

Exploring the Toxic Trends Map Application: Webinar Transcript

Thursday, August 28, 2013

(0:00)

Jen:

Welcome everyone to our Summer 2013 webinar:

“Exploring the Toxic Trends Map Application.” My name is Jennifer Major from Ross Strategic and I’ll be moderating the sessions as we go along. Before we begin I’d like to thank in advance our co-sponsor from the Environmental Council of the States (ECOS). Bryan Shipley from ECOS would like to say a few words before we get into the agenda. Bryan?

Bryan:

On behalf of ECOS, I would like to welcome everyone to the Toxics Release Inventory Summer Webinar on the Toxic Trends Map Application. Thank you for taking the time to join us.

Today you will hear from one of our grantees about this important TRI tool. Through trainings and outreach such as this webinar, we hope to promote Community-Right-to-Know principles and improve stakeholder access, understanding, and use of TRI information.

This is our seventh public webinar under our Cooperative Agreement with EPA in support of the Toxics Release Inventory. Webinar recordings and other TRI resources are available on our chemicalright2know.org website.

Enjoy the webinar!

Jen:

Thanks very much, Bryan, for kicking things off.

We have a lot to cover in this next hour, with 2 presenters from the Western Washington University Huxley Spatial Institute that we are very fortunate to have with us today. Before we start presentations I’d like to take a couple of minutes now to walk through a few logistics and give a quick overview of our agenda.

All attendees’ phone lines are muted. To ask a question, and we hope that you will, just use the question pane on your screen to ask a question at any time. To the extent possible, we’ll try to get to everybody’s

questions during our Q&A session but please understand that we may not be able to get to yours. This webinar is being recorded and we plan to make the fully recorded webcast and a written transcript available to you on the chemicalright2know.org website that Bryan mentioned. Also on that website will be all of the presentations you'll see here today along with presenter biographies, other resources, and contact information. And finally at the conclusion of the webinar, Go To Meeting will automatically send you a series of very short open-ended questions to gather your feedback on the presentations and tell us how we can do better in the future and gather your ideas for future webinars. So we hope you'll take the time to send those back to us.

Our agenda for today looks like this. We'll have a presentation from Dr. Troy Abel, and a demonstration of the Toxic Trends map application from Jacob Lesser and we'll have a 15-minute Q&A session and then we'll cover a few resources that you may want to check out. We'll give you some contact information and then wrap it up. We hope you'll take the time to do the feedback questions afterward.

Jen:

Our first presenter is Dr. Troy D. Abel:

Dr. Abel is an affiliated faculty member in the Huxley Spatial Institute and an Associate Professor of Environmental Policy at Western Washington University. He is the co-author of the award winning book *Coming Clean: Information Disclosure and Environmental Performance about the Toxics Release Inventory (TRI), pollution risk trends among facilities and states, and the environmental performance dilemma*. The book was selected for the American Political Science Association's Lynton Caldwell Prize for the best book on environmental politics and policy. He has also authored or co-authored numerous articles, reports and other publications. Dr. Abel has been the lead investigator or co-investigator on five extramural grants from the National Science Foundation (NSF) and the U.S. Environmental Protection Agency (EPA). You can read more about Dr. Abel on www.chemicalright2know.org.

Welcome, Dr. Abel, thanks for joining us!

(5:11)

Troy:

Thank you Jen, and thank you everyone. It's a real pleasure to be here and to have this opportunity to share the work that ECOS has sponsored and in particular to highlight the team that came together to create this innovative web map application. I want to give everyone a little bit of background on how we came to developing the web map and a little bit of the scholarly context behind it, so I'll talk about a couple of points including the *Coming Clean* book.

If you can see this first slide, “Not all pollution is created equally,” this is a major theme that I started writing about back in 2007 when I did some research on the St. Louis risk gate. And I think many members of our audience will recognize the truth in such a statement. For more than five years, we’ve been thinking and writing about ways to confront this and maybe present pollution information in a more effective way than traditionally had been done. Today’s webinar is about one media platform that we think helps begin to do that.

As Jen mentioned, this web map grows out of a 2011 publication with MIT Press called *Coming Clean* with my coauthors Michael Kraft who is at the University of Wisconsin Green Bay, and Mark Stephan who is at Washington State University, Vancouver. In this book we focused on the Toxics Release Inventory, something I’m sure many of our participants today are well aware of. One of the best known examples of information disclosure, one of the oldest, and in this book we do both quantitative and qualitative research to really evaluate and assess where we are with pollution information disclosure and where we need to go. In many ways, the Toxic Trends web mapper really represents the kind of direction we need to be going with information disclosure. However, information disclosure policy and tools are not a panacea but it is an important tool in the toolbox of environmental governance.

In this chart, table, based on a publication in 2007 that I was the lead author on with my book co-authors, we illustrate two simplistic ways to think about pollution performance. A very basic and accessible and understandable question: Are industries getting safer and cleaner? That is, are they decreasing the risk they pose to nearby communities? Are they getting safer? Second, are they reducing their volume of pollution that they’re releasing into the environment? As we also know, there are many other non-human health risks that pollution poses to ecosystems and species. So the pollution volume decreases would represent a facility getting cleaner. If you look at the y-axis, those are two categories of risk trends. They’re getting safer by decreasing the risk of their pollution, or they’re increasing their risk and getting riskier. On the x axis are releases, again increasing or decreasing getting dirtier or getting cleaner. And so when we use this really simple typology, we discovered among a sample of facilities reporting to the Toxic Release Inventory between 1991 and 1995, that there was a great deal of facility level variation in getting cleaner and safer or getting riskier and dirtier. Most facilities fell into either the green or the brown coloration that you see here. Forty-two percent of the facilities we sampled were going in a positive direction. They were improving their environmental performance. Nearly as many, thirty-eight percent, were going in the wrong direction. Their environmental performance was actually decreasing. And then we had twenty percent of the rest of facilities falling into categories where they might be increasing releases but decreasing risks. So maybe they reduced the most risky emissions from their facility even though the volume of pollution may have gone up. Those are blue facilities. Yellow facilities, their release volumes are going down but they’re still getting riskier, so maybe some of their riskiest and small amounts of pollution go up a little bit and then they get categorized as a yellow facility.

So this simply typology became a real benchmark for us to try to get into a different disclosure presentation so that the public communities regulators and practitioners could really visualize which direction facilities were going quickly. Now of course being an academic and publishing in something like MIT press of course is what academics are supposed to do and I’m very proud of that work. But there’s a

very limited audience that such an academic press book reaches. As we came to the close of this book, we started to talk to EPA regulators and sharing our findings. First of all, when we talk about the greening of industry, that is industry that's improving environmental performance, as you just saw it's uneven. Since we were focused on the Toxic Release Inventory we also through interviews and case studies found that the TRI probably is less influential than it once was. Many of you who have been working with this field in the 1980s and 1990s remember these vivid news stories about the top polluters in a community, state, or the nation. When the TRI first started it truly was news, it was a new information source. The annual TRI data release no longer makes the kind of news that it did in the early 1990s. We also found by interviewing industry that they were not being contacted as much as we expected by community members and environmental groups. So one of the conclusions of our *Coming Clean* book was if we could reform TRI into a performance disclosure program it will reinvigorate its impact. That is, rather than just information disclosure, a cross-sectional release of data and volume of pounds of pollution which is what the TRI provides us. We think adding the layer of some kind of risk information was important but we also recognize that the trends, the direction that industry was heading. So at the core of this app, that has been described in several places and you can look further into this, is what's called the Greening Environmental Indicators program. It provides us with risk-related scores for facilities and their air pollution. We would like to see facilities and firms who are struggling to maybe be eligible for incentive technical assistance. We also would like to see those facilities with strong environmental performance to be recognized by practitioners, regulators, environmental groups. Finally we believe the Toxic Trends Mapper also demonstrates a way to present greenhouse gas information. There's a relatively new program modeled after TRI that allows users to see GHG levels from facilities across the US. We think adding a performance layer to that kind of information disclosure will make that more effective.

Stepping out of the academic world, in 2011 the book came out and we were giving presentations and I had a young and passionate undergraduate student named Robert Saby who came and worked with me on a senior thesis project. He worked through the Huxley Spatial Institute on a geography project on the Forgotten Navajo People. You can see a screenshot here from his participatory mapping and environmental justice web-based map. The first mapping application I was involved in. After Bob started working on this thesis project, we heard about a November 2011 event called the EPA Apps for the Environment Challenge. I suggested that Bob submit his senior thesis project to this challenge. He was one of 28 entries nationally and he won runner up for best student app. What Bob began to help me and my other colleagues realize is the power of a web map platform for all kinds of applications. We immediately began thinking about the power of such a tool for the TRI and the work that we had done in *Coming Clean*.

What I'd like to end with now is to acknowledge a couple of folks. The Environmental Council of the States is our grantor. The Huxley College of the Environment and its Spatial Institute that provided much of the technology and the server space to support our work. Western Washington University. My very talented development team. Any of you that have been involved with this kind of work will understand the kind of attention to detail that it requires. Tyson Waldo was our project manager, Ben Kane and

Jacob Lesser were the lead designers and developers of what we're talking about today. Thank you everyone.

(18:31)

Jen:

Thank you, Dr. Abel, for providing the background on Toxic Trends Map Application. As a reminder to our audience, we'll be taking questions at the end of the second presentation, which is about to begin, but in the meantime please feel free to be submitting questions as you think of them. We hope to be able to read and answer as many as possible during our 15 minute Q&A.

Jen:

Our next session will be presented by Jacob Lesser, also from Western Washington University and the Huxley Spatial Institute.

Jacob served as the Web-Map Developer for the Toxic Trends project. He is currently seeking an M.S. in Geography at Western Washington University with an appointment as an affiliated staff member with the Huxley Spatial Institute. He is the lead author of *Coming Clean and Green: A Geospatial Mapping Tool for Visualizing Industrial Environmental Performance* and developer for a beta version of the TRI Performance Explorer, an online web-map site that displays EPA's Risk Screening Environmental Indicators (RSEI) data from 2000 to 2007. His web-map application provides the starting point for the proposed project and was developed with support from Washington State University—Vancouver and Western Washington University's Huxley College of the Environment.

It's a pleasure to have you with us, Jacob! We look forward to taking a closer look at how the Map Application works. As a quick reminder to our audience, we encourage you to submit questions at anytime during the demonstration. Our Q&A session will follow Jacob's presentation and we'll try to get to as many questions as possible in the time allotted.

Ok Jacob, please begin when you're ready.

(20:33)

Jacob:

Thanks Jen. Hi everybody. This is the map that I've been working on with my fellow grad student, Ben Kane, for the last nine or ten months or so, building off of Troy's work. We took all of our TRI data and RSEI data from the application that takes TRI data and calculates the risk and we developed a map to overlay that on. TRI data is available for all 50 U.S. states as well as the different territories, including Puerto Rico, American Samoa, and Guam. This is a web map like Google maps, and has similar behavior. You can zoom in and out using a scroll wheel on your mouse and using the scroll button. If you are on a touch device such as a smart phone you can also use a pinch-to-zoom. We've also provided a number of

different base maps to provide different context when you're looking at the maps. Our default map is called Toner, and it is made by Stamen Design which is a design firm in San Francisco, and they produce this under a Knight Foundation grant to be used in community maps. We also use open street maps which gives you a little bit more geographic context to an area that you are looking at. And we have your standard satellite air photo map which gives you an aerial view. This is Boeing and you can see the 787 Dreamliners on the tarmac.

One of our goals was to make this accessible on multiple devices and multiple browsers, so we spent a lot of time tweaking and optimizing to make sure it does work in the most popular devices and browsers. That does include a responsive design. On a smaller screen the layout and look is going to be a little bit different. I'll show you how that looks. This is the design you'll see on a tablet. As you get smaller, into the phone range, the design changes a little bit.

I'm going to talk about the symbology here. So we used dot symbols represent each of the different facilities. We used two different metrics to symbolize the dots. The size of the dot represents the pounds of chemicals released for any given year and the color represents the risk score. On this "About" page, we have a little legend. Each increase in size in the symbol represents an order of magnitude increase in pounds released. So the smallest dot is 0-10 pounds, then the next size is 10-100, then 100-1000 etc. The colors represent the same thing for risk. Gray represents no emissions for that facility that year that were recorded under the TRI program. From there, the yellows up to the reds represent 0-10, 10-100, 100-1000, etc.

We also have this time slider here to look at performance over time, looking for trends in an area. This is south Seattle here, downtown Seattle, this is the ferry docks, this is the shipyards. We are looking at 1996. As we advance through the years, we can see facilities' performance changing as they release more or fewer chemicals and the risk of some of those facilities changes. As we move through time up to the current data in the TRI program, 2010, we can see south Seattle has deindustrialized over time. One feature of this map is you can hover over facilities and get their facility name. You can click on a facility and get more information about them. There's a little pop-up here. You can see the trend over time of that facility, and you can see the different spikes where they had a major release. On this basic information we also include the primary NAICs, the North American Industry Classification system, which is used by most government statistical agencies to identify industry categories. The primary NAIC for this facility is Petroleum Bulk Stations & Terminals. We also include basic address and contact information for that facility.

On these pop-ups we also have some tabs. I'm going to show you the industry tab. This shows you once again all those NAICs codes for that facility. In this case there is one, some facilities have several different classifications. What this does is show you a comparison of that facility to other facilities within that classification so you can compare their performance to other similar facilities. Once again there's a time slider here so you can compare how that facility has performed compared to other facilities over time. We also have the chemical tab here which shows the breakdown of all the chemicals for that facility. On the general tab, we can see the total pounds and the risk score for any given year. On the chemical tab for each year, we can get the breakdown for each of those chemical types, such as

chromium. If you click on those chemicals you get more information associated with them. Most of this information comes from the data.gov site for the TRI chemicals and it also comes from TRI CHIPS, which is the TRI Chemical Hazard Information Profile. Some chemicals have lots of health effects listed, including definitions in the federal register, and some don't, and it just depends on the chemical: some have more information available and others don't. Once again you can see through time how these releases from these facilities and these different types of chemicals change and what the associated risk score for each of those chemicals are. We've also included a search field. We've indexed most of the data in the TRI, including facility addresses: street, state, zip code. Also it includes TRI-specific information like facility numbers, DUNs, so if your facility has a DUNs number you can search by that. It has a number of tricks you can use to search. If I wanted to search for Boeing, it would show me the first ten results for Boeing. Boeing has a lot of facilities, so I can browse through and see more of their facilities as well. When you highlight a search result you can see a blue pop-up box over where that facility is located so that makes it easier to find. You can also click on the facility and search and it will take you right to that facility and it will open the pop-up for you. In this case, there were not enough years of reporting to show a chart. Many of these gray facilities don't have air emissions every year or all years. The TRI program does track a number of emissions including air, water emissions, and point-source and diffuse air emissions from a facility.

With search we can also use a number of search tricks that you might have learned using Google. For example, we can use quotes to look for a specific phrase, maybe I want to look for "Boeing military." That will return any site that has "Boeing military" in it. We can also use, and these work on Google and Bing as well, a minus sign to exclude terms. Maybe we don't want to look for any of Boeing's military sites, so we can exclude the term "military" and we will get the rest. I see I may want to exclude "Boeing defense" so I will remove defense. You can refine your search to find the particular facility you might be looking for. We can also search by chemical name because we do index all of the chemicals for a facility. If I were to search for chromium, I would have all the facilities that have released chromium. That's one way to identify all the facilities by a specific chemical type. We've also included some social media tools. Down here at the bottom we have Google, Twitter, and Facebook, and so you can click on those and share on your various social networks. Right now the social media just shares, it pops up a new window. I am working on a version where you can share a specific facility or geographical region. Right now if you share it just will share a link to the main map at the most zoomed out extent which is this. At some point I'd like it so you can share a specific facility so that you can ask questions about that facility in your social networks.

So those are the basic features of the web map. I think now I'll switch it back to Jen and we'll do our question and answer session.

Jen:

Jacob and Troy, thanks so much for sharing all the work that you've done in creating this important, publicly available tool that uses TRI data on releases to the air, plus data on risk that helps us put this information into a human health context. What's nice about this tool is that a user can immediately

grasp what they are seeing on the screen. The data and information behind the tool is pretty technical, but the interface is visually easy to understand.

Next we will open it up to our Q&A session.

(32:36)

Q: What date range does the safer and cleaner data represent?

Troy: If that was about the safer and cleaner chart, that was for facilities that reported in both 1991 and 1995. We took a five-year snapshot and sampled those facilities to generate that chart. In the Toxic Trends Map application, the data range goes from 1996 to 2010.

Q: What is the minimum level amount measured/estimated in this work?

Troy: We are pulling data from EPA's Toxic Release Inventory which is where the Risk Screening Environmental Indicators gets their data. There are thresholds where a company or facility has to manage or release one of 650 toxic chemicals. So if they're managing on the side of 10,000 pounds of one of these chemicals and/or releasing into the environment over the regulatory threshold, then they're required to report this information. So, these are really medium to large pollution sites across the U.S. That really drives the threshold at which facilities end up showing up on our maps. There are many EPA-regulated facilities which are not showing up on our map, because they do not report. There are other thresholds too, for instance they have to have at least ten employees. They have to be in certain industrial classifications to be required to report to the TRI.

Q: What software was used to develop the tool? Flex viewer for ARC, Silverlight, or other?

Jacob: We used JavaScript to build the front end and we used a JavaScript API, a mapping API called Leaflet. On the server end, we basically built some custom server code to deliver the data extremely quickly and efficiently. So it's a relatively lightweight server but it can hopefully deliver to several hundred concurrent users at a time. Most of this is custom JavaScript on the front end though.

Q: The Risk Screening Environmental Indicators (RSEI) is a great tool but the most recent year of TRI data available is 2010. Since this application is dependent on RSEI, have you heard any commitment from EPA to update RSEI on a regular basis, hopefully annually?

Troy: I have not heard any kind of specific commitment of that nature. I have talked several times with the staff in the RSEI office, they are very supportive of the tool, in fact they were part of the development process, and some of their staff were involved in giving us feedback. Initially the TRI wasn't available; there was a two-year lag in the data. And now, it's under a year. The TRI now has 2012 data on there. So there's a year lag now on the TRI data, we hope to see RSEI moving in that direction. Perhaps a tool like this will help speed that process. Specific commitments, I have not heard about from RSEI staff or EPA folks.

Q: Are any nuclear facilities considered in this map?

Troy: There are no nuclear facilities in this map. They are not regulated under the Toxics Release Inventory.

Q: Will this information be updated with 2011 information?

Jacob: When the 2011 TRI RSEI data comes out, we will update the map.

Q: You briefly mentioned incentivizing environmental performance in industry. Do you have ideas or examples of what you would consider to be most effective?

Troy: In our research, we did an interesting state-level analysis where we controlled through multiple regression models many kinds of factors at the state level. How they were related to the proportion of the state's facilities that were actually getting cleaner. In our statistical results, one of the most important policy levers ended up being pollution prevention technical assistance. There was a survey of state environmental officials in the 1990s that asked them how developed their pollution prevention programs were. This was growing out of the Pollution Prevention Act of 1990. Facilities don't have to engage in pollution prevention, but they do have to start reporting on their pollution prevention activity. Most facilities did not report and still don't report on that. But a number of states actually began to develop pollution prevention programs. In those states where you saw technical assistance well-developed, you saw a lot bigger share of their facilities getting safer and cleaner. The pollution prevention technical assistance really came out as a very strong policy lever for helping facilities achieve environmental performance.

Jen: A clarification from EPA, they are working on the 2011 RSEI information now so that update will be available soon.

Q: Have you considered adding the Canadian and Mexican TRs?

Troy: I have, I'm not sure Jacob has. We've been involved with the PR/TR programs through the Commission on Environmental Cooperation in several different meetings. The other developer, Ben Kane, participated in one of those meetings with me. We think this would be an ideal platform to actually pursue a North American version. Now, the big difference between the U.S. and Canadian and Mexican data sources is they do not have in Mexico and Canada something like the Risk Screening Environmental Indicators tool. This tool has been through EPA Science Advisory Board, it's been vetted, of course it does have some limitations, but for a screening tool we thought it was an ideal choice. That doesn't necessarily exist consistently for the Mexican and Canadian data. So that presents its own sets of challenges but I think a North American version of this certainly could be a step in the right direction in thinking about environmental performance.

Q: Can state-specific searches be performed using this application?

Jacob: You can search for a state such as Washington if you just put in "Washington" all the facilities in Washington will come up since every state is listed. Now, you might get a few non-Washington states there because of if anybody has a WA acronym for something else. I'm working on some search syntax that will let you do more specific filters based on fields like that. But in general if you were to type in the state abbreviation, you will get all the facilities for that state.

Q: This is a wonderful mapping tool. When will you be adding other emissions?

Jacob: Right now the plan is just to include the TRI emissions. If there were other sources of data we might consider including them at some point but one of the features of this map is the ability to compare between years and between facilities. So if we start adding data from other sources they wouldn't necessarily directly compare, and so that would make some things a little difficult to do.

Q: Can this map tool be used for countries outside the U.S.?

Jacob: Once again, folks can use this tool outside the U.S. but only to look at the data we've included, which is the TRI RSEI data. Like Troy mentioned, it might be possible at some point to include the North American program or other countries' programs but once again you have a comparison issue. So that might mean separate maps for different countries or a more universal type comparer.

Q: Can you explain the risk number?

Troy: The risk numbers are a risk-related score that's generated from the Risk Screening Environmental Indicators. I encourage folks to click on the "about" tab in the application and then there is a link to the RSEI. But the number itself is generated through an algorithm within RSEI where the chemical-by-chemical information is part of the equation, the toxicity from different sources of data, and the amount is projected through a stack emission and the dispersion and distribution of that chemical and the air toxic release is estimated in a Gaussian plume model and then local census populations are added to the algorithm and essentially a surrogate inhalation dose is measured relative to all other chemical and facility level releases and surrogate inhalation doses. So you get a relative risk-related score. So relative to other facilities in your comparison, in this case all of the facilities in our map, the number allows someone to screen between facilities. So, it allows you to screen for a more hazardous facility than another. But it's not truly a risk assessment in the conventional sense. So it ends up being only meaningful in comparison to other facilities and it's really a screening quantification. It does not measure cancer rates or other non-cancer health risk rates at all. But as a screening tool, it is designed to simply provide a comparative number to begin a process of maybe taking a look at what probably are worse polluters than others. This is not drawn from actual monitored emissions in any way but it's all estimates and modeling. In other places I have written quite a bit about how these screening tools are important and informative but they're really just the beginning step. So if you're looking at a state-level risk-scape, it does provide you with a pretty good view of where the worst polluters are and then perhaps with limited resources you might want to prioritize assistance and/or regulatory attention to the worst polluters first. So that's what the RSEI risk-related scores are. They're not an actual quantification of actual risk to neighbors but a simulated exposure.

Q: How often will the trends map be updated to include more recent data?

Jacob: I built some tools that will automate the process and make it update pretty quickly. So once RSEI releases a new update we should be able to get it into the map pretty quickly and we'll keep doing it for as long as we can.

Q: If a facility revises TRI reports on an EPA site or TRI facility, how quickly does this get updated in the trend map?

Jacob: Once again, we pull all of our data from the annual RSEI releases. Whenever RSEI outputs a new dataset, they do go back and include any fixes. So it will get incorporated during the next release.

Q: Will you be adding water or land releases to the map?

Jacob: It's not on the immediate schedule to do. It's something we would like to do but at the moment don't have the resources available to do it.

Q: Is this map application based on GIS (Geographical Information Systems)?

Jacob: We used some GIS to help generate the data but the app was built using web technologies, JavaScript, HTML, and CSS and on the back end using a web server with all the data stored in an interchange type format that we can easily download on request to the map.

Q: Are data on Puerto Rico available?

Jacob: Yes. Puerto Rico is available. The map is live now at www.toxictrends.org so feel free to check it out now and take a look. American Samoa and Guam also have data and that is available on the map as well.

Q: Where can we find the methodology underlying the map?

Jacob: If you click on the “About” tab it takes you to some information about the map and in that there are some links to RSEI, which has the methodology for how the risk scores and pounds were calculated.

Q: Have we shared this site with state agencies yet?

Jacob: So far we have, ECOS released a press release and it has been informally shared through ECOS with some of the state agencies, but we have not directly mailed any state agencies.

Q: Are there considerations to evaluate local environmental and public health conditions associated with TRI sites and will such results be integrated within the map application?

Jacob: Right now it’s not on our plan. We have talked about including some ancillary health data layers that might be available but as of now we don’t plan on including any data that doesn’t exist in the TRI and RSEI programs. So we’re always open to suggestions.

Q: In designing this tool, who were you trying to reach in terms of an audience for interpretation and use of the data?

Jacob: I think we were definitely trying to reach a broad audience. One of the goals when developing the site was to make it very simple and intuitive to use and relatively simple to understand the data. Right now the RSEI data there’s a lot of information there and it can take a while to learn how to parse it so we are trying to make it accessible to just about everybody.

Q: Is it possible to print out the information for each company shown on the map? How about summaries for groups of companies?

Jacob: Right now, we don’t really have any specific reporting tools for printing. Now, all the data we do get is from RSEI and there are reports for each of these facilities available on the TRI website where you can get all the breakdowns of the information for each facility.

Q: Are the mapping tools used to create this excellent product available in the public domain? We would love to explore using this tool for other environmental indicators such as the National Air Toxics Assessment.

Jacob: We used all open-source software to develop the tool. We used Leaflet mapping API which is our main front end, and then all the back end is open source data as well. If someone has specific questions about that I’m happy to chat with them.

Q: Is there a way to download the RSEI scores for all facilities in a single state?

Jacob: If you go to the RSEI website, they have an application that you can download and install that has all the RSEI data and you can build much more complex queries there and export data for a specific state or region or industry type. So to get more data like that I would recommend the RSEI application.

Q: How do you map data for fugitive air releases in the TRI dataset?

Jacob: I'm not sure how TRI specifically does it in the program, we'd have to ask them.

Q: Do you anticipate updating the map annually? How soon after new data is available from EPA do you anticipate updates to your map?

Jacob: As quickly as we can. I did build some tools to make the process pretty simple. It does take some time to generate all the different map layers. So for each layer it takes about a day of computer processing time to generate.

Q: Has there been any effort put into developing this tool for oil and gas monitoring, air and water quality measurement and monitoring?

Jacob: There has not been any specific work on that outside of the TRI program.

Troy: Let me just add, the oil and gas exploration and extraction, SIC category is not part of the TRI. So that data is not available in TRI and that facility-level data is not available in RSEI. It's interesting though if you go to the Commission for Environmental Cooperation (cec.org) and look at their North American map on pollutant release and transfer registries, or PRTRs, you see quite a huge swath of oil and gas extraction facilities in Alberta going right up to the border of the northern part of the U.S. and it just stops. So in Canada those facilities have to report to a similar system but they do not in the U.S. So we do not have access to that kind of data.

Q: I believe you said that the scores are calculated relative to other facilities on the map. Are scores recalculated when you change the map scale? In other words, if you zoom in on fewer facilities, are the relative scores recalculated?

Jacob: No they are not. We are using a national comparison. So it's relative to all the facilities in the country. The computing requirements to do it on the fly on the web were too difficult at this point in time.

Q: Can a map generated with your tool be embedded into a website?

Jacob: We don't have a specific tool to embed it in a website but that's a great idea. You certainly could embed it using an I-frame, but I can look at working on a way to embed it directly into a website from ours. Thanks.

Q: Will this work with Android or can I go to Play Google for download?

Jacob: There isn't an application in the Google Play store but it should work in most Android browsers on your phone. As well as Safari on iPhone or iPad.

(59:35)

Jen:

And that concludes today's webinar on *Exploring the Toxic Trends Map Application*. I'd like to thank again the Environmental Council of the States (ECOS) with support from the US EPA, and special thanks to our guest presenters from the Huxley Spatial Institute at Western Washington University, Dr Troy Abel and Jacob Lesser. And finally we'd like to thank you, our audience, for participating in today's event, submitting really great questions, and taking an interest in the TRI and community right to know efforts.

Once again we encourage you to take a few minutes to respond to our short feedback questions, which you will receive after you sign off from the webinar. Your input will help inform the content of future webinars and tell us what you'd like to see more of and where we can do better next time.

Finally, please check the chemicalright2know.org website for the fully recorded webcast, presentations, presenter information, and other resources. Take care, everyone, and thanks again for joining us today!

And that concludes today's webinar session.