

(0:00) JEN: Welcome everyone to our spring 2013 webinar:

***“Exploring the Toxics Release Inventory’s Pollution Prevention (P2) Information:
A New Resource and a P2 Provider’s Perspective.”***

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-sponsors from the Environmental Council of the States (ECOS), the US EPA, and the National Pollution Prevention Roundtable’s Safer Chemistry Challenge Program. 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 Spring Webinar on pollution prevention information and uses. Thank you for taking the time to join us.

Through trainings and outreach such as this webinar, we hope to promote Community-Right-to-Know principles and provide training to improve stakeholder access, understanding, and use of TRI information.

This is our sixth public webinar under our Cooperative Agreement with EPA in support of the Toxics Release Inventory. Recordings and information for these webinars along with 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 packed agenda, with 3 presenters 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 and learning objectives.

(Webinar Logistics slide)

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 two Q&A sessions 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 later this week 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.

(Agenda slide)

Today's agenda. We'll be covering the learning objectives next, and then we'll dive right into our first presentation from Daniel Teitelbaum, EPA, on Exploring the TRI's Pollution Prevention Information. After Daniel presents, we'll go into the first of our two Q&A sessions, you can submit those to us at any time and we'll be monitoring those as they roll in and then we'll read them aloud and our presenters will answer them live. After the first Q&A session, we'll jump into our second presentation from the Minnesota Technical Assistance Program with Laura Babcock and Bob Lundquist, on P2 Targeting and TRI Section 8. After they present, we'll have the second of our two Q&A sessions, again about 10 minutes, and then we'll point out a few resources and contact information and then we'll wrap up.

Our learning objectives for today are: that you'll learn how the information collected by the TRI program can help answer your questions about pollution prevention; that you'll learn how to use the new TRI P2 search tool to access and visualize P2 and waste management information; and that you'll learn how one state program – Minnesota Technical Assistance Program (MnTAP) – uses the TRI information, and how they plan to integrate the new P2 tool into their outreach activities.

(Intro slide for Daniel)

Our first presenter is Daniel Teitelbaum:

Daniel is the Pollution Prevention (P2) Staff Lead for EPA's TRI Program and has also worked in the Sustainability Program for EPA Region 2. Daniel holds an MPA in Environmental Science and Policy from Columbia University and a B.A. in Economics from Brown University.

Welcome, Daniel, thanks for joining us!

(6:18) Daniel: Thanks Jenn, and thanks everyone for joining us today. My name is Daniel Teitelbaum and I am the P2 staff lead for the TRI program in EPA's Office of Environmental Information. For those of you who are familiar with TRI may know it as EPA's premier Community Right-to-Know program, a great resource for finding out about toxic chemical releases in your neighborhood. What we'll be talking about today is that TRI can also tell you about what companies are doing to prevent pollution and how effective their efforts to reduce toxic chemical releases have been. A bit later on, I'll go over some of the new ways that you can find out this information but first we'll start with a quick overview of TRI and its connection to P2.

What is TRI? In short, TRI compiles data submitted by industry about the releases and management of toxic chemicals from certain facilities. TRI collects information on what facilities are releasing to air, water, or land at their facilities, what they're transferring offsite, to landfills for example, and also what they're doing to reduce their releases: their recycling, P2.

Where did TRI come from? The initial impetus was in part the Bhopal chemical disaster in 1984 which killed thousands and increased public demand for information about toxic chemicals at industrial facilities. This led in part to the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986, which established TRI as a regulatory response to this demand for information.

Each year, over 20,000 facilities report to TRI. They are required to do so because they meet three reporting criteria. First, the facility must be in a TRI-covered industry sector- manufacturing, certain electric facilities and mining utilities as well as hazardous waste management and federal facilities. Second, a facility must have at least ten full-time employees or the equivalent. Third, the facility must manufacture, process, or otherwise use a TRI-listed toxic chemical above threshold amounts. Facilities that meet these three criteria must submit a TRI form for each chemical for which a threshold was exceeded.

What does this have to do with P2? Back in 1990, TRI was significantly expanded by the Pollution Prevention Act (PPA) which set out the hierarchy of waste management techniques that you see on the right of the screen. Under the PPA, the goal is for facilities to shift away from environmental releases at the bottom of the hierarchy towards more preferable waste management techniques like recycling or ideally to prevent pollution by eliminating waste at its source. Then as required by the PPA, TRI tracks each facility's progress towards its goals to collect information on P2 and other environmental practices.

What does TRI collect under the PPA? There's four basic pieces of information. First, for each facility reporting to TRI, we find out how much chemical waste they're generating and how they're managing it. Then we also collect information on some factors that might be influencing toxic chemical releases and waste management amounts. But first is production. For example, if I'm using a TRI-listed chemical to make cars. Generally speaking you'd expect that the more cars I'm making, the more chemicals I'm going to use, and the larger the amount will be that I report to TRI. So I'm going to report to TRI what's called a Production Ratio which is basically saying whether my car production levels went up or down over the previous year and by how much. That's going to put the release quantities into the context of production. I'm also going to report whether I implemented any P2 or source reduction activities. I'll give some examples of the types of activities that are reported later on, but typically if you implemented P2 practices you report them by selecting from a list of about 43 different codes. Lastly, there's an optional free text P2 field. This is an opportunity for facilities to publicly highlight the steps they've taken to reduce their environmental impact. In this field, you can provide additional detail about P2 activities or other activities that advance the purpose of the PPA like recycling, or pollution control.

How does this look at a particular facility, for a specific toxic chemical? This is actual TRI data from a facility, since 2004 this facility had each year been reporting N-methyl-2-Pyrrolidone, or NMP, and each year the multicolored bars indicate the amount of chemical waste that they generated and a breakdown of how they managed it within the hierarchy. So overall you want these bars to be trending down over time, that's the ideal under the PPA, but at the very least you want to be moving away from the red which is environmental releases and to the more preferable techniques, like here this facility has shifted largely toward the green recycling. The black line is the production index; in this example the facility manufactures semiconductors so we're going to assume that this line is tracking semiconductor production, so you can compare their releases and waste management quantities to their production. Third, the years highlighted in green are the ones where a facility has reported a source reduction activity code, so, 2008 for example, their overall waste level went down considerably and they reported that they had made a process modification that year which may have contributed to there being less chemical waste generated. In 2009 they implemented another code, and in 2010 they filled out the

optional free text field I mentioned describing that they had reduced the amount of chemical required in order to achieve the same results. It's actually what we see on the graph that the chemical numbers went up but production went up by more. Most interestingly, in 2011 they included both of these pieces, so they mentioned two new activities and they actually described each of the activities, talking about a change in certain wafer technologies, what that impact was, as well as another change made in their manufacturing equipment, so this is giving more of an explanation of how they were actually able to generate some reductions.

I'll give a few more examples just to give more of a flavor of TRI's P2 information. These are more examples of what facilities reported. The left hand side is some of the codes I mentioned. These fall into a number of different categories, like changes to raw materials to cleaner or safer chemicals, cause of modifications, changing your process so that you consume less, and then there are subcategories within each of these. The main point here is that these codes are good for tracking progress, aggregating at the macro level, but often it's the P2 text field that's going to really tell you the who what when where why how of the reduction. So looking at the first one it's nice to see that they made a raw materials substitution but it's actually a lot more valuable to know that they substituted #6 fuel oil with a different product that's 50% vegetable oil and their emissions went down as a result. Of course TRI will be able to provide the data on how their air emissions actually changed.

To conclude this overview, the information I've presented is designed to answer a number of questions about P2 so some of those questions are for a specific facility, TRI can tell you whether releases and other waste management quantities have gone up or down over time, can give you a sense of whether those changes were driven by changes in production or whether they were specific P2 practices that played a role. Looking up an individual facility, TRI can tell you what are some other P2 practices that facilities in a specific sector have implemented. TRI can generally give you a sense of which P2 practices may have been most effective overall and who were the companies that implemented them.

Now I'll take a look at some of the overall trends in our P2 database for the most recent reporting year, which was 2011. Each year, once the data is reported to facilities to EPA, EPA publishes the TRI National Analysis, which provides a high-level overview of what we see the data have shown for that year. The 2011 National Analysis we included a lot of information on P2 and waste management, this figure provides overall trends in waste management, so we see in many recent years total waste as well as releases as a share of overall waste have fallen. 2011 changes this as certain large facilities have pushed the overall totals up but there are still many individual P2 successes that are embedded in the data. In 2011 for example, 12% of the facilities that reported indicated that they had adopted new P2 practices, they reported a total of around 8,000 activities, that you see here divided into one of these 8 categories.

More information on reporting of P2 activities. Nearly half of the facilities that reported a source reduction activity code also filled out the optional P2 field to provide additional detail about their P2 achievements. 2,534 forms out of just over 5,700. A note before we get to showing how to access the data: some facilities can actually fill out the free text field without indicating that they reported a new source reduction activity, that's because the P2 detail field is broader and it covers ongoing source

reduction activities as well as other environmentally friendly practices other than source reduction that still advance the purposes of the P2 act.

Another figure from the recent National Analysis showing source reduction activities by sector. The chemical industry reported by far the most source reduction activities in 2011. It's important to know although it in part reflects the fact that the chemical industry reports the most forms overall.

This next slide shows the disparities in the rates at which facilities in different industries report P2. When you look at TRI P2 data for individual facilities, it's important to keep in mind that some industries may have more opportunities for implementing P2 than others, or have more opportunities for switching out more chemicals. Toward the left you see some of the faster changing high tech industries tend to report more source reduction activities, while industries involved with natural resources for example may have few opportunities to eliminate chemical waste but that's not to say that they're not still managing the waste they do generate in an environmentally responsible manner. Taking a closer look at one of the sectors with a high level of P2 reporting, computers and electronics. One of the more interesting trends over the past decade: facilities in this sector have decreased their releases and overall waste when it comes to lead considerably. This is an important trend since lead is a chemical of particular concern. The question is why is this occurring?

The next portion of this presentation I'll go over how EPA has provided some new ways that you can answer questions like this. Very recently, EPA launched a new TRI P2 page to serve as the new central access point for all TRI data about P2. I'll jump to that page at this point.

The page contains a wealth of information about TRI and P2. The first thing I'll do is demonstrate the new TRI P2 search tool which EPA just launched in January, this is housed in Envirofacts. This is a new search feature in Envirofacts to let you identify P2 activities reported related to your specific area of interest. There are four drop-downs that you can use to narrow your search. First is industry, we list these at the 3-4 digit level in the figures that I showed from the National Analysis. You can also go down to six digit level if you wanted to do a very specific search. That's the North American Industrial Classification System. That's how TRI data is broken down. For here, we're going to select computers and electronic products, and we're going to look at a specific chemical, this drop-down has all of the chemicals, over 600 that are reported to TRI, we have some of the most common ones at the top; we are going to select lead and lead compounds. There's a few more drop downs down here, you can look at a specific year or a specific state to see who in my state reduced their releases by the most in 2011, but we're going to look at the long-term nationwide trend, so we'll keep this broad, and hit search. While this is running, I'll also mention this was just released in January and we've gotten a lot of great feedback since then and pretty soon we're going to be coming out with a new version, that interface you just saw will have a number of enhancements, you'll be able to do multiple selections under each of the drop downs, you can just start typing if you're not sure how to find what you're looking for and the entry will come up. We'll be doing an announcement about that pretty soon. Here are my results for the search I typed in. the way to read this table is basically we have 1800 P2 activities that met our search, so this first one CTS electronics, a facility located in California, in 2005 they reported P2 activities for lead compounds. They said they purchased a lead-free solder machine in 2005, their lead releases the

prior year had been 2,109, in 2005 which was the current year when they reported this, and their releases were zero. So this table will sort the entries by the percent change. That's not to say that whatever information was provided in the right hand column is what caused the change, but this is designed to highlight some of the companies that may have done the most to limit their releases or some of the practices that may have been most effective. Other features you can do on this screen: you can print or export using different formats, you can search within your results, so let's say I want to see, this first facility talks about lead-free solder, I want to find out if that is something that a lot of facilities put down. We see 292 of the entries, a very high number actually mentioned it, and it's a very high trend in the industry. This second one we see here provides a little bit more detail about why this is going on. They're complying with a European directive for reduction of hazardous substances; they give a little bit more information about their new lead-free processes, and what they're planning to do in the years to come. So that's one way that you can use this tool to get information.

Going back to do one more search, this time I'm going to look at the plastics and rubber industry, and I'm going to pick the first chemical selected here, and run that search. I'll also mention in that year, 2005-2011 is the default because that is how far back we have the P2 text entries available electronically. Here are my results. Looking at this first gives me a chance to mention one other thing you may find when you are using this tool: up until this most recent year, TRI only had one place on the form where you could include free text information. So many facilities put in information that's not actually related to P2 so one of the upcoming enhancements will allow you to sort out entries like these that are just about miscellaneous information about changes in production for example. This third one here is interesting, it's a facility that reduced their releases close to 70% back in 2007, and they describe how they did it by minimizing over spraying. And the other main feature on this page is that for each example here, a line in the table is a snapshot of a little bit of information from one year. If you want the full picture, you can click on this P2 details icon. This is going to give you all the information about this facility and about the chemical that we searched for. You have the map, the location, what company owns this facility, what industry we're in, what chemical we're looking at, you can switch to other chemicals at the same facility, if you are interested. Now we see the full picture of the data that TRI has under the P2 act. So first this breakdown over time of the waste management data. We see how back in 2007 they reduced their releases. Also on this table you can add in production information, we see a lot of the changes here have generally followed changes in production. You can also visualize that by normalizing the TRI quantities relative to production. So we see there per unit of production they've been relatively steady. Lastly you can see a breakdown of the waste management methods. We see how they went from releasing to the environment a higher percent to now recycling higher percent lowering their releases. You also see that in comparison to other facilities in the same sector that report this chemical this facility tends to be releasing a relatively low share of its overall waste. Further down on this page is a full listing of all the P2 activities the facilities reported for this chemical, including the codes reported each year, methods they used to identify the activity, and the description. We had seen before the 2007 description; actually in 2011 this facility mentioned a number of different things that they did, some continuing to minimize overspray, also talking about some of the things they're planning to do in the future, so that all gives you a lot of information about what's leading to lower chemical numbers being reported at the facility.

Another type of search, you can jump to here by going to the TRI search, this is also available directly from the TRI P2 webpage, as well as the P2 search page. You might have the question, I don't know what industry I'm interested in, I don't know what chemicals, but maybe I want to know about a specific facility or I just want to see what are the facilities in my neighborhood that might be of interest from a toxic chemical perspective. So this is actually the main TRI search in Envirofacts but now you can use this to get P2 information also. So I can type in a specific facility or I can type in my zip code. I'm going to search. This particular zip code has two facilities, this is how you would get to the all of TRI information of the facility, but we're going to look at the new P2 report column and pick the one that has a whole bunch of TRI submissions over the years, so now we are basically approaching the same information but from a different starting point. Here this facility has reported a number of chemicals over a number of years, each year is telling us whether they had P2 activities or not for each chemical. Two things you could do from here: one, you could get a full listing of all the activities for all chemicals at this facility, or we can go look at the information for a specific chemical. This one has P2 in each of the last two years. Let's click on that one. This takes you right to that same page. Same options as you got from the other search. Again giving you the trends, the comparison, and all of the other different chart options. What we'll look at now, remember from the last screen they had activities from 2010 and 2011, 2011 this isn't actually source reduction but they did have a recycling amount for the first time, so let's read about that. So, they actually did put some source reduction activities, and they provided a general description down here. To summarize, this is talking about how they started sending the chemical waste to a facility for solvent recovery, and they go on to talk about how they're now using the recovered solvent instead of the virgin material. In addition to helping their TRI numbers, also they go on to talk about how this is saving them a lot of money. So this is a real success story from all different angles.

That concludes the tool demo. I'll go back to the PowerPoint. The entire demo I just went through online is available as screenshots in the PDF of this presentation.

Now we're going to jump ahead to advanced data analyses. Here I'll mention a few other ways to access our P2 data. We already mentioned the TRI National Analysis, how the overview contains a number of examples and trends in P2, but from the TRI National Analysis page that I've highlighted here there's a file you can download that will give you a full breakdown of P2 info for 2011, broken down by industry, chemical, parent company, geographic area, and it will list all the P2 activities from 2011 and give you links to the P2 pages in the Envirofacts tool.

Lastly I'm going to mention TRI.net, which is a very powerful sophisticated downloadable application that you can use to analyze TRI data. I won't go into a full description of this here. There's a link to it from the TRI P2 page, epa.gov/tri/p2, I'll mention that P2 information was very recently added to this application and can be used to do a few different things but if you want to do more complex analyses than what I showed in the Envirofacts tool. The Envirofacts tool has the advantage that it has a very simple interface, you just fill out a few drop-downs, and it packages what you're looking for; this one you have to know a little bit more, the interface is more complex, but it allows you to do a few other things. The new P2 features here is that you can limit your search if you just want to focus on facilities that have reported source reduction activities, or that reported specific types of source reduction, you can do that. You can also get counts of how many source reduction activities were reported, like say you

want to get a breakdown in each state, how many activities were reported, which types were reported, that's something you can now do in TRI.net, and finally you can get the actual P2 descriptions and codes the same way that you can in the Envirofacts tool, the difference here is that you can combine these data with any other data elements you wanted to as opposed to having things be packaged in the specific way that the Envirofacts tool does.

For more information on TRI.net, you can get that on the TRI website, but I'll wrap up by summarizing the data resources that we went over and what you can use each one for. The first one I mentioned is the National Analysis, which has an overview report discussing overall trends in P2 and waste management, and then there's also the downloadable Excel workbook listing all activities. Second, the P2 search tool. For those of you who have this file PDF, each of these is clickable so you can use this as a handy reference sheet. That search tool is where you find P2 activities for particular industries, chemicals, or states, and hopefully you're able to gauge which practices may have been most effective. The TRI Search is how you can identify facilities in your area, and then ultimately view P2 and waste management trends for particular facilities. TRI.net is for the more customized, sophisticated queries, we just discussed. Finally, My right-to-know (MyRTK) is our TRI mobile application, you can use this on the go to find TRI facilities in your neighborhood and now you can also see about P2 activities at those facilities.

With that, here's my contact info, like I said we are always looking for more suggestions for improving these data access features, and here are the sites for getting the information. With that, I will take questions.

(Q&A session #1)

(37:18) Thank you so much Daniel for that informative presentation and demo. I'd like to open things up now for the first of our two 10-minute Q&A sessions. As a reminder, and as you can see here on the screen shot, you must use the Q&A panel on your webinar dashboard to submit a question to the panelists, which you can do at anytime during the webinar. We will try to get through as many questions as possible in the time we have.

Where can I find a list of the TRI source reduction activity codes?

Daniel: Easiest place would be the TRI reporting forms and instructions, which we call the RFI. There's a link to that from the TRI main page, epa.gov/tri you'll find the full list in there.

Did you state that EPA has already added a second free text field or will be adding another in the future?

That's a yes. Already in 2011 we added that. We have data broken down by miscellaneous information and then information related to the P2 Act: source reduction, recycling, pollution control. The other thing I said in regard to that was that we've gone back and for the earlier years broken down which ones relate to P2 and which ones don't so we can hopefully make searches easier in the future to direct people to the entries relevant to P2.

Is there any other way to see detailed information on specific facility P2 efforts, or is it only up to the facility to submit voluntary text information?

Through TRI, that's the way you can see it. The required piece is that if you implemented P2 activities, you have to use a code to report at the end of the year that you implemented it. There's also a portion of the TRI form for not P2 but for treatment or energy recovery, there's also a place where those types of activities are reported, again using category codes. Through TRI, to get more detail you're only going to see that if the facilities choose to provide that. Up until this past year, we hadn't done much to feature that information; in 2011 we did see more than twice as many entries of that type submitted. So you know it's only what the facilities choose to share in TRI, getting a few thousand of those entries each year does give you a fairly sizeable amount.

Do you have any general idea about how many facilities submit optional text information by industry?

By industry, I don't know offhand for the optional breakdown. But in TRI.net that would be a very quick search, you would just put the industry as the variable you want to see, that's under grouping variables on TRI.net, and you would select a P2 count and it would tell you how many for each one.

If the amount of a release goes up but it is a reduction when normalized with production, does that facility have the opportunity to provide P2 information?

Yes. The facility will always have a chance to provide P2 information. We give that metric of year-to-year change just as an initial guide to help focus the search on the right direction. But facilities can always talk about their activities in the scenario you described would be one case but also there are lots of cases where you do something one year and you don't see the results until down the line so again there's an opportunity there for facilities to talk about it in the year they did it even though that year their releases went up. In our reporting application, for the facilities that do have production went up but their waste management went down, if it went down we might give them a suggestion, this might be an opportunity to talk about your activities, but even in support of the scenario you described there will be an opportunity to describe how you produced your reductions at least relative to production.

Are P2 activities conducted by one company provided to other companies with similar activity?

We hope that by sharing this information it will be a way to generally get more information out there about what P2 practices are working. Hopefully enable companies to learn from each other. The way you would do that is go into the tool and search for your industry and you can find out what are some of the practices that have been reported that may be helpful for your own facility.

Can you clarify the relationship between TRI releases and permit limits assigned by EPA or other federal government or state agencies?

Most releases reported to TRI will be permitted. We don't, as part of our program, collect information on whether the release is permitted or not. In some cases it will be indicated on the TRI form, that the releases are disposal to a RCRA subtitle C landfill, that would indicate that they are covered by another regulatory program, or an Underground Injection Control class 1 well, that's another case where

releases are regulated by another program but as a rule just because something's reported through TRI doesn't mean that it's illegal or not permitted.

Are P2 activities verified in any way?

In general, TRI has a data quality and enforcement process. For data quality, sometimes facilities will be inspected, or will give the facility a call if we have questions about their data, so for the most part we are relying on the facilities to self-report. But we do also check up on them since this is a regulatory program.

Can you search by state within TRI.net?

Yes. You can search by just about anything you can imagine in TRI.net, which is what makes it a little bit tougher to explain on a short webinar just because there are so many options on it available to you. You can either filter your results to a specific geographic area or you could select state as one of the grouping variables and then whatever TRI data element you select will be broken down by state, and so that includes you could do a breakdown of P2 activities. That's a good lead-in to the next speaker since the state with the highest percentage of facilities with P2 activities reported in 2011 was actually Minnesota.

Does EPA plan to work with states to help to improve TRI P2 data quantity and quality?

The data in TRI is reported to EPA as well as to the states. I think any efforts by states to work with facilities to improve the data quality for P2 are certainly welcome and beneficial since it is in many cases states that will have relationships with facilities through technical assistance programs.

Are the production level data available to the public? Do any of the tools allow someone to look at releases tied to production levels?

One key point about the production information is that, like I mentioned with actually reported is a ratio of the current year to the prior year production, so you don't know the number of cars produced, you just know the ratio and then by combining each year's ratio we can get that trend line over time. But yes that's all publicly available through the tool I showed as well as TRI.net has that information. In some cases, utilities for example, their production data kilowatt hour generation is publicly available through other sources. So in some cases you can combine TRI's data with the full production information so generally we'll just have the production levels and not the underlying data. One last thing I'll say on that is that for 2012 we've actually made it easier to encourage facilities to use that miscellaneous text entry field to tell us what their production index represents, not necessarily what the numbers are but at least to tell us an example of we are tracking cars produced. Usually you might be able to infer that from the industry but we think that might be helpful context to have for the release and production data.

(Intro slide for Laura and Robert)

Our next session will be co-presented by Laura Babcock and Robert Lundquist of the Minnesota Technical Assistance Program, or MnTAP for short.

Prior to joining the MnTAP at the University of Minnesota, Laura worked extensively in the chemical industry in a variety of roles with a focus on green chemistry and sustainable technology. She joined MnTAP as director in 2011 and is responsible for developing sustainable programs to meet business' needs, pursuing funding opportunities for program activities, collaborating with multiple in-state and national partner organizations, managing staff, and providing technical assistance.

Robert – Bob- has almost 20 years experience as a process engineer, quality assistance manager, safety director, lab manager, and environmental compliance manager in electronics manufacturing. He joined MnTAP in 1991 where he has had roles in administration, staff management, and providing technical assistance. He is currently evaluating opportunities to target pollution prevention technical assistance through combined analysis of hazardous chemical use data from TRI databases and state databases.

Thank you both for being here today! Laura and Bob are going to tag team this session, starting with Laura. Again, we really encourage audience members to submit questions throughout the presentation.

Laura, please begin whenever you are ready.

(51:49) Laura: Okay. Thank you very much for the opportunity to participate in this webinar today. I'll tell you about the activities that are going on at MnTAP for the state of Minnesota. I'll introduce MnTAP to you, tell you a little bit about our services, and then I'll turn this over to Bob so he might tell you more about the P2 targeting efforts that he's been undertaking, looking at both TRI and P2 data as well as other state data to get us a little closer to some of the targets that we should be trying to hit within our state.

We are a Minnesota-focused organization. We are here to help MN businesses implement solutions to helping them with resource efficiency, increasing their energy efficiency, reducing their costs, and helping them with pollution prevention. Overall this is really great business for our state because our businesses can remain competitive through their economic improvements; improve employee health and public health, as well as protecting the environment. So, we consider our jobs very exciting and a win for all of the participants.

We do this by primarily through industrial process assistance. We are located at the University of Minnesota within the School of Public Health. We provide assistance in the area of P2, efficient use of raw materials, water conservation strategy, as well as energy efficiency opportunities. We've been doing this for quite a while. We've been able to provide cost savings for businesses since 1984. Our services are comprised mostly of on-site assistance. We go to the client, both in site assessment and site visits, we have an active and robust intern program that we're launching right now for this coming summer, we do company team facilitation where we go repeatedly to different company facilities and help them facilitate their way through team exercises to identify pollution prevention and energy efficiency

opportunities within their facilities. We try to participate in demonstrations and research projects throughout the state. We have an active MN materials exchange, which is trying to help businesses instead of offloading things and throwing things away, to share these things among themselves. So if a business has an item that they no longer need they can put it on our materials exchange and someone else who might need that item can come along and pick that up at low or no cost exchange. This is a Craigslist if you will. Then we do a lot of communication and outreach, through our website or through written and printed materials, as well as presentations throughout the state.

To give you an idea of what we contribute back to our state, these are the results that were compiled for CY 2012. Every year, MnTAP looks at the first year implemented savings of all of the recommendations that were made for our efforts. As you can see in 2012, we had 1.8 million pounds of waste that were avoided. We conserved over 42 million gallons of water. We have a savings of 7.5 million kilowatt hours and over 300,000 therms of energy. That is a cost savings of nearly \$2 million to companies throughout the state. I will now turn this over to Bob and he can tell you a little bit more about how we go to these businesses and how we identify the areas where we will be working.

(56:18) Bob: As a part of the University's three missions; research, teaching, and outreach; MnTAP fulfills the outreach portion, that's the main reason why we are here. Certainly part of that is in addition to taking calls that come in through outreach, we also develop outreach campaigns, ever 3-4 years depending on time and effort, and these try to identify an interpretive process to identify those sectors we think would have good payback in terms of doing the outreach and providing the technical assistance. Manufacturers go into that and the four listed here are the most important, with TRI being pretty available and accessible in terms of numbers has that kind of emphasis, and so we look at those every time we go through a targeting exercise to help identify those areas that might need some assistance. Since staff come from industry, their expertise and knowledge of their experience in the past also feeds into this in terms of their knowledge in P2 sectors that they came from and what they cover. There are P2 opportunities to evaluate what can be done in a particular sector in P2, and whether or not implementation is possible, what are the chances that a company or a sector is going to do something, is there problems with inertia they don't want to do anything, or is it economic? Those things enter into it as well. Other factors play into it as well, such as hot topics like recent legislation or new technology, energy considerations. One example, back in the 1990s, CFCs were very hot, and so a couple of times various targeting campaigns back in the 1990s. So over the years sectors and processes that have been targeted include things like food manufacturers, health care, painting and plating processes. The approach I'm looking at now which is supported by a grant from ECOS is to look at TRI data in addition to a lot of other data sources that are available, we looked at in conjunction with TRI. So some of these have overlaps certainly. Realizing that, we still want to see if we can take a more comprehensive and compelling outreach effort that might be developed by looking at this data, and to be more intentional about the big picture of a sector's environmental impact and bring in these other datasets. You try to get beyond the anecdotal and consider other environmental media and materials that may or may not be just in the TRI and see if there is any connection or cause and effect between what is happening between TRI and air and water, and offer P2 assistance that gets at the overall operations and impact at a facility.

The methodology is pretty straightforward. The first cut is usually just looking at quantities, what are the big numbers, and focusing on those as a first cut, then looking at trends right after that, seeing if it's going down, if it's static, if it's going up, and focusing on those, and also then bring in the other data sets and see how they might compare to each other. So you want to see if there's a correlation that might show an opportunity for P2 that TRI alone may not do. Again this is the context of the big picture, including looking at a history of economic conditions. For instance, looking at the TRI data on hazardous waste from 2008-2010 and of course that was a period of economic downturn, it's interesting to look at the TRI and hazardous waste data to see that there are still sectors where the trend was going up during that economic downturn.

There are a lot of issues looking at these datasets and it is not a straightforward process. They have different impacts on the time and accuracy of the results, to try to manipulate this data into a single consistent system. Age: generally the data is at least two years old. I used 2008-2010 as the latest data I looked at. Some data, such as air toxics here in Minnesota, is gathered only every three years and may not be available for another three years after that. So it can be problematic, to be aware that the age of the data has to be a factor when you're looking at developing an outreach to a particular sector. Data types relates mainly to numerical fields in order to get to a single system, looking at different data sets, they have their number fields in different formats and they may have decimal numbers and those I generally just truncate and convert them all into a single number in the database that I import everything into. Formatting is mainly related to text fields, and this has to do with the main way you match companies or sectors across the datasets is with the address fields. If the address field has different ways they put things, whether or not something is spelled out or abbreviated, that kind of thing has to be belled with in order to get some consistent matches across datasets. That gets to be a very important situation that has to be dealt with.

I looked at three TRI datasets: TRI.net, basic plus dataset, and MN state's data that they had. I ended up using the basic plus dataset because it had the most data and seemed to be the most internally consistent. They all had issues with completeness, and it seemed that the basic plus having the most fields was going to be the best one to work with. The main issue is how many fields do not have data in basic plus. It's virtually everything in there and so we have to kind of go through and see which fields are worth analyzing. Plus of that system is that it does have other identifying information, such as haz waste ID numbers and NPDES permit numbers to facilitate matching to other datasets. There are some mismatches and blanks but they can be worked out in conjunction with the address fields. Because of the issues in time and effort and working out all these problems, I was only able to focus on TRI in conjunction with the haz waste data here at the state. The haz waste system data, that data has no system for identifying content other than EPA waste codes. Those quantities are in pounds so you don't know volume or concentration, so anything that comes out as rather qualitative rather than quantitative in terms of specific chemicals that are involved. Also, if you look at toxicity only, the TRI seems to have an index of people with toxicity issues. Another more minor problem is software versions and how they may or may not operate with different operating systems. I used Office 2010 with Windows 7 which is pretty current but perhaps the couple of issues I had with TRI.net may have been partly related to that.

I looked at TRI using the basic plus dataset, and the state's haz waste data. This next chart is the list of preliminary targets by four-digit NAICS codes; based on criteria I'll show on the following slides. There's totals for all wastes, since they're almost always mixtures that are characterized by the EPA waste codes. Further work should be done using those waste codes to identify chemicals. Again, since the percentages are not known, it would be pretty qualitative in any case. I looked at magnitude in conjunction with trend. You can see here a percent increase here. Petroleum and coal products went up pretty quickly in those three years as well as all these others. So try to filter these out to make sense of what we want to try to target here. Lot of ways you might slice and dice how you do this, you might look at number of shipments; you might look at how frequently they happen and that kind of thing. I just looked at these criteria, where one year had more than 10,000 lbs and the percent increase was more than 100%. Further filtering, on four-digit NAICS sectors and I took out the ones we do not typically deal with. So if they don't start with a 3, if they're not a manufacturer, I took those out of the list right away. That doesn't necessarily mean we don't work with them; we have in the past. But in general we don't work with these sectors.

The next filter level is this huge percent increase for that sector. Turns out that being an outlier is due to two facilities in a sector that does not have many to begin with. This is something we may or may not want to deal with in a separate project with those one or two companies. So this is the final list of sectors based on the previous criteria. The next takes a look at TRI analysis. Now, TRI, I decided to look at the media that had the largest releases. These are air releases and non-metals to POTWs. Those are the media that by far had the most releases and so those are the ones that I looked at in detail. Again these are ordered by magnitude, and I found it interesting here also that on Freon 142b, goes up in plastics, possibly a blowing agent, I'm not sure why it's there, but it came out to be a pretty big number in TRI. Again I wanted to filter this down a bit based on a combination of releasing trends and so these circled sectors I kept because they are going up in general, whereas the others are pretty static or were going down over the years. The far right column, process, is my guess as to what's going on with those chemicals.

This is showing the final list of releases based on the previous criteria for air. Then the POTW non-metals are these, pretty straightforward, and popped out of the database as is, didn't filter this any further.

Putting it together, the TRI and the haz waste, this is sorted by 4-digit NAICS codes based on previous criteria. So this is kind of the preliminary-final list, and the TRI and haz waste columns here with the symbols indicates why it's there. So the plus sign means it was based on the column that it came out of, so, a plus under TRI means it met their threshold for magnitude and trend to be included in this list. The equals sign means that there are releases from that column but they did not meet the initial magnitude or trend criteria for that particular dataset. Zero means there was no data or it was insignificant from that dataset. Again on the far right I put in my guesses for possible P2 just to indicate whether we might have some idea what P2 might be in those sectors, as a placeholder at this point.

Now, section 8 played into this after that to perhaps clarify what a facility is understanding is of what their own efforts are in P2. It's to get more detail about what they have done or to see if there is some correlation related to economic production or other outside factors in order to get more contextual

sense of whether or not it would be relevant to do a private campaign for that sector. So for example in this screenshot of the paper sector, it was interesting in that pretty much almost all of the text indicated that there was simply a change in the emission factors for this chemical that was raising the emission numbers. So this kind of acts as a disincentive to pursue that sector because if this changed emission factor does not seem to relate directly to P2 activity. In general also, other text uses the description of the W code and how it is. For sectors that have a three digit, it sometimes covers too much, so for instance sector 311 the food manufacturers, there are three main subsectors within that. Meat processing, oil seed milling, and one other. One way I was able to limit that was by looking at chemicals. So for instance in oilseed milling, I focused on hexane, and that pretty much will focus on what oilseed people and they're the ones I included because of that I was able to identify that is probably a pretty good sector to look after.

In terms of putting it together, again, the circled sectors I removed because we do not traditionally address those sectors, it might be our lack of P2 knowledge in those sectors, or looking at the Section 8 data did not support having those sectors included in my final targeted list.

There is the final list I came up with based on this analysis. Any further details on a targeting campaign for these sectors would certainly depend on other input from staff, both technical staff and communications staff, and also I think it would be interesting just to look at other data sets that I didn't have time to look at for this particular effort just to see what input those other datasets might have to clarify the situation for these various sectors.

In Minnesota, based on my work with TRI and haz waste, my conclusion was that any outreach should emphasize the P2 angle of P2 more the source reduction angle of it, I think that over time P2 has lost its shine for industry, taken for granted, its lost its appeal in comparison to other methods. Sometimes it can get mixed up with control technology. So I think it's good to do a general outreach to all sectors, with a special emphasis on the ones identified through the targeting exercise and also to continue to work with the state on training issues, we do a lot of collaboration with the state on training industry on TRI and Form R. But try to be more forthcoming on details, P2 activity going beyond the stock phrases that are offered by the W codes, try to get not only industry reporters but also having technical staff here at MnTAP be more intentional about explaining how they could explain to industry how the P2 codes are just a start in explaining their efforts in P2, and how they're going to explain them in Section 8.

To wrap up, I think the numbers point to the sectors that MnTAP can target, looking at multiple datasets I think gives a more complete picture by determining what other media emissions may complement or reinforce what the TRI alone gives. Section 8 information helps further refine and give some more relevant input for the specific elements of an outreach or targeting campaign.

So with that I can open it up for questions.

(Q&A session #2)

Laura and Bob, thanks so much for sharing all the work that you've done in creating this important tool using TRI information.

Next we will open it up to the second of our two Q&A sessions.

What prompts P2 reporting? Is it included in Tier 2?

Daniel: P2 reporting is associated with section 313 of EPCRA. The P2 Act requirements for reporting apply to Section 313 of EPCRA which has those requirements to fill out a TRI report, tier 2 reporting refers to a different section of EPCRA so there wouldn't be a connection there, the only connection with P2 reporting to EPCRA is that facilities that have to report to TRI under section 313 have to fill out the P2 section of the form as well.

How do you compare TRI data to waste water permits? Do you use EPA's discharge monitoring report tool?

Bob: I didn't get that far. I'd probably do something similar to what I did with haz waste data where I would look at matching criteria between sectors of individual facilities and then use that to bring in the actual emission data and/or permit data and then use that, again using magnitudes and trends, to mix and match with the other data sets to give a more complete picture of what's going on at that facility or within that sector.

What is Section 8?

Daniel: That might have been referring to Bob's presentation where we use slightly different terminology, but Section 8 is what Bob was talking about and that's the same data I was talking about. Section 8 is the section of the TRI form that was added by the P2 Act. So when I was showing the graphs with the waste management data, and the production ratio and the P2 activities, that's all Section 8 of the TRI form just refers to the P2 section.

As EPA expands P2 and TRI, can they push this down to the states to increase focus?

Daniel: Our goal is certainly that this will be a resource for states to use in targeting for technical assistance to use in identifying P2 practices, many states also have P2 recognition programs, those can be a resource, and hopefully states where you're providing technical assistance to facilities it's a good chance to let them know, like Bob said, go beyond just putting in the code for source reduction and fill out a little description of what you did, maybe even noting who in the technical assistance program you worked with. So I think it's a win win all around if this information is getting out there and getting used.

Bob: Also, from the MnTAP perspective, I did notice in the text area that they would, a couple reporters indicated the use of technical assistance service, such as us, but there's no elaboration as to what we might have done for them or even if it was MnTAP. So, it would be nice if they had at least identified what the technical assistance program had done to help them with their P2 activity.

Has MnTAP worked on reducing pollution by reformulating products to alternative ingredients that are less harmful to human health and the environment?

Laura: We have not undertaken that directly at this point in time. We've dabbled in it some. That requires a lot more intimacy and confidentiality between MnTAP and the companies that we service and our clients. We do have confidential relationships with our clients, but at that point we haven't gone too deep into that yet. It is something that the state is interested in, and fostering green chemistry and promoting green chemistry alternatives, certainly when those alternatives are evident and we are knowledgeable about them they are recommended, but in terms of actually getting into the client's laboratories and working with them, we haven't gone quite that far.

Have there been any plans to look at which green chemistry tools work best for which sectors?

Daniel: One thing that I'll say about that is that in the W codes that have been available up to this point, in the TRI list originated from a list used by RCRA, the Resource Conservation and Recovery Act, the solid waste management program. So they had a list of codes that they used for source reduction, and those tend to be more organized at the level of the overall waste stream as opposed to at the level of the individual chemical at the molecular level like green chemistry. So if you tried to aggregate using those codes, it's not going to give you a current sense of what green chemistry practices have been reported by different sectors. But for this year actually we've given six new options that facilities can use to answer the question of what source reduction activities did you implement. So it'll be more green chemistry oriented, talking about switching to greener reagent chemicals, or solvents, optimized reaction conditions, using biotechnology, etc. Hopefully in the next year we'll have that data come in, in July, just a few months, we'll get some statistics on green chemistry practices by different industries. For now, you'd more have to look in the optional section, 811, the free text fields get anecdotal examples.

Does MnTAP provide incentives or penalties to encourage companies to improve P2 activities?

Bob: No, we don't do that directly, that's more of a regulatory thing, the pollution control agency here would do that kind of thing. We provide mostly free assistance to companies in this state and we do it on a confidential basis and we work with companies to help them comply with the regulations and reduce pollution with the focus on reducing the pollution as source reduction. So if we find problems with a client that is regulatory-related, we will certainly inform them of that, and of what they should be doing, and give them contacts to the pollution control agency for them to pursue.

How does MnTAP evaluate the effectiveness of their materials exchange?

Laura: The materials exchange has a pretty extensive metric accumulation behind the scenes in the software, so we are able to identify how many items have been posted, how many exchanges have been made, how many new people have signed up for a viewing, different exchange options, and how many new members are on board. The exchange also has the opportunity to have embedded exchanges within the exchange. One of our partners is the University of Minnesota Reuse Center and so they can do exchanges within that community and then open up items after a certain period of time to the greater community. So, this is a pretty sophisticated software package that is available broadly through Waste Not and it really gives a great opportunity to capture data on these exchanges.

How or does toxicity and/or public health of releases impact your outreach criteria? So, do you consider public health impacts or toxicity?

Bob: We have not done that explicitly as of yet. We certainly have the data so we could do that. I know that the department that we're within, the Environmental Health Studies is also interested in that aspect. So to pursue these other datasets, that's certainly something we could look into.

How do community concerns impact your outreach or decisions on which industries or facilities to focus on?

Laura: Certainly that is one very powerful way to conduct outreach is to go through communities or industry organizations. They have the credibility within the industry sectors and can introduce MnTAP to facilities that could utilize our services. Looking at those community concerns, making our services known to communities, has been a fairly strong area for us to do outreach on through the communities. Community concerns come to us through a variety of avenues. We do a lot of public presentations, and we get approached by a number of different people from different sectors all over the state. We do specific outreach through some of our grant work to different areas within the state through community leaders as well. So it's a very strong association, it takes a lot of forms and we try to utilize them. I'm sure we're not doing it the best we can but we are trying to improve that always.

Does MnTAP periodically survey businesses to determine the extent to which P2 successes are influenced by their agency's efforts versus economic incentives and marketing pressures on businesses?

Bob: That would be some follow-up that we might do. As part of our annual reporting, we do follow up with companies to see what they have implemented in the past year based on our suggestions, and we don't do that much in terms of formal surveys, it's more looking at specific clients we have worked with in the past, and survey them to see what kind of impact we've had on their operation.

How do you connect the data you are collecting with the green chemistry group at EPA?

We collaborate with the green chemistry group at EPA, which is in our office of chemical safety and pollution prevention. So they've actually provided input to us on the development of the new tool, and the development of the new options that we're going to provide facilities with for reporting green chemistry. We're also exploring ways to work together with the Design for the Environment program, there's a definite connection there because hopefully facilities are switching away from TRI-listed chemicals toward chemicals that EPA has identified as being on the safer chemicals ingredients list. So that is one area where we are continuing to collaborate.

Is there a list of agencies that provide similar services as MnTAP, but for the other states? Where could that list be found?

Bob: There are lists like that. Generally, depending on the state it might be within a university or other educational institution or it might be within the regulatory agency within that state. It depends on the state where it is, but the P2RX website would have that kind of information as well.

Resources slide

We've listed a few important resources that we talked about here today. The TRI P2 website, the NPPR Safer Chemistry Challenge Program website, the MnTAP website, and chemicalright2know.org, which is where you can find all the presentations and the recorded webcast from today.

Contacts slide

The contacts for today's discussion: Bryan Shipley from ECOS, Christine Arcari from EPA, and myself. If you have any questions we hope that you won't hesitate to follow up with any one of us.

Thank You slide

And that concludes today's webinar on *Exploring the Toxics Release Inventory's Pollution Prevention (P2) Information*. I'd like to thank again our wonderful co-sponsors, the Environmental Council of the States (ECOS), US EPA, and the National Pollution Prevention Roundtable's Safer Chemistry Challenge Program. With a special thanks to our guest presenters from the Minnesota Technical Assistance Program, Laura and Bob. 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 P2 and TRI-related activities.

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!