that will prevent that service from ever becoming a national service. For example, I've always been impressed with the kinds of press stories that can be written out of Scorecard, and they can integrate into Scorecard very well with links to the company reports. There was a great one that I think the Dallas Morning News did on toxic sites in Dallas and they did a great job of telling more of a story that was partially a narrative about the specific factories that the service was targeting, but all the data came from Scorecard. That's a perfect application of a web based information service. You shouldn't anticipate that you will always be the be-all and end-all of how this story is pitched, or what needs to happen to this content to make it appropriate for a particular kind of audience. But if you're smart, you can at least produce a web service that will at least be the information provider, and the place anyone subsequently goes to learn more. More stories like that.

ERICH SCHIENKE: It becomes a level of expertise that is not accessible in other places.

BILL PEASE: Right. So I'm always pushing Environmental Defense to think more smartly about how looking into the future, are they segments of some of our existing user groups that would be better served by a more generally accessible super-summary that maybe didn't have any words or numbers to it at all – maybe it had little thermometers at the green clean end of the spectrum or the red dangerous end of the spectrum. Scorecard is very capable of doing this kind of distributive plotting. Those kinds of things, I don't see them as problems with Scorecard, I see them as whether one did them as part of Scorecard or did them as part of other syndicatable, distributable web services. It's more a question of is the sponsoring organization being smart about what it wants to do online, how it accesses online audience, at this point.

ERICH SCHIENKE: Okay, that makes a lot of sense. What are some of the primary lessons you've learned from Scorecard and that you've brought into Get Active at this point?

BILL PEASE: Well, I guess the one we've brought into Get Active is that web based services rule. [laughs] If you're going to try to do something smart, do it in a way that allows anyone to gain access to it as a web service. That's mainly what we're doing now. Most of Get Active's business is not in the geo-spatial management arena like Scorecard; it's more in the membership list management, communication, advocacy and donation services, which we provide to organizations using our service accessing it via a browser rather than having to write the software themselves or host it themselves. So web based services is one of the big, big lessons that I learned. On a narrower level from the environmental movement's perspective, I think I've learned a couple of things. One is web based tools offer an extraordinary opportunity for the environmental movement to interject itself into any arena where decisions are being made that have environmental consequences or right now, the outcome that we all wish would happen, is not, because of poor information. And so how does Scorecard do that? Scorecard does that by giving to every media person or every community person the ability to see who are the biggest polluters in their area and enables those citizens to put pressure on the polluters to clean up there act. So basically it's a sort of information disclosure stigmatization tool. If your company compares your reputation about good environmental performance, you do not want to be on one of Scorecard's top ten lists. That's a very standard strategy behind any right-to-know or TRI based information disclosure thing. All Scorecard does is automate the creation of top ten lists for every community in the U.S. and give you a lot of choices about which top ten you want to focus on. The basic idea is there is a political context in which companies operate. If you can change the basic incentives that they confront in that context, you can change their environmental performance. It's one of the drivers to release reductions. And now, Scorecard is one of the drivers to risk based, or at least hazard based release reductions because you can't get away from cutting down your releases just by cutting out sodium hydroxide or something like that. You've actually got to go to a high-value, high-impact chemical if you want to move lower on Scorecard's list. So Scorecard exemplifies it, and I've always thought that if you look at governmental decision making, or producer decision making – we're influencing producer decision making about the extent of their reliance on toxic chemicals by stigmatizing too much use or too much release. You could do similar kinds of things like Scorecard does: mobilizing its information to affect consumer product decision making. Or to impact governmental decision making. Do legislators know that they happen to be in one of the highest most polluted communities in the U.S. and therefore they ought to be more supportive of clean water act regulations or stuff like that. I think there's a tremendous, still as yet unexploited opportunity, to influence decision making with environmental consequences through these web based tools. That's what I'd love to do. I find most environmental organizations are not as savvy in terms of what operating on the web can mean to understand what that might warrant in regard to level of investment or strategic planning. Most of them are more concerned about are they getting more traffic to their organizational web site than some competitor environmental organization? These are very legitimate organizational concerns. You know, how many members did I get online? How much money did I raise online? But it's not thinking very strategically about the new capacities. I look to companies like Personal Logic that AOL bought, and the engine behind it now is Buyers' Guides. It's striking to me that when you go to a Personal Logic Buyers' Guide on AOL to choose a car, that they never ask you about any environmental attribute associated with the choice of car. They don't even include mileage.

ERICH SCHIENKE: Or, say, tire quality.

BILL PEASE: Or anything, right? So it's a web based service that was designed to intersect with and interject model level information about environmental consequences, you know, you could probably get a good partnership with AOL to inject that in there. People do care about that. Why shouldn't they be able to include it in a consumer decision making report. Those types of things are real interesting applications that have generally been unexploited.

ERICH SCHIENKE: That's pretty much what I'm interested in, and forms the central topic: how does being informed turn into action about the environment?

BILL PEASE: Well you have to look at the decision making context. Here again is another lesson from Scorecard where we learned the audience was much bigger than we thought it was. We actually thought that we were solving the problem that I described at the beginning, like stopping the phone calls to me by community based organizations, and instead putting the information in the hands of organizers who are concerned with community based toxics campaigns. That usage is going on but it's a very very small part of the overall picture of Scorecard's impact because I don't think we had a wide enough understanding at the beginning of what are all the decision making contexts in which delivery of a service like Scorecard, particularly pointed delivery of a service like Scorecard, might have an impact? We thought, well it will empower community organizers. Well it also empowered the press! The ability to help the press write stories much more easily than they'd ever done in the past was probably much bigger in terms of the amount of pressure brought about in any local community about any company's pollution behavior. I don't know if you've read any of the things I've written academically, but when you look at the right-to-know programs you have to look at the extent to which they actually require knowledgeable intermediaries to facilitate action. We originally thought that the roadblock to community-based action was the lack of information available to an organizer. I think what we've learned from Scorecard is that actually there are too few of these community-based organizations. They face all sorts of resource constraints in managing effective campaigns. Where they exist, they're a great resource, but you cannot count on them the way you can count on a press presence being everywhere to change the reputational context that a company finds itself in. It turns out that our ability to write stories for the press was much more impactful than our ability to structure campaigns for local community-based organizations. I think that there's a wide arena of additional things – you know, if there was world enough and time and I wasn't doing 2,000 other things, I would pursue with Scorecard that, for example would try to connect Scorecard's information into supply chain management software.

ERICH SCHIENKE: I was wondering how do you use Scorecard for, say, investor performance?

BILL PEASE: Well, investor performance would be another really interesting area to explore. I've always encourage Environmental Defense to look at doing some investor ranking. It requires a technical problem to be solved, which is a big problem, which is that what we get out of regulatory databases is hard to integrate up to a corporate level, in essence. Connecting the universe of entities that the investment world cares about and wants rankings associated with, with what the regulatory world is describing, is actually quite complicated. That's because there's no easy way to aggregate up from facilities to corporation. There are differences in time. You know, what a company may have owned in 1999 which is the current year of TRI may be completely irrelevant to what it owns now. Those are hard problems to solve – no question about it. But, I do think that there is an incredible amount of profiling information that's available out there that ought to be interjected into financial or investor markets. Each of these things essentially require a sort of new application

to be built on top of Scorecard environmental database, and Environmental Defense is overwhelmed and not thinking very strategically right now about what the most important things to do with the asset are, so they won't do it. Whether someone else might do it with our assistance is definitely something else we're exploring. We've had conversation with Hoovers, we've had conversations with a couple of social investment things that have always expressed interest. They tend to rely more on anecdotally, creative qualitative rankings done by the Council of Economic Priorities. And that's fine. They can do a hundred corporations a year. They can't reach down to the full range of things. So there will be choices in each of these arenas whether or not there's a real application opportunity there. So if you're looking at information disclosure, where is availability of that information likely to have a substantial change on actual environmental practice. There's obviously some consumer applications. There are some producer applications. We've mainly been focused on government applications and producer stigmatization. But there is a wide range of things out there, you just don't find a lot of environmental folks who are working in traditional non-profit settings thinking so extensively about what you can do online – and quite understandably with there resource restraints, and their own tech team restraints, the fact that none of them have been doing this for very long. They have much narrower goals in what they're doing.

ERICH SCHIENKE: Just a couple more questions. About the TRI, would there be any sort of metadata standards that could be added to TRI that would help. Or, if not with TRI then with epidemiological data that would make these kinds of data mergings easier?

BILL PEASE: Yes, there are. And basically we're real informatics hounds around here and TRI is a pretty reasonable data set right now. It's appropriately coded from a chemical informatics side, from a geo-spatial informatics side. The corporate informatics suck, but that's not EPA's fault. I mean, corporate informatics just suck. There's no coding system that automatically aggregates up existing divisions of a current corporation. That information is invisible to the world. In many respects, you absolutely have to have those informatics axis's to do the kind of reliable, incredible integration that Scorecard does. When you move to new arenas, part of your ability to move there is going to be determined by, can you find an intersecting axis? Moving into a supply chain is tough as well because basically there's nowhere near enough information about chemical use – why these chemicals are being used in a facility – so you can connect to product design or specification process. That's very hard to do. But it's not impossible. I think the area that you asked about is more plausible which is, can you connect it to epidemiological investigations? There there's some basic constraints that are put upon us by what we know about from an epidemiological perspective and what we know about from a chemical risk assessment perspective. From an epidemiological perspective, what's easiest to track are current adverse health effects, particularly if they're acute.

ERICH SCHIENKE: Or rare?

BILL PEASE: Acute, is the main thing. And what we know the least about on the chemical risk assessment side is the acute health impacts of most chemicals. And certainly we don't know much about their patterns of acute releases and that sort of thing. So it's hard to make connections there. When you switch to what are the long term health effects that you see in a community, then you're looking at the integrated effect of probably twenty years of chemical exposures being revealed in, instead of birth defects which would be an acute problem, being revealed in cancer rates or respiratory morbidity and mortality rates. You don't have twenty years of decent data. Current releases don't necessarily represent past release. So there are problems making the connection.

We've actually been working with some folks that operate a site, Health Track, which I think is a very good service which integrates well with Scorecard, and they're at least trying to track is there even a surveillance system in place for the kinds of health effects that we're concerned about, linking chemicals too. And in some cases, we do, like with lead – that's the best example. But Scorecard gives detailed profiles of lead exposure risks in communities down to the census track level across the U.S. Almost none of the blood/lead reporting information that CDC collects is informatically organized in a way that would allow easy intersection. Or it's not available in a single database, it's not consistently coded geo-spatially. So here are the typical house or facility related lead exposure sources. Somebody else out there is looking at biological burdens of lead instead of health effects, but you can't make the connections right now because there isn't an informatics access that combines the two, that wouldn't require you to go health department by health department, which would of course be a nightmare, to get their current blood/lead level data. I think that the ability to use this stuff over time in an epidemiological context will definitely improve, but I don't think it's ultimately going to prove to be an incredible breakthrough because essentially making the causality arguments isn't going to get any easier. You get more hypotheses, you get more data for potentially documenting whether an emission has occurred, but we don't have historical data even currently on exposures, and those are really what are going to drive health risks. So the ability for these types of tracking systems to actually make causal assertions that we haven't been able to prove in the past, it will happen. It will be rare. I still see most of the application being, locate the activity that has the environmental consequence, figure out where the information failure has occurred, and see if you can get that information into the existing decision making context through some clever application of technology. That's how I envision moving forward from here. Because there's no point in doing multiple Scorecards. There may be a few more environmental problems that eventually develop data sets that are capable of being distributed by Scorecard. I think the one that's kind of neatest that's of highest potential profile is we're not too far off – although it's still a tough problem to solve – to carry off somebody's energy consumption behavior in terms of its global warming contribution. Their vehicle choice and their utility choice. And maybe via their home heating choice. You could pick three or four aspects of an individual's personal behavior that are associated with their contribution to global warming and then build the data systems required to provide a more refined profile of, well if you choose this car, you will see your overall impact on the globe decrease immensely. You choose the SUV and – I don't know what the numbers are – it doubles your contribution and your utility and home heating choice remain the same. Whether or not it's worthwhile to even do those on a data set level I'm not sure because I think you could probably qualitatively make the same kinds of decision support statements based on some pretty general knowledge about, is this utility 80% nuclear or 20% nuclear? is this car a compact or an SUV?

ERICH SCHIENKE: So getting lifestyles into it and seeing people's reactions to that.

BILL PEASE: Yah, and making it easy for them. I think there are several web services that are starting to try to do that. None of them are particularly compelling right now. Partially because they don't have the environmental science right, and partially because they don't have the information is off. There's actually a "Power Scorecard" which I helped folks in the concept stage. I didn't do the implementation of it, and I don't think the implementation is very good. But it tends to be a service, were it to be working, it would be something along the lines of you're in a state that offers retail choice among electricity providers and it will rank your available choices by an integrated measure of the general level of environmental burden associated with a provider

and product offer electricity mix. Cool idea. I don't think there are a lot of people who will care. They're only able to do it in Pennsylvania and California, and they're only able to do it for Green Energy providers who provide the information for the masses, not for 99% of the actual utility market. So it's pointless in many respects it just won't go anywhere. But those types of things I wouldn't rule out. I've had some conversations with a guy who you might be interested in talking with depending on the breadth of the stuff you're interested in talking about named Kip Cranston, he's Alan Cranston's son, and he's building transparentcommerce.org. He's trying to build a web distributable tool that would allow you to say I care about the environment, I care about workers' rights, I care about women's rights, I don't care about free trade and I don't care about animals. In the field of environment, the organizations I trust are Sierra Club and Environmental Defense, and in the field of worker health and safety, I trust AFLCIO. Each of those orgs has developed product-level certification information, hopefully not any more complicated than green yellow and red. You know, caution, buy it, avoid it. What Kip's proposal is is that he's going to develop a system that aggregates these product ranking systems, then allows you to personalize your own profile relative to them, and then makes information about products available to you on the go via a PDA that can read with an infra-red scanner, like a bar code. That, to me, is very imaginative thinking. Right now, most things at the product level that have SKU's, you don't have a plausible chance in hell in connecting them to environmental information, or any of this other kind of information, but sometimes you do. If a service could make that available to you as a little pop-up while you were doing some comparison shopping online, or truly put it in your hands while you're out in a commercial setting, that's a way of enabling a person to match their preferences to their consumption decisions. That is really inefficient right now, done the way anyone does it. Right now we just satisfy; we don't try to take it through every attribute and take it through all we know. Nobody's got the time to do that. If you could almost have it thrust in your face – red flag! red flag! don't do it! – you might alter your preferences more often because the information was made available to you at the decision point. Those are down the road, the kinds of services that some of the stuff that we're building and others are thinking about might do.

ERICH SCHIENKE: That's excellent. Let me see what other questions I had. I know you're busy. There was some stuff about right-to-sue laws and further enhancing effectiveness.

BILL PEASE: How broad is your scope?

ERICH SCHIENKE: I'm primarily tracing Scorecard out. I talked to Michael Stanley-Jones and Michael Mueser.

BILL PEASE: Have you talked to David Roe at Environmental Defense? You should talk to him. He was the main strategists that I worked with. He was also the author, one of the authors of Prop 65 which was the right-to-sue if you're not getting the right-to-know statute. He has a really good sense of information disclosure as a general strategy. When does it work? When doesn't it? How do you have to deal with the companies? You get a cleaner picture of why do we do so much more with Scorecard than say Silicon Valley Toxics Coalition might be to maintain the appearance of objectivity in describing a company's releases. When we get the legal challenges from those companies, which we do, we want to be able to say, this is your data as you submitted it. We didn't modify it at all and we can show it all the way back to your report to TRI. All we did was integrate it with absolutely unquestioned scientific authority. Now if you don't like the National Toxicology Program, you can take it up with the National Toxicology Program. Or if you don't

like International Agency for Research on Cancer, you can go talk to them. But I'm willing to call something a carcinogen if they call it a carcinogen. That's where some of the intimidating information content comes from. It's just basically to make it absolutely clear that the facts exist, we'll pull them together. You can't say that we're telling a lie or putting a spin on things. This just happens to be where your company falls in the distribution of companies across the U.S. It is not my fault that you're the largest releaser of recognized toxins. [laughs] That's your problem. Deal with it. You might not have even known you were doing that until Scorecard came along, which is often the case. We got into these debates with these companies that would almost always in all cases be resolved with, "Holy shit. You're right." Or, "Holy shit. We were wrong in what we told the EPA in the first place." It was never, "You guys didn't get it right at all." It has actually never been that.

ERICH SCHIENKE: That's what I heard from Meuser. He said people would approach him on the quality of the data and he'd tell them, "That's what you reported. Don't blame me."

BILL PEASE: That's absolutely true. David is a very good person to talk to. Let's say that Scorecard's main form of strategic implementation by Environmental Defense is to stigmatize producer behavior. An additional thing that we started to explore was, what else could you get out of those producers who are becoming concerned about the reputation risk associated with disclosure? Well one thing you could get out of them would be to call them on their – standard industry chemical claims that this stuff is all safe – because we actually had the data in our system to indicate when we knew something about safety and when we didn't. Scorecard reports always contain those sections about, well what do we know about safety and harm? If the chemical hasn't been tested at least across a reasonable international consensus data set of toxic health effects and there is no determination that it is or is not a problem, or any risk assessment value or any regulatory standard, on what are you basing the claim that it's safe? Show us. What Environmental Defense would consider to be the single most impactful strategic win out of Scorecard so far has been in getting the chemical industry to commit to doing this accelerated testing program for basic toxicity data on all the high production chemicals. It really represented an opportunity for them to take on the basic CMA: chemicals are good for you – everything is used safely. They essentially undercut their basic claim with, as far as we can see, none of the information required to back up a claim of safety are publicly available. If you've got the data, we'd love to see it. If you don't, you should shut up your mouth and deliver it here. And basically they haven't shut up their mouths, but they're still open to being called on it. Instead they're being forced to deliver it. I think that there's a wide variety of campaigns that you can run with these disclosure strategies that aren't all necessarily related to just changing a specific polluter's particular release behavior, but can get at some of the information inadequacies that underlie the larger toxics regulation morass, which is bad news. It's never been efficient. It's partially because all the incentives go against generating information. We can use these kinds of services to create an incentive to produce information that you wouldn't have otherwise.

ERICH SCHIENKE: That's a great strategy. I think it will work, but it just takes time. That's what I'm trying to study here... how this system is emerging. And where the problems are and where the ethical issues are. They're all over the place.

BILL PEASE: I see the biggest problem as being that so few people see what the web can do for us – that so few people are thinking, here I am, I work in an occupational health and safety

context. Why don't I figure out a way to make a web-based service that workers need relating to chemical exposures inside a plant, that draws from this incredible chemical information resource that the environmental community has created? Similarly, if I'm an environmental health and safety management software provider, so I'm going to sell something to a plant that helps them manage their MSDS's and manage inventories of chemicals and emergency response plans – why don't I also include for them a feed through of how they rank on these various measures from Scorecard so they can understand their reputation liability in their home community. Similarly the Kip Cranston thing – can I grab or have someone make for me an integrated measure of toxics responsibility that I can assign to a corporation and then make it available for use when I'm purchasing any of that company's products? Those types of things. Everyone is very insular. Half the people don't get it because they're not used to working on the web, and the other half, even if they got it, it's sort of like, "Well, I'll build my own." So you have the World Resource Institute going off and just fumbling trying to build a global environmental information service.

ERICH SCHIENKE: I can imagine that would be a total mess.

BILL PEASE: It was a total mess. It was like, come on guys, you gotta do what the commercial world does which is when you've got a decent syndicated data stream like weather – these are facts – utilize it. Don't try to rebuild it, recast it. At worst you end up utilizing it and then reinterpreting it on your side, but you still aren't responsible for the maintaining of it. And they all get kind of lost doing it themselves. It's pretty pathetic.

ERICH SCHIENKE: Well what about in developing countries. Do you think they need something like Scorecard?

BILL PEASE: Well we get a lot of requests from all over the place. Mainly, because we don't have inventories obviously, in developing countries they are mainly chemical profiles that we produce. So they absolutely need it. They use it a lot, for example, in relation to pesticides and stuff like that. Getting them into a position where there are actual reportable inventories is really a very long campaign. I'd rather see something short term, which is much more feasible, like GEMS – what is it, the United Church of Christ thing, the In Your Faith Center for Corporate Responsibility – they're producing a template for multinational environmental reporting. That template right now does not include needing to provide the data in the kind of format that would make it instantly publishable by Scorecard or FOIA UK or whomever. That's what's missing. There are companies, at least the global 500, who care about their reputation among global 500, environment's attribute that now at least people need to pay lip service to. They have facilities all over the world. The best way to understand what the facilities are doing is to get the corporation to do the reporting rather than get the countries they're hosted in to do the reporting requirements because that would take forever and everybody's going to build a different system. There's absolutely no question that it's needed all over the world. The question is where is the infrastructure currently existing that would both provide a credible data stream...

ERICH SCHIENKE: So multinationals would need to provide this kind of data in every production plant or facility.

BILL PEASE: Yah, and that's the kind of thing that these ICC folks are struggling with. But they're mainly at the point where they're just saying, your annual report needs to qualitatively

address the following kinds of issues – workers' right, women's right, child labor, that sort of thing. So there's a long way to go. But you look at corporations like, what's a good one, ICI is a really great one, a British chemical conglomerate, they just do an excellent job providing information about the activities of all of their facilities everywhere. You could turn a system like that against all of ICI's competitors by challenging them to do a comparably good job and integrating the results. There are these cool systems out there that basically scrape content out of web sites and repackage it. It's all stuff that can be done.

ERICH SCHIENKE: But it takes time and expertise.

BILL PEASE: Yah, and the expertise is really limited. The environmental movement is considerably further ahead of any other social issue domain that I'm aware of, and we work with a lot of them, but in the environmental movement, there are probably five of us who really understand what the fuck is going on. I mean there is some very sophisticated work by a lot of other people going on, but it tends to be much more insulated from the notion that almost anything you do needs to have a web manifestation where the services you're offering can become available to others who might make use of it for integration into a larger service package.

ERICH SCHIENKE: That was more specific to the web though. I was out here for five years from '96-'00 and watched all of that happen.

BILL PEASE: That's basically it. There's nothing in particular about it being a technology that's currently being applied to social problems. It really isn't. It's being applied primarily to solve within corporate communication and knowledge management problems, and then across commercial firms to build larger business networks. I look at that and I understand how that works. That's really easy to do. Why doesn't everybody that I work with in the environmental community do it, you know?

ERICH SCHIENKE: What about taking this kind of stuff and using it to promote, say, teaching green chemistry.

BILL PEASE: Well, again, it's a marketing side or an audience development side. We may start up a project working with the National Wildlife Federation where we try to repurpose our environmental data that we use on Scorecard, for them. They have a very extensive program of nature in your back yard for school systems to use. An extensive curriculum. So they're really getting kids to be little nature observers. But it doesn't have a web component right now. Well, it ought to. And it ought to have two components – a database site that they also operate that's a very cool site called eNature, that describes what wildlife is in your back yard by zip code. Perfect! And Scorecard describes what other kinds of things are slightly less appealing that might be in your back yard. But they're perfect for science or civics classes. And we have people who are doing this. This is what you might want to test for in a stream. This is what you might want to capture an air sample of. It's more EMPACT-style where there's community involvement in environmental participatory activities. Feeding those with a data stream that basically helps structure a curriculum and localize it. I think that's a very key idea. Very few people in the environmental movement get what kind of advantage it would be to essentially become entrenched as part of the curriculum system, either via partnerships with textbook companies or partnerships with online learning companies or whatever. Those are places where it doesn't even require that much content manipulation to make it useful,

which are really unexploited right now. Basically it's all up for grabs. I think that an organization like National Wildlife Organization that has always had an organizational orientation towards teaching, is just better prepared, just based on its internal infrastructure. Probably already has a program designed for striking partnerships with textbook producers to do something like that. As opposed to a program like Environmental Defense which is typically much more engaged with, well, we're either directly negotiating with companies or we're pursuing things in regulatory or political arenas, but we're not thinking about permeating one of the social infrastructures that we've got where infusion of environmental information could make a real difference in terms of our conversion rate, what people know about them, learn about their communities, all that kind of stuff.

ERICH SCHIENKE: Thanks so much. This has been great.