Pollution Prevention: Region 5 Hazardous Substance Reduction On the Path to Greener Chemistry

Module 4: Identify and Target Facilities to Perform Hazardous Substance P2 Assessments

EPA
United States Environmental Protection Agency

MODULE INTRODUCTION

The U.S. Environmental Protection Agency (EPA) has developed a 160-slide, four-part training module series (approximately 5 hours for the self-guided module series) on pollution prevention. This is module 4 of 4, providing strategies for identifying those companies that may benefit from a hazardous substance pollution prevention (P2) assessment. The modules are the result of collaboration between EPA headquarters and EPA Region 5; input from other EPA regions is underway, and will be used to inform updated modules. This document provides key information on using this module.

This module can be used as a stand-alone training or in conjunction with EPA's other, related training modules to provide a more in-depth training for P2 staff and P2 Technical Assistance Providers (TAPs) on hazardous substance reductions. The goal of this module, and the overall training series, is to inform P2 staff and P2 TAPs of proven approaches, strategies, and tools that can be used during a P2 assessment to achieve increased hazardous substance reductions. To achieve this goal, EPA will increase the awareness of existing tools and approaches so they can successfully be integrated into organizational P2 assessment protocols. Each of the modules includes specific goals that will support the overall training goal and desired outcomes.

The material in this presentation should not be quoted or cited as official EPA policy. Additionally, the tools identified in this presentation are not an endorsement of, or intended to be an endorsement of any particular tool, unless it was developed by EPA.

Intended Users and Target Audience
This module is intended for use by P2 TAPs and state P2 staff who want to better understand existing strategies used to identify facilities and sectors that may benefit from hazardous substance reduction P2 assessments.

Training Module Objectives
- Increased awareness of successful targeting initiatives
- Increased use of regulatory databases to identify facilities using chemicals of concern that could benefit from a hazardous substance reduction P2 assessment
- Ability to articulate the benefits and challenges of using regulatory databases when targeting facilities and hazardous substances
- Increased use of the Toxics Release Inventory database to identify sector-wide P2 practices that have resulted in hazardous substance reductions and applying these practices to other facilities
- Increased use of the TRI/P2 Search tool to support hazardous substance reduction P2 assessments

The module begins with successful targeting campaigns where the Minnesota Technical Assistance Program (MnTAP) partnered with industry associations to reduce the use of chemicals of concern. This illustrates how increased collaboration with industry leaders to address chemicals of concern can be accomplished. MnTAP also describes ways various datasets could be used to develop targeting strategies, and potential challenges in managing and formatting these data. The module wraps up with using the TRI P2 Search tool to identify effective P2 practices (by facility and sector) that can be transferred to other businesses in similar sectors, as well as application of the TRI/P2 Search tool to support hazardous substance reduction P2 assessments.

How to Use This Module

This module is available as a PowerPoint presentation with slides. The recommended timeframe is approximately 1 hour 30 minutes for the presentation. EPA may update and adapt the training module to reflect region-specific and state-specific issues and concerns, as well as incorporate new policy and legal considerations as they arise.

Additional Resources

University of Minnesota. 2014. Minnesota Technical Assistance Program. http://www.mntap.umn.edu.

U.S. Environmental Protection Agency. 2013. Pollution Prevention (P2) and TRI. http://www2.epa.gov/toxics-release-inventory-tri-program/pollution-prevention-p2-and-tri.

MODULE AT A GLANCE

Duration and *Elapsed Time*	Module 4 Topics	Pages
10 minutes *10 minutes*	MnTAP targeting initiatives	6–8
30 minutes *40 minutes*	Using regulatory databases to identify facilities by hazardous substances/chemicals of concern	9–21
30 minutes *1 hour, 10 minutes*	Sector-targeting using the TRI P2 database	22–44
20 minutes *1 hour, 30 minutes*	Using the TRI P2 Search tool	45–53
TOTAL TIME: 1 HOUR, 30 MINUTES		

Icon Key

Instructions
This icon means there are specific instructions for the facilitator. This content should not be read aloud.

Background Information
This icon indicates that there is background information the facilitator should be aware of when covering this topic. This information is for the facilitator only.

Facilitator Says
This icon means the facilitator should read the content nearly verbatim, interjecting his/her thoughts when appropriate.

Key Point
This icon indicates an important point that the facilitator should communicate to the audience in his/her own words.

Discussion Questions
This icon means the facilitator should allow time for the audience to ask questions or the facilitator should ask the audience questions.

Multimedia
This icon indicates the facilitator will have students watch a video.

Online Resource
This icon indicates the facilitator will have students visit an online resource.

Handouts or Resource Materials
This icon indicates the facilitator will give students a handout or other resource material.

Transition
This icon indicates the facilitator will provide a transition from one topic to another.

Subtopic

MnTAP targeting initiatives
10 minutes

Specific Outcomes

Increased awareness of successful targeting initiatives

Notes for the Facilitator

Instructions: This is the first slide of a series that focus on topics related to targeting chemicals of concern and industrial sectors.

Discussion Question: What is your organization's current strategy for identifying facilities that may benefit from a hazardous substance P2 assessment?

Subtopics

- MnTAP targeting initiatives
- Using regulatory databases to identify facilities by hazardous substances

Specific Outcomes

- Increased awareness of successful targeting initiatives
- Increased use of regulatory databases to identify facilities using chemicals of concern that could benefit from a hazardous substance reduction P2 assessment
- Ability to articulate the benefits and challenges of using regulatory databases when targeting facilities and hazardous substances

Subtopic

MnTAP targeting initiatives
10 minutes

Specific Outcomes

Increased awareness of successful targeting initiatives

Notes for the Facilitator

Instructions: Explain that targeting is an interpretive process, with many factors that could be considered. Generally, TRI data are used as a quantitative foundation for these efforts. In addition, industry expertise can be instrumental in identifying sectors that have opportunity and incentive for change.

Say: For example, MnTAP uses targeting to generate quantitative information on industry sector P2 opportunities to support outreach goals for the state and to generate support for grant proposals. The need for outreach targets can be motivated by legislation, compliance issues, new technology development, or regional interest.

Due to TRI's easy access and our work with state TRI program, TRI was always used to identify potential companies in some way. Additionally, MnTAP staff typically come from industry, so their experience and knowledge of P2 in the sector they cover is very important. P2 topics can also be driven by recent legislation or new technology, or recently, energy considerations. Most clear example is strong emphasis on CFCs in the 90s. So over the years, sectors or processes have included metal finishers, food manufacturing, health care, painting, plating, cleaning, and pharmaceutical P2.

Subtopic

MnTAP targeting initiatives
10 minutes

Specific Outcomes

Increased awareness of successful targeting initiatives

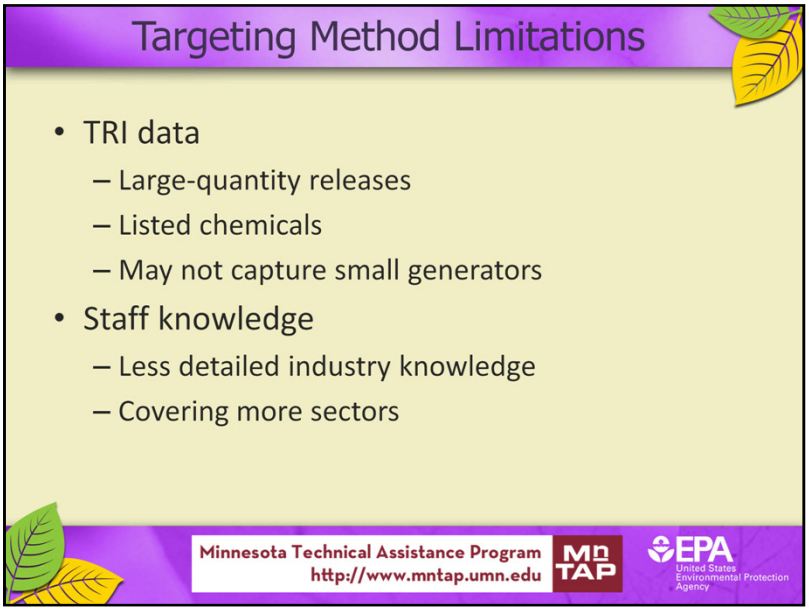
Notes for the Facilitator

Instructions: This slide lists three successful MnTAP targeting campaigns where the organization partnered with industry associations.

Say: The Minnesota Environmental Initiative's (MEI's) Autobody Refinishers Training and Technology Project was designed to reduce air toxics emissions from the auto body refinishing industry. To recruit participation, MEI worked with the Minnesota chapter of the Association of Automotive Service Providers. The success of our project was based upon the partnerships formed with industry leaders, product suppliers, and the trade association.

Hospitals for a Healthy Environment (H2E) is a national program designed to provide pollution prevention assistance to the health care sector. H2E was borne out of a partnership between EPA and the American Hospital Association. H2E set goals for pollution prevention, including mercury elimination and waste reduction of 50% by 2010. MnTAP was involved with H2E at its inception.

Metal casting was targeted for assistance in MnTAP by its industry-opportunities evaluation, conducted every three years. This work was funded through a Minnesota Department of Economic Development grant. The project helped re-establish MnTAP's assistance work for the metal casting industry, which had been underserved after losing industry expertise with a staff departure. These successful assessments at three businesses led to reported reduction of 3 million pounds of waste and 133,000 kWh of electricity, and saved $447,000.



Subtopic

Using regulatory databases to identify facilities by hazardous substances
30 minutes
(Elapsed time: 40 minutes)

Specific Outcomes

Increased use of regulatory databases to identify facilities using chemicals of concern that could benefit from a hazardous substance reduction P2 assessment

Notes for the Facilitator

Say: Relying on TRI data as a singular quantitative input, however, might not offer the best picture of a sector's P2 opportunity. Additionally, TRI data are focused on large generators with specifically listed chemical sets. As a result, some of the small and medium sized businesses that fall under the reporting limits might be missed. These small and medium businesses are the specific companies that MnTAP is most effective in serving.

Background Information: MnTAP staff members cannot be as focused on specific industry sectors due to the increase in number of industries served and gradual replacement of veteran staff with new hires who have not developed these industry relationships. Acknowledging this, the goal was to explore options for generating more broad-based quantitative information about waste release over a large number of industries.

Subtopic

Using regulatory databases to identify facilities by hazardous substances
30 minutes
(Elapsed time: 40 minutes)

Specific Outcomes

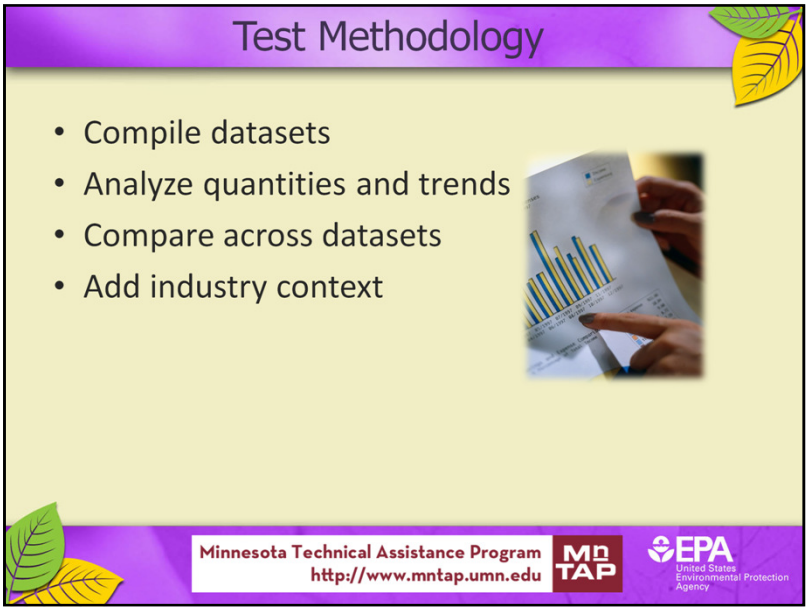
Increased use of regulatory databases to identify facilities using chemicals of concern that could benefit from a hazardous substance reduction P2 assessment

Notes for the Facilitator

Say: MnTAP wanted to explore the opportunity to offer P2 assistance that gets at the overall operations of a facility, addresses waste issues across multiple output media, and impacts a wider slate of waste issues. In an effort to better identify small and medium-sized facilities that would benefit from P2 assessments, MnTAP used the following regulatory databases:

Instructions: Discuss databases listed on presentation slide.

Background Information: A more comprehensive data analysis protocol to assist the human targeting process may be introduced in the future. In addition, work is ongoing to identify relationships between the TRI performance of a company and waste flows reported by other mechanisms. Work exploring this new approach was supported by MPCA and by an ECOS grant.



Subtopic

Using regulatory databases to identify facilities by hazardous substances
30 minutes
(Elapsed time: 40 minutes)

Specific Outcomes

Increased use of regulatory databases to identify facilities using chemicals of concern that could benefit from a hazardous substance reduction P2 assessment

Notes for the Facilitator

Say: The first step in targeting is to identify useful data sources available in the target area and then put the data in comparable format for analysis. Data can be sorted by quantity of material and trends in releases over time. Once potential target sectors have emerged, add other known information.

Use other known information, past implementation, and outreach efforts; Section 8 input on effective P2 measures, where available; and local industry factors to choose best opportunities. Analyze each set of data individually and link the sets through common industry context (like NAICS).

Background for the Facilitator: MnTAP used an Access database — this can be a challenge due to data consistency among sources as described later.

Hazardous Waste

NAICS	Description	2008	2009	2010	Percent Increase
3241	Petroleum and Coal Products Manufacturing	917,175	799,026	56,810,579	6,094
3399	Other Miscellaneous Manufacturing	226,461	151,618	5,208,880	2,200
3353	Electrical Equipment Manufacturing	117,330	34,276	2,237,545	1,807
3313	Alumina and Aluminum Production and Processing	551,485	281,556	1,934,321	250
3334	Air Handling and Conditioning Equipment	58,602	53,874	197,695	237
3326	Spring and Wire Product Manufacturing	180	110,910	159,277	88,387
3252	Synthetic Resin and Rubber Fibers	29,837	28,021	63,663	113
4861	Pipeline Transportation of Crude Oil	6,900	8,800	21,685	214
4412	Other Motor Vehicle Dealers	6,650	15,380	19,100	187
6215	Medical and Diagnostic Laboratories	6,158	3,922	18,847	206
9281	National Security and International Affairs	7,372	27,267	16,459	123
3273	Cement and Concrete Product Manufacturing	2,880	2,760	11,350	294
4234	Professional/Commercial Equipment/Supplies Wholesalers	4,730	10,052	9,825	107

Minnesota Technical Assistance Program
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Subtopic

Using regulatory databases to identify facilities by hazardous substances
30 minutes
(Elapsed time: 40 minutes)

Specific Outcomes

Increased use of regulatory databases to identify facilities using chemicals of concern that could benefit from a hazardous substance reduction P2 assessment

Notes for the Facilitator

Say: Hazardous waste data obtained from the Minnesota state database have been analyzed and sorted by sectors where there is any year with over 10,000 pounds of waste generated and more than 100% increase over the target timeframe. Relative to a specific chemical, this could be a qualitative analysis; however, large hazardous waste generation may signal large or inefficient operations and opportunity for improvement.

All results grouped by 4-digit NAICS. These are total releases for what are mainly mixtures as characterized by the EPA waste codes. Further work could be done to identify the chemicals based on the waste descriptions.

Hazardous Waste

NAICS	Description	2008	2009	2010	Percent Increase
3241	Petroleum and Coal Products Manufacturing	917,175	799,026	56,810,579	6,094
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Using regulatory databases to identify facilities by hazardous substances
30 minutes
(Elapsed time: 40 minutes)

Specific Outcomes

Increased use of regulatory databases to identify facilities using chemicals of concern that could benefit from a hazardous substance reduction P2 assessment

Notes for the Facilitator

Say: The next step is to eliminate those not traditionally addressed by your program. In MnTAP's case, this is generally those NAICS numbers that do *not* start with a "3." This is also a good time to address any apparent outliers.

Instructions: Explain that this example looks at a small sector and the increase was caused by two facilities. This would be best addressed by direct technical assistance, not industry outreach.

Hazardous Waste

NAICS	Description	2008	2009	2010	Percent Increase
3241	Petroleum and Coal Products Manufacturing	917,175	799,026	56,810,579	6,094
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List of high waste generating sectors

Minnesota Technical Assistance Program
http://www.mntap.umn.edu

Subtopic

Using regulatory databases to identify facilities by hazardous substances
30 minutes
(Elapsed time: 40 minutes)

Specific Outcomes

Increased use of regulatory databases to identify facilities using chemicals of concern that could benefit from a hazardous substance reduction P2 assessment

Notes for the Facilitator

Say: This sorting leaves a final list of targeted sectors based on generation of over 10,000 pounds of waste and having more than a 100% increase in generation over the time period analyzed.

Transition: The next step is to look at what comes up out of the TRI analysis.

TRI: Air Releases

NAICS	Quantity, Description	2008	2009	2010	Chemical	Process
3112	12 Oilseed Milling	2,110,509	1,752,402	1,864,846	Hexane	Oilseed extraction
2211	18 Electric Utilities	1087,363	1,086,456	1,266,112	Ammonia, Acids	Combustion
3324	6 Storage Tank Manufacturing	668,110	844,569	877,808	n-Butyl Alcohol, glycol ethers	Painting
3221	7 Pulp/Paper Mills	799,901	742,997	765,552	Methanol, Acids	Pulping
3116	9 Animal Processing	821,646	484,208	815,724	Ammonia	Processing
3113	4 Sugar Manufacturing	760,993	620,709	575,008	Ammonia	Processing
3251	23 Basic Chemicals	729,530	895,062	305,083	Hexane, Ammonia, Acetaldehyde	Mixing
3241	9 Petroleum Products	585,379	603,205	611,423	Methanol, Xylene, Ammonia	Processing
3222	3 Converted Paper	264,848	195,256	252,936	Toluene, Methanol	Pulping
3261	22 Plastics	286,357	205,747	173,767	1-Chloro-1,1-Difluoroethane, Styrene	Refrigeration?
3366	8 Boats	393,659	83,701	136,364	Styrene	Polymerization
3361	3 Motor Vehicles	236,405	190,714	173,254	n-Butyl Alcohol, Xylene	Painting
3371	5 Furniture	213,846	152,795	178,606	Xylene, Toluene	Painting
3391	5 Medical Equipment	141,486	127,502	117,245	Xylene, Toluene, Cyclohexane	Cleaning
3328	25 Metal Coating	158,290	104,049	91,477	Methylene chloride, Chloroform, Xylene	Cleaning
3212	4 Wood Products	206,801	88,215	42,277	Methanol, Formaldehyde	Painting

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Subtopic

Using regulatory databases to identify facilities by hazardous substances
30 minutes
(Elapsed time: 40 minutes)

Specific Outcomes

Increased use of regulatory databases to identify facilities using chemicals of concern that could benefit from a hazardous substance reduction P2 assessment

Notes for the Facilitator

Say: We are looking at the largest releases by media, air, and water using TRI air release and non-metals to POTW data. These are the largest air releases ordered by magnitude.

The criteria to start narrowing down the list are as before: a combination of release volume, trends, and MnTAP industry experience within Minnesota. Note that TRI releases do not have changes as large as seen with hazardous waste.

TRI: Air Releases and POTW Non-metals

List of high air release sectors

NAICS	Quantity, Description	2008	2009	2010	Chemical	Process
3112	12 Oilseed Milling	2,110,509	1,752,402	1,864,846	Hexane	Oilseed extraction
2211	18 Electric Utilities	1,087,363	1,086,456	1,266,112	Ammonia, Acids	Combustion
3324	6 Storage Tank Manufacturing	668,110	844,569	877,808	n-Butyl Alcohol, glycol ethers	Painting
3221	7 Pulp/Paper Mills	799,901	742,997	765,552	Methanol, Acids	Pulping
3116	9 Animal Processing	821,646	484,208	815,724	Ammonia	Processing
3241	9 Petroleum Products	585,379	603,205	611,423	Methanol, Xylene, Ammonia	Processing
3222	3 Converted Paper	264,848	195,256	252,936	Toluene, Methanol	Pulping

List of largest releasers of non-metals to POTWs

NAICS	Quantity, Description	2008	2009	2010	Chemicals
3261	22 Plastics	8,532,362	9,031,967	10,483,358	N,N-Dimethylformamide, 1,3-Phenylenediamine
3221	7 Paper	6,746,026	7,699,441	7,919,495	Methanol
3115	25 Dairy	1,785,458	1,807,411	2,026,093	Nitrates, Nitric Acid

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Subtopic

Using regulatory databases to identify facilities by hazardous substances
30 minutes
(Elapsed time: 40 minutes)

Specific Outcomes

Increased use of regulatory databases to identify facilities using chemicals of concern that could benefit from a hazardous substance reduction P2 assessment

Notes for the Facilitator

Say: This slide shows a final list of TRI releasers based on previous criteria, as well as a list of the largest releasers of non-metals to POTWs. Since these are all large and increasing, there are no deletions of sectors.

Putting It Together

NAICS	Description	TRI-air	TRI-POTW	HW	Possible Pollution Prevention
2211	Electric Utilities	+	=	=	Unknown
3112	Oilseed Milling	+	=	=	Recycle
3115	Dairy	+	=	=	Process Optimization
3116	Animal Processing	+	+	0	Unknown
3221	Pulp/Paper Mills	+	+	=	Unknown
3222	Converted Paper	+	=	=	Unknown
3241	Petroleum Products	+	=	+	Unknown
3252	Synthetic Resin Fibers	=	=	+	Unknown
3261	Plastics	+	+	=	Substitution, Process Optimization
3273	Cement/Concrete Products	0	=	+	Unknown
3313	Alumina/Aluminum Production and Processing	=	=	+	Process Optimization
3324	Storage Tank Manufacturing	+	=	=	Substitution, Process Optimization
3334	Air Handling and Air Conditioning Equipment	=	=	+	Substitution, Process Optimization
3353	Electrical Equipment	=	=	+	Substitution, Process Optimization
3399	Miscellaneous Manufacturing	=	=	+	Substitution, Process Optimization

KEY
+ Target based on analysis criteria
= Releases in sector, but not meet initial criteria
0 No data or insignificant

Minnesota Technical Assistance Program
http://www.mntap.umn.edu

Subtopic

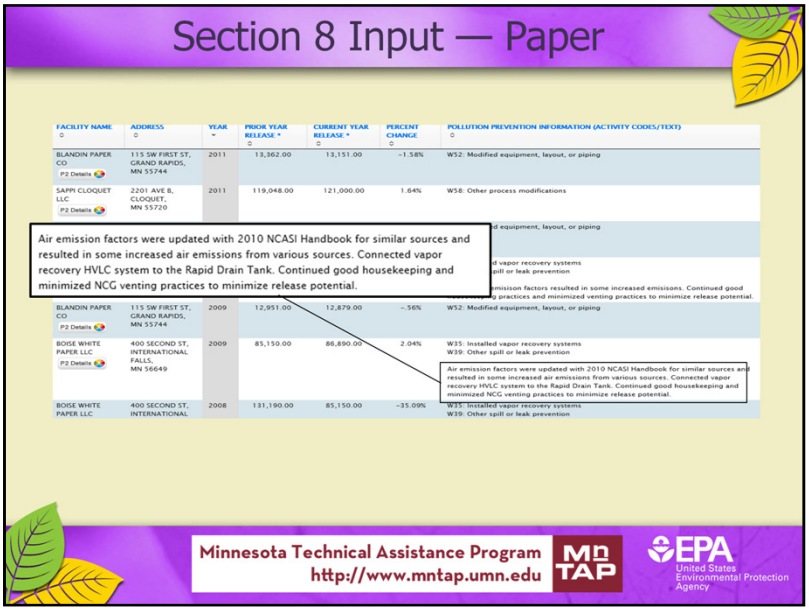
Using regulatory databases to identify facilities by hazardous substances
30 minutes
(Elapsed time: 40 minutes)

Specific Outcomes

Increased use of regulatory databases to identify facilities using chemicals of concern that could benefit from a hazardous substance reduction P2 assessment

Notes for the Facilitator

Say: Bringing everything together, combining and sorting by NAICS codes based on previous criteria gives this close-to-final list of targets.



Subtopic

Using regulatory databases to identify facilities by hazardous substances
30 minutes
(Elapsed time: 40 minutes)

Specific Outcomes

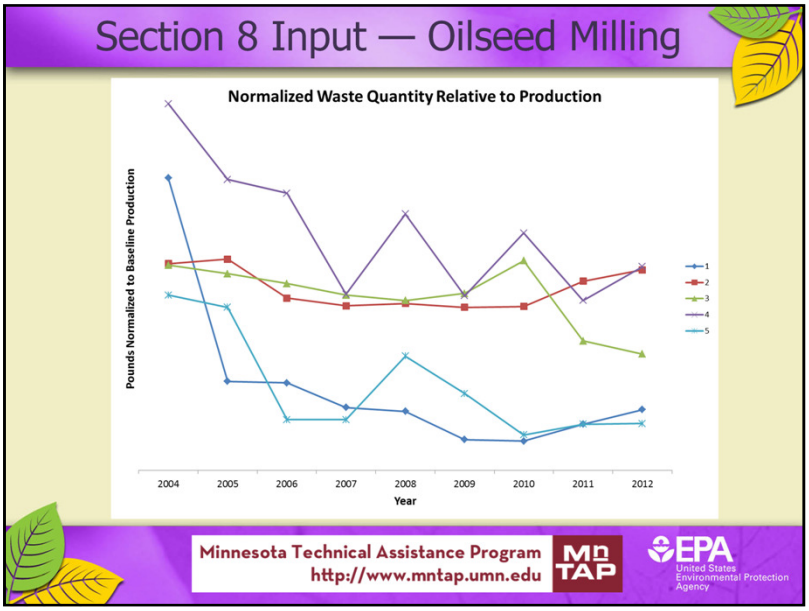
Increased use of regulatory databases to identify facilities using chemicals of concern that could benefit from a hazardous substance reduction P2 assessment

Notes for the Facilitator

Say: Section 8 data are used to get more detail about what has been done in the reporting period. These data could explain production, economics, or other outside factors that influence emission rates.

For example, in the paper sector, changes in emission factor calculations may have an impact on the release reported. More investigation should be done before engaging in P2 efforts.

Online Resource: To clarify a facility's effort and intent, visit http://www.epa.gov/enviro/facts/tri/p2.html.



Subtopic

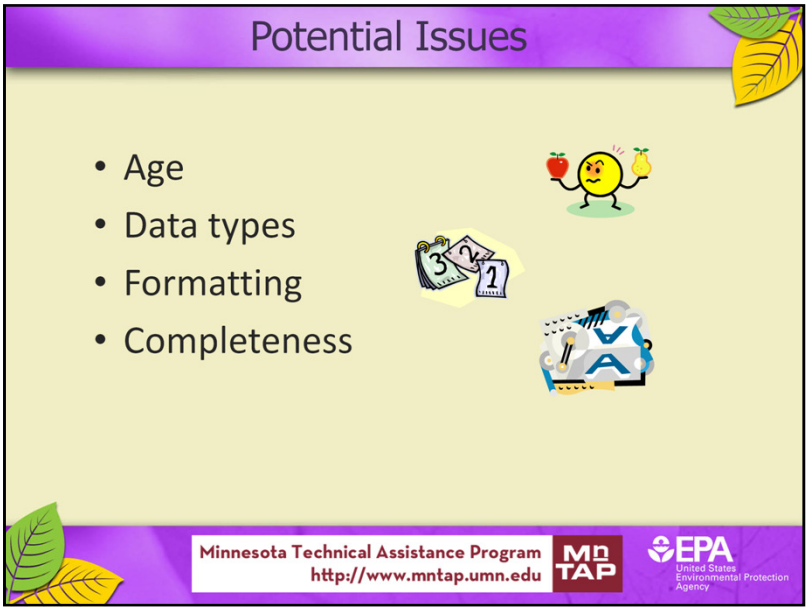
Using regulatory databases to identify facilities by hazardous substances
30 minutes
(Elapsed time: 40 minutes)

Specific Outcomes

Increased use of regulatory databases to identify facilities using chemicals of concern that could benefit from a hazardous substance reduction P2 assessment

Notes for the Facilitator

Say: As you can see in the oilseed milling sector, selection of n-hexane as a target chemical finds generic language describing broad P2 activities of a couple of facilities. Additionally, the data suggest that two facilities may have opportunity to improve hexane recycling performance. While this may not translate to an industry target, it can be used as part of an overall air emissions reduction effort.



Subtopic

Using regulatory databases to identify facilities by hazardous substances
30 minutes
(Elapsed time: 40 minutes)

Specific Outcomes

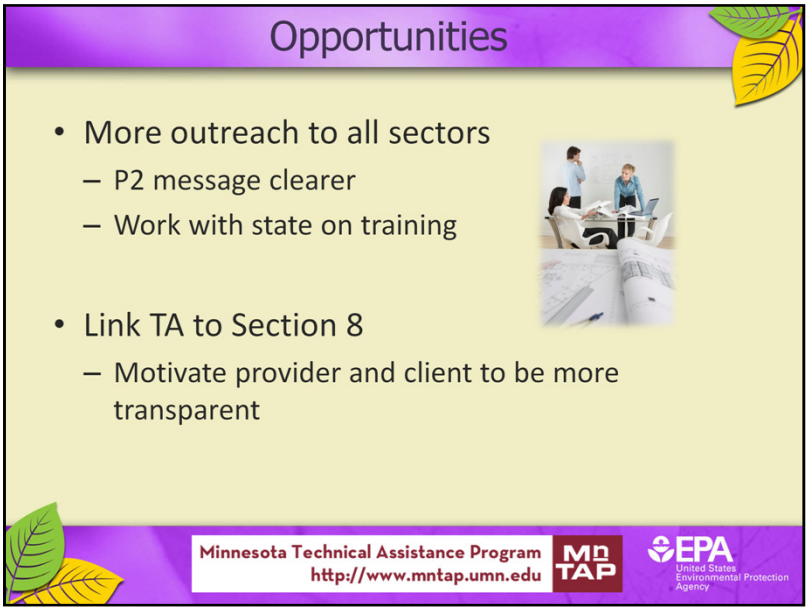
Ability to articulate the benefits and challenges of using regulatory databases when targeting facilities and hazardous substances

Notes for the Facilitator

Say: This analysis is not a straightforward process. Data timeliness, type, missing data, and formatting affect the time, effort, and accuracy to manipulate the data for comparison.

Issues can include:

- Data are generally at least 2 years old (used 2008–2010). Some data not gathered annually (air toxics every 3 years). The lag in data is something to remember when doing outreach and assistance; make sure the need is confirmed.
- Data types relate mainly to quantitative fields. Different inputs need to be converted to one data type in the integrated database.
- Formatting relates to text fields and the need to identify facilities and sectors in a consistent manner across a variety of input sources. We investigated the use of three TRI datasets: TRI.NET, BasicPlus, and the state's. BasicPlus was used for this analysis since it had the most data and was the most consistent.
- Completeness refers to the number of cells that are missing data.



Subtopic

Using regulatory databases to identify facilities by hazardous substances
30 minutes
(Elapsed time: 40 minutes)

Specific Outcomes

Ability to articulate the benefits and challenges of using regulatory databases when targeting facilities and hazardous substances

Notes for the Facilitator

Subtopic

Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Instructions: This is the first slide of a series that focus on topics related to the Toxics Release Inventory.

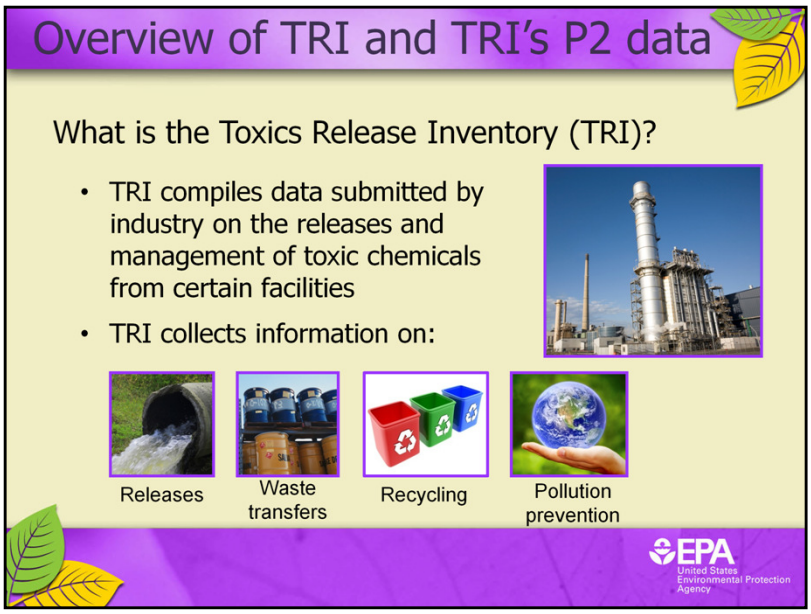
Discussion Questions: Begin this session by asking the trainees how familiar they are with the Toxics Release Inventory.

Subtopics

- Sector targeting using the TRI P2 Database
- Using the TRI P2 search tool

Specific Outcomes

- Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities
- Increased use of the TRI/P2 search tool to support hazardous substance reduction P2 assessments



Subtopic

Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Say: TRI compiles data submitted by industry about the releases and management of toxic chemicals at 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 through recycling or P2.

Subtopic

Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Say: TRI was established in 1986 as a regulatory response to the demand for information about toxic chemicals at industrial facilities following the Bhopal chemical disaster. Today, roughly 20,000 facilities report annually.

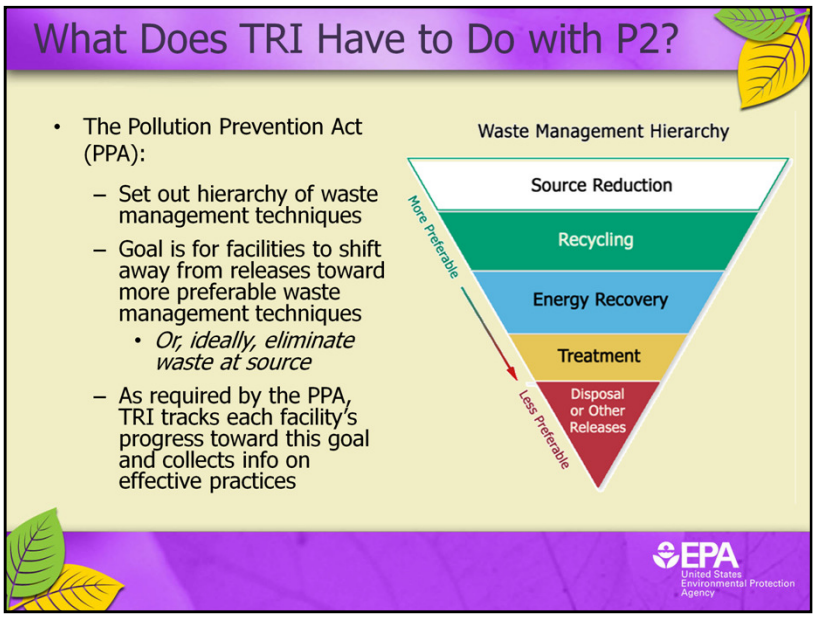
A facility must report to TRI if it:

- Is in a specific industrial sector or is a federal facility,
- Employs at least 10 full-time employee equivalents, *and*
- Manufactures or processes over 25,000 pounds of a listed chemical *or* otherwise uses over 10,000 pounds of a listed chemical in a given year (lower thresholds for persistent, bioaccumulative, and toxic chemicals (PBTs)

Background Information: TRI covers the following industry sectors (* added in 1997):

- Mining: metal mining,* coal mining*
- Electricity generation (from coal and/or oil combustion)*
- Manufacturing: food, chemicals, plastics, computers, wood, textiles, printing/publishing
- Wholesale trade: chemical wholesalers,* petroleum bulk terminals*
- Hazardous waste treatment, storage, and disposal*
- Solvent recovery,* materials recovery

(* added in 1997)



Subtopic

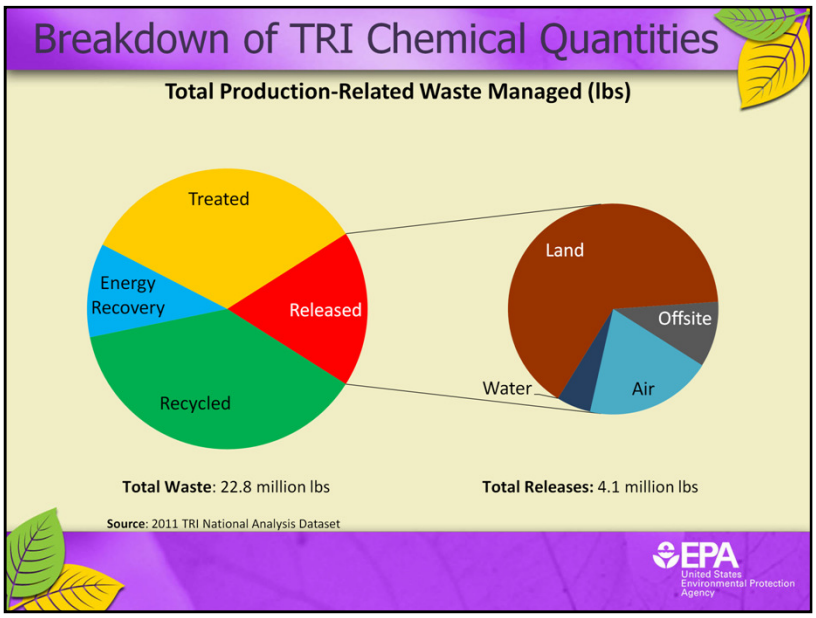
Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Say: TRI was significantly expanded by the Pollution Prevention Act (PPA), which set out the hierarchy of waste management techniques shown here. Under the PPA, the goal is for facilities to shift away from environmental releases at the bottom of the hierarchy toward more preferable waste management techniques like recycling or ideally to prevent pollution by eliminating waste at its source. As required by the PPA, TRI tracks each facility's progress toward this goal and collects information on P2 and other environmental practices.



Subtopic

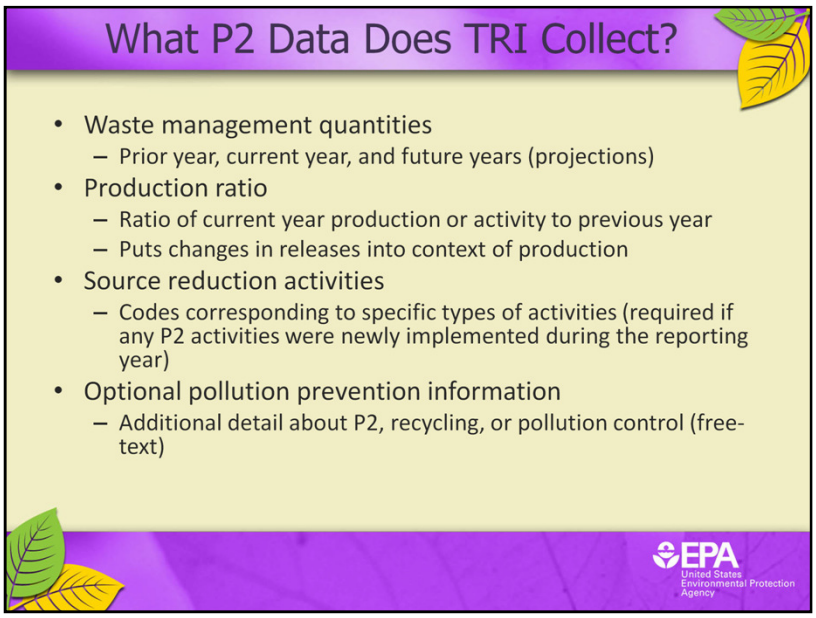
Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Say: This slide drills down further into the different metrics that TRI offers. Each facility provides an inventory of its releases to air, water, land, etc., but also a broader inventory of how it manages the chemical within the framework of the PPA's waste management hierarchy.



Subtopic

Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

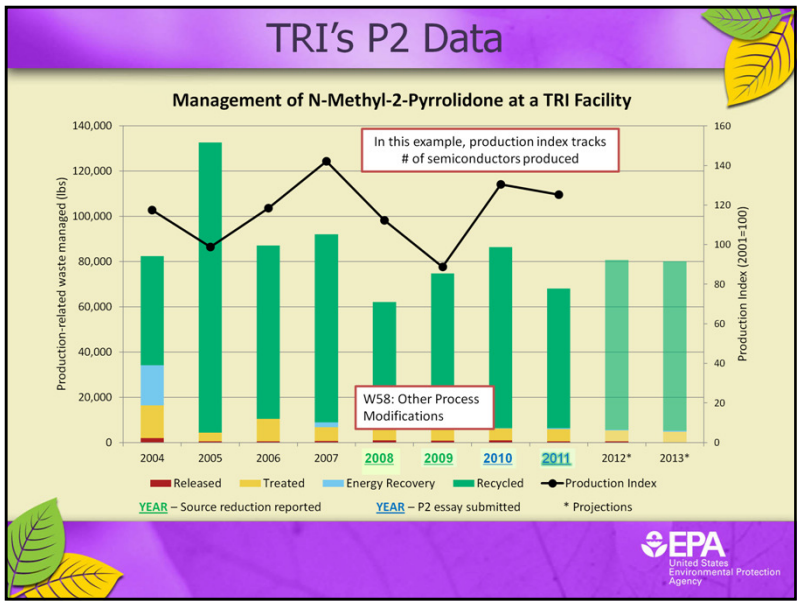
Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Key Point: There are four basic pieces of information that TRI collects under the PPA. 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.

Say: Let's work through an example. 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 to reduce the amount of chemical waste generated to produce the same number of cars.



Subtopic

Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

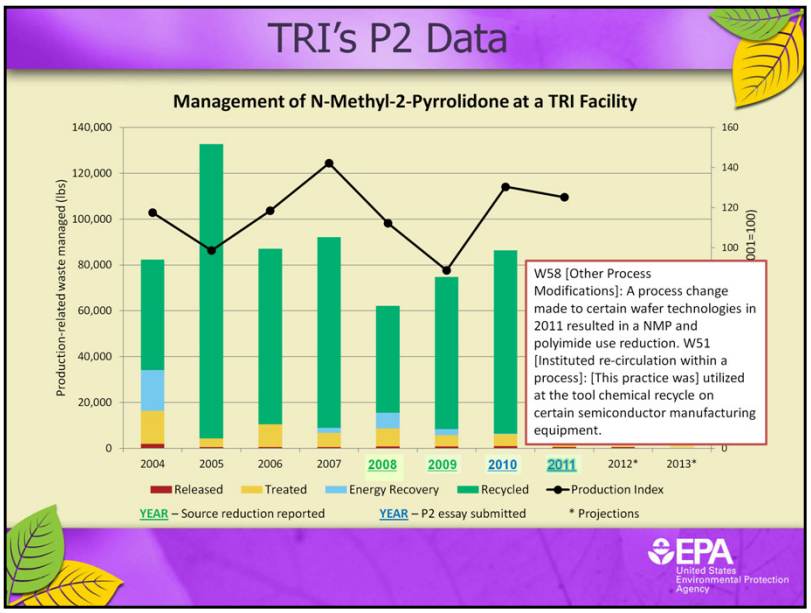
Instructions: This slide contains animation with triggers. Click "Production Index," then "2008," then "2011" (which will advance to the next slide).

Say: This is actual TRI data from a facility. Since 2004, this facility has reported N-methyl-2-Pyrrolidone, or NMP. The multicolored bars indicate the amount of chemical waste that they generated each year and a breakdown of how they managed it within the hierarchy.

In general, you would want these bars to be trending down over time, which is 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, such as treatment, recovery, and recycling.

This slide also shows the production index, which puts the chemical quantities into context. Since this is a semiconductor manufacturer, the black line presumably tracks the number of semiconductors produced.

Years in which this facility reported source reduction activities or optional additional text are highlighted here as well. In 2008, the facility's waste decreased significantly as they reported making a process modification.



Subtopic

Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Say: In 2011, this facility reported two P2 activities and provided additional descriptive text elaborating on each one.

Examples of TRI P2 Text

Source Reduction Activity Category and Code Reported	Pollution Prevention Text Submitted
Raw Material Modifications W42: Substituted raw materials	We have reduced our air emissions by substituting #6 fuel oil with B50, a product that is 50% vegetable oil.
Cleaning and Degreasing W60: Changed to mechanical stripping/ cleaning devices (from solvents or other materials)	Grit blasting has been used in place of some of our acid stripping operations. Our customer satisfaction with this process will determine if it will be used as a permanent change. Otherwise our acid use will increase with expected increase in production requirements.
Inventory Control W21: Instituted procedures to ensure that materials do not stay in inventory beyond shelf-life	We found customers for paint at the end of its shelf life that did not require high performance standards of paint within its shelf life. This reduced the amount in the waste stream.
Process Modifications W51: Instituted re-circulation within a process	We increased the amount of trichloroethyelene solvent we distilled by allowing an additional cycle of use and distillation before disposing of the solvent. Production team implemented the process.

EPA United States Environmental Protection Agency

Subtopic

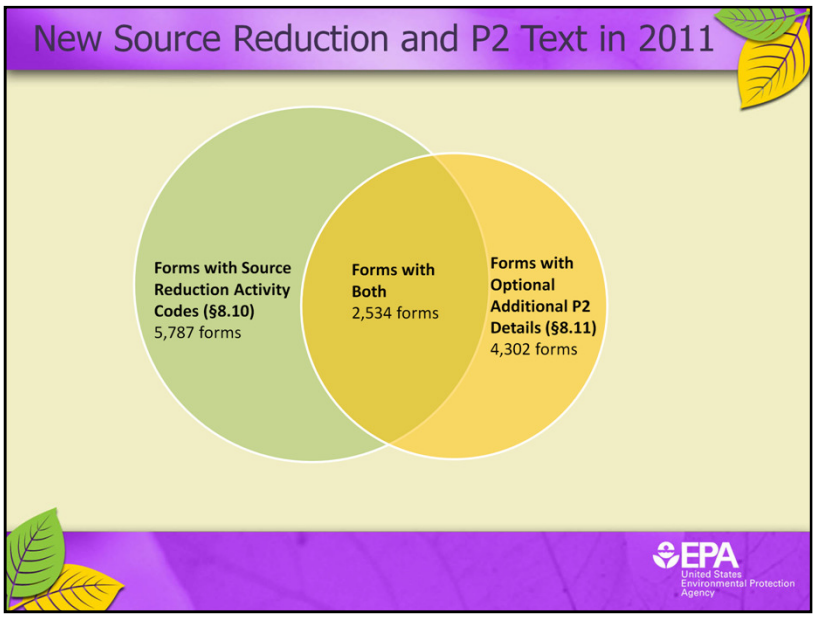
Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Instructions: Explain that this slide provides examples of source reduction activities and corresponding P2 text submitted by reporting facilities. Section 8.10 is a required field; facilities implementing P2 activities are required to report these activities using "W-codes" like the ones shown here. Section 8.11 is optional but often provides far more useful information about the activities implemented.



Subtopic

Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

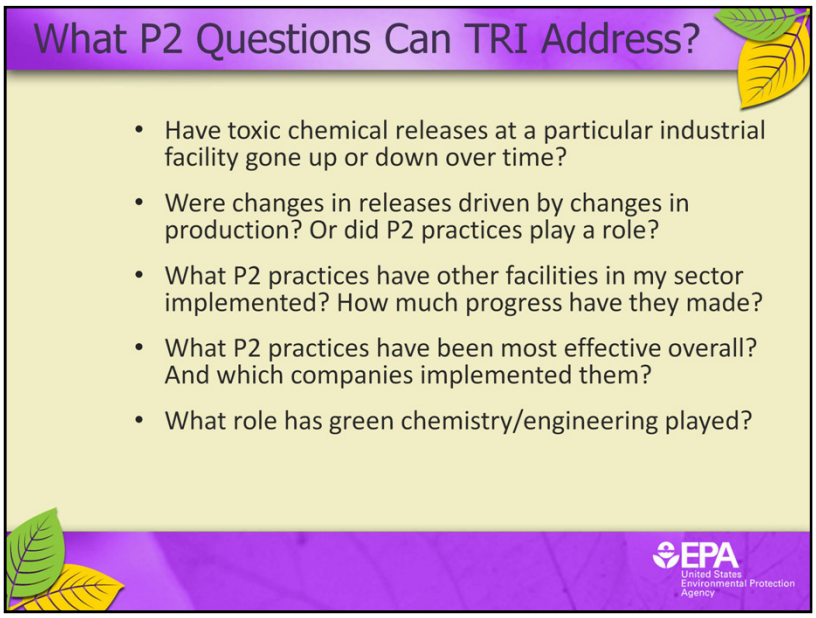
Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Say: In 2011, 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 environmentally friendly practices other than source reduction that still advance the purposes of the P2 act.

Background Information: This slide uses data from 2011. The number of entries with P2 text is a count of Section 8.11, and is not limited to P2-related entries.



Subtopic

Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Instructions: Read each of the questions listed on the slide. Foster discussion about each as appropriate.

Discussion Question: Ask the trainees if they think TRI is well-suited to answer P2 questions. Survey the group to reveal several opinions before proceeding to the next slide.

Why Is TRI Well-Suited to This Purpose?

- Unique combination of:
  - Standardized, quantitative environmental metrics
  - Qualitative information on the organizations and activities that have demonstrated environmental improvements
- Breadth and depth of the data collected:
  - Detailed, multi-media release and waste management information
  - Data collected annually, stretching back decades
- Explicit focus on public data access and awareness

EPA United States Environmental Protection Agency

Subtopic

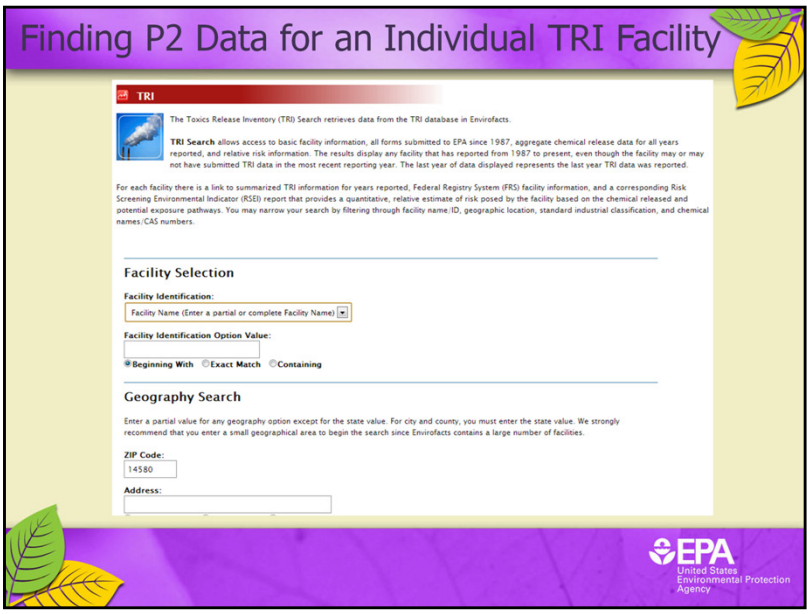
Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Instructions: This slide explains why TRI is well-suited at addressing P2 questions. Read the slide out loud and foster discussion.



Subtopic

Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

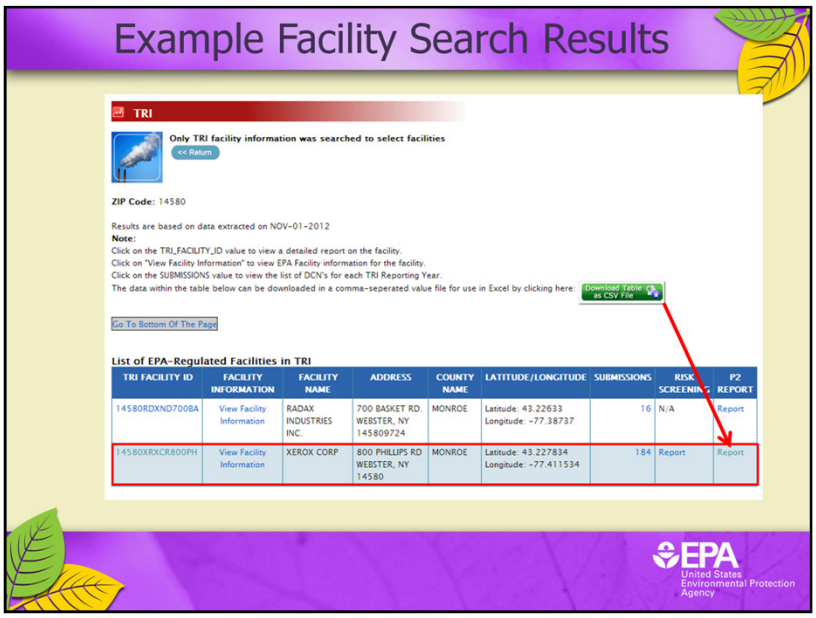
Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Instructions: This slide contains a screenshot of the TRI Search tool that can be replaced by a live demonstration.

Say: The standard TRI Search tool now lets you find P2 information for selected facilities of interest. You can search for an individual facility or by geographic area (as is done here using ZIP code) or by name or TRI ID number.

Online Resource: Try working through an example facility search by ZIP code using 14580.



Subtopic

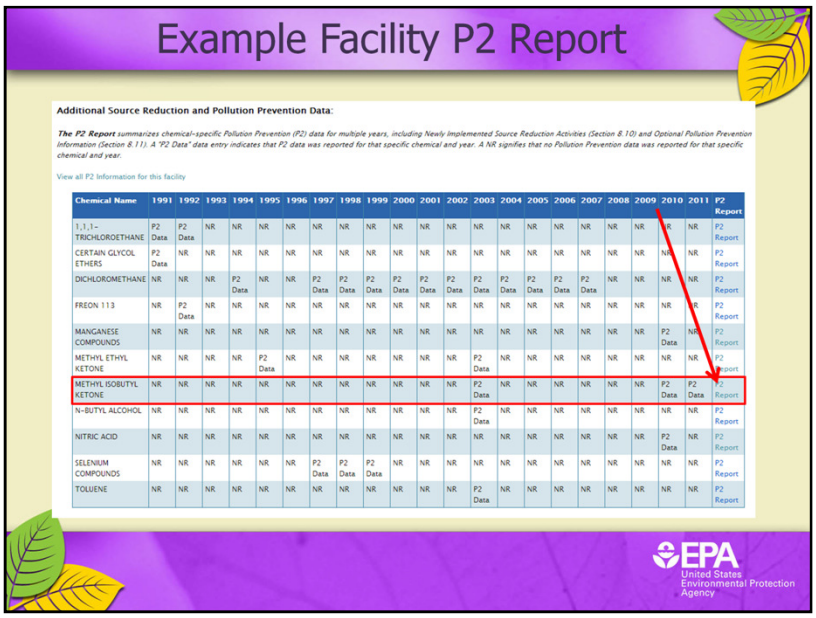
Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Instructions: This is a screenshot of the results for a ZIP code search. Click on the "Report" link to see which chemicals and years have P2 information available for this facility.



Chemical Name	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	P2 Report
1,1,1-TRICHLOROETHANE	P2 Data	P2 Data	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	P2 Report
CERTAIN GLYCOL ETHERS	P2 Data	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	P2 Report
DICHLOROMETHANE	NR	NR	NR	P2 Data	NR	NR	P2 Data	P2 Data	P2 Data	P2 Data	P2 Data	P2 Data	P2 Data	P2 Data	P2 Data	P2 Data	P2 Data	NR	NR	NR	NR	P2 Report
FREON 113	NR	P2 Data	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	P2 Report
MANGANESE COMPOUNDS	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	P2 Data	NR	P2 Report
METHYL ETHYL KETONE	NR	NR	NR	NR	P2 Data	NR	NR	NR	NR	NR	NR	NR	P2 Data	NR	NR	NR	NR	NR	NR	NR	NR	P2 Report
METHYL ISOBUTYL KETONE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	P2 Data	NR	NR	NR	NR	NR	NR	P2 Data	P2 Data	P2 Report
N-BUTYL ALCOHOL	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	P2 Data	NR	NR	NR	NR	NR	NR	NR	NR	P2 Report
NITRIC ACID	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	P2 Data	NR	P2 Report
SELENIUM COMPOUNDS	NR	NR	NR	NR	NR	NR	P2 Data	P2 Data	P2 Data	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	P2 Report
TOLUENE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	P2 Data	NR	NR	NR	NR	NR	NR	NR	NR	P2 Report

Subtopic

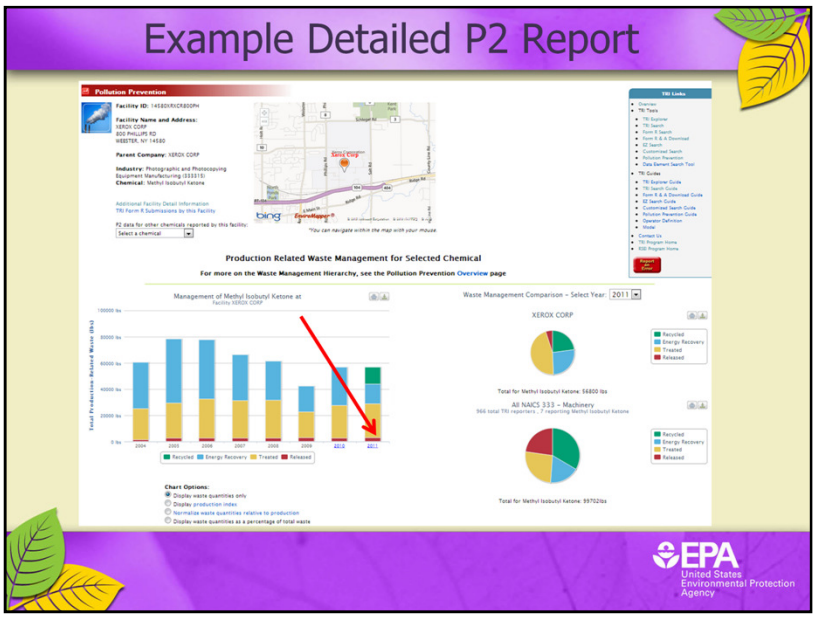
Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Instructions: This slide contains a screenshot of the TRI Search tool that can be replaced by a live demonstration. Select methyl isobutyl ketone as your chemical of interest. Doing so takes you to the "P2 Details" report.



Subtopic

Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

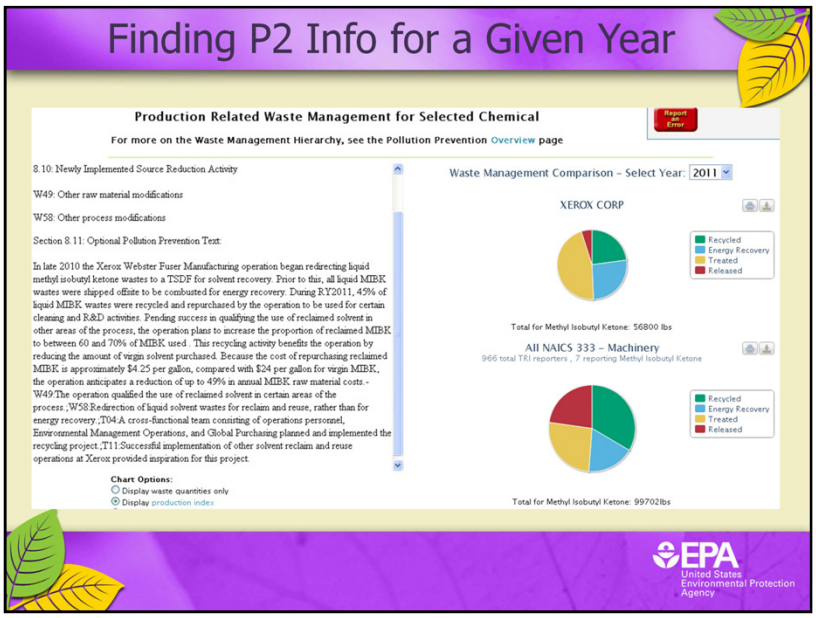
Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Instructions: This slide contains a screenshot of the P2 tool's detailed Pollution Prevention report that can be replaced by a live demonstration.

Say: This report shows waste management trends for this chemical at this facility, as well as a comparison to other facilities in the same sector. A user can look up what other similar facilities are doing by clicking the link to see other P2 activities for this chemical and sector. Users can also easily look at other chemicals reported by the facility using the dropdown.

In this instance, you can see that they had a recycling amount — though not an actual source reduction — for the first time in 2011. Clicking on the year displays the information the facility provided describing this improvement.



Subtopic

Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

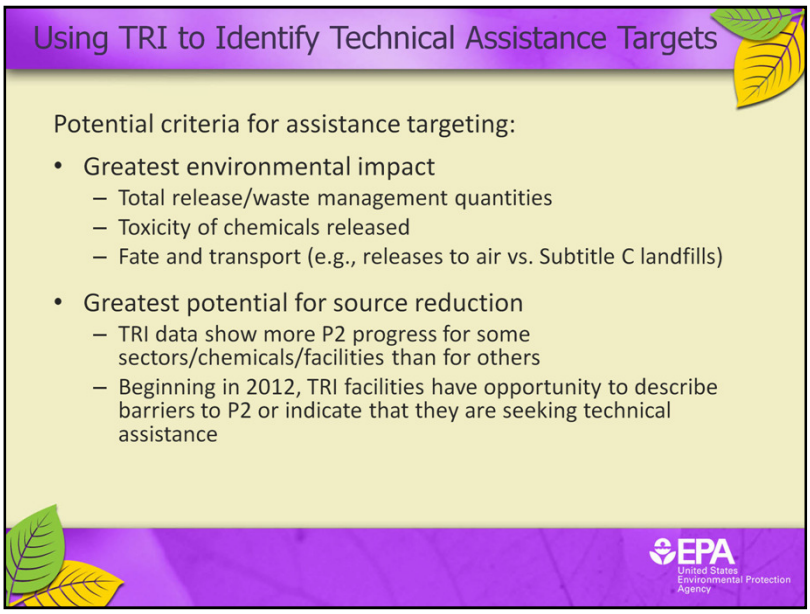
Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Say: This slide contains a screenshot of the P2 tool's detailed Pollution Prevention report that can be replaced by a live demonstration.

In this example, the report outlines how the company started sending the chemical waste to a facility for solvent recovery in 2011. It goes on to talk about how they're now using the recovered solvent instead of the virgin material. In addition to helping their TRI numbers, the report goes on to say, this is saving them a lot of money. So this is a real success story from all different angles. Reported P2 activities and descriptions for other years are listed in a table below the charts.



Subtopic

Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

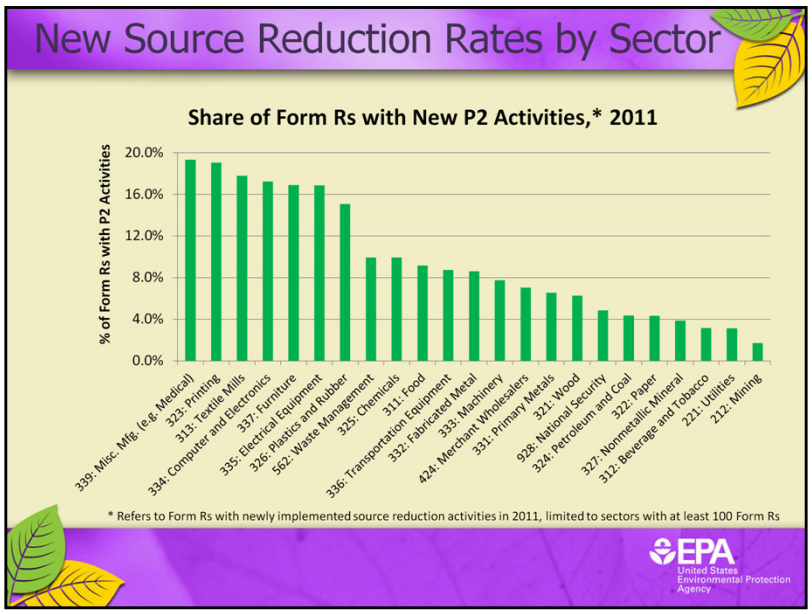
Say: TRI can be used to target facilities and industrial sectors for pollution prevention assessments by prioritizing either environmental impact or potential for source reduction.

Key Point: Things to consider when prioritizing by environmental impact are:

- Total releases
- Toxicity of the chemicals released
- Fate and transport

Things to consider when prioritizing by potential for source reduction are:

- P2 progress is made more in some sectors than others.
- P2 progress is made more for some chemicals than others.



Subtopic

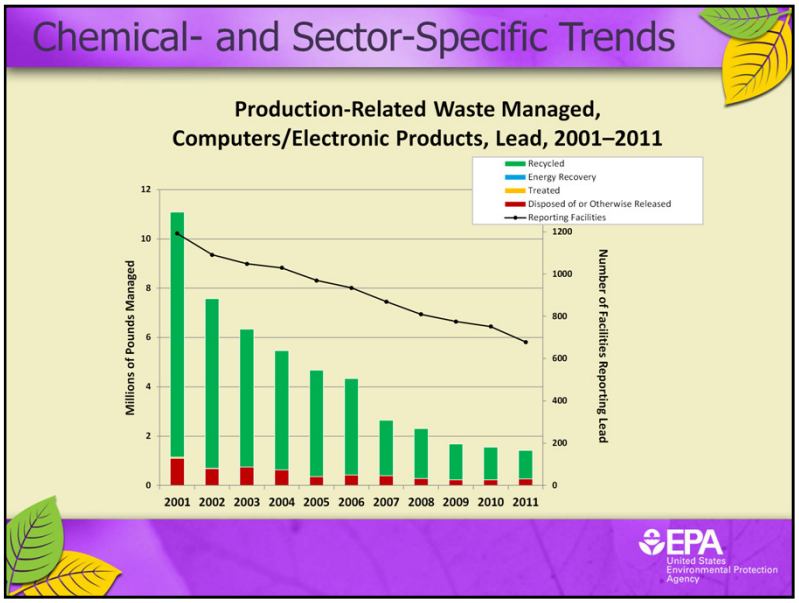
Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Say: This slide shows source reduction rates for different sectors. A graph showing different chemicals might look similar. Facilities in sectors with higher P2 implementation rates might have greater opportunities for P2. However, sectors where little source reduction is currently occurring might point to sectors where additional research or innovative approaches could be most useful.



Subtopic

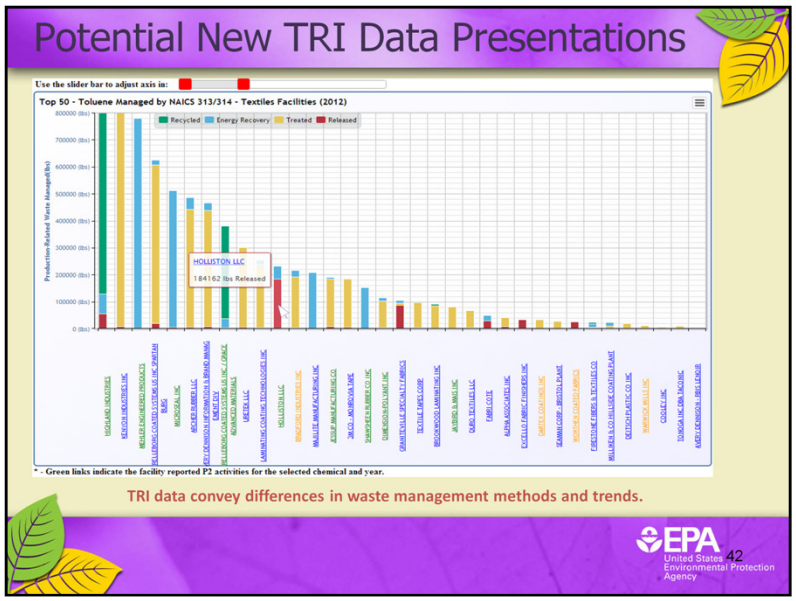
Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Say: This slide demonstrates the point about disparities in P2 progress. It displays a sector-chemical combination where dramatic progress has been made.



Subtopic

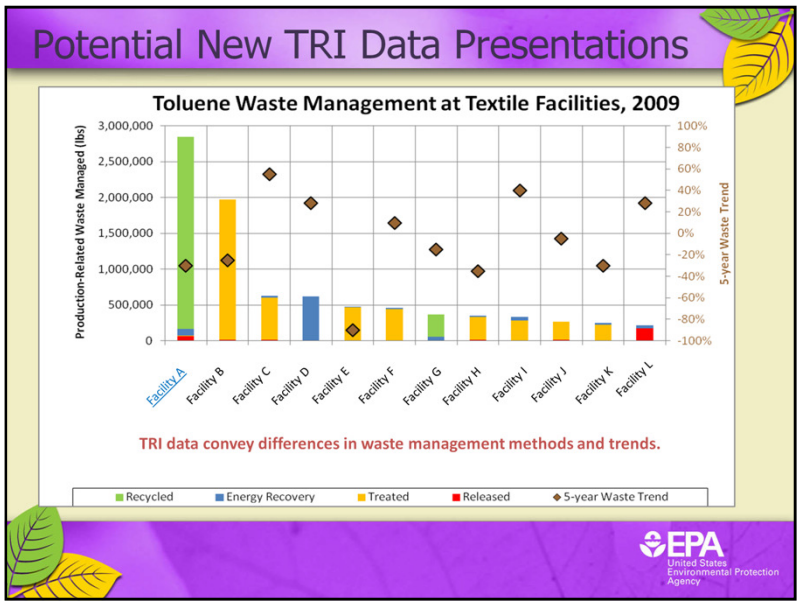
Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Say: This slide shows how TRI can help you compare facilities within a target area to identify biggest emitters and disparities in P2 progress. EPA is in the process of incorporating this report into Envirofacts.



Subtopic

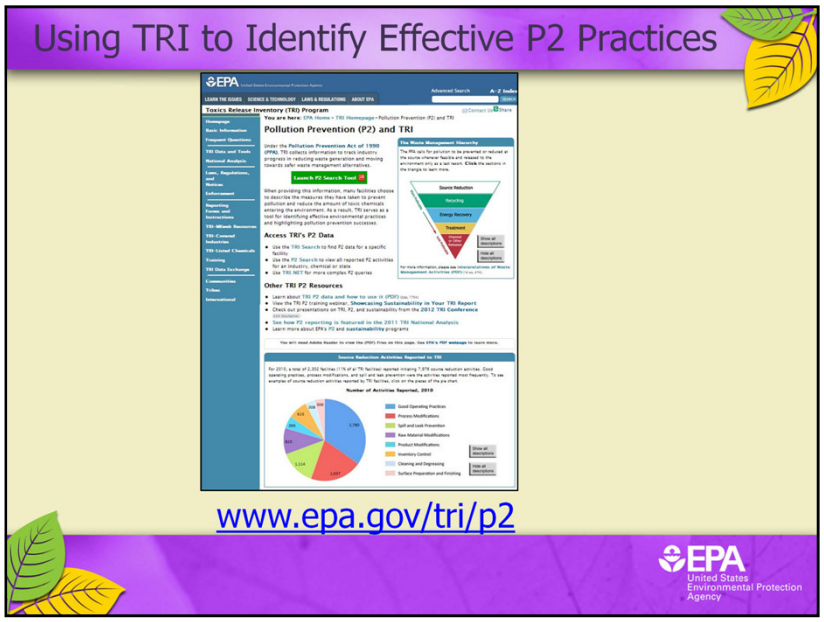
Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Say: This mockup adds a P2 trend metric to the report from the previous slide so that the user can more clearly see disparities in P2 progress. EPA plans to add this trend metric to the P2 Tool in Envirofacts.



Subtopic

Sector targeting using the TRI P2 database
30 minutes
(Elapsed time: 1 hour 10 minutes)

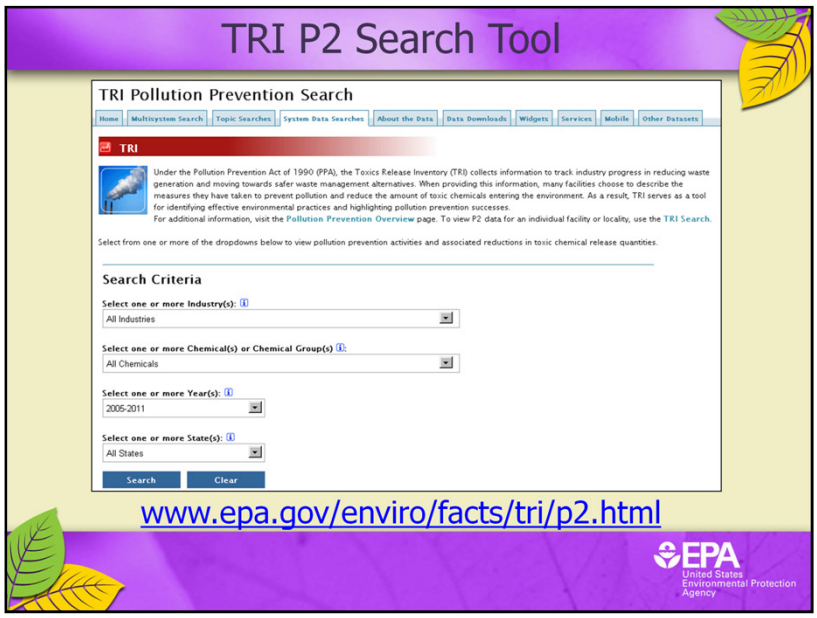
Specific Outcomes

Increased use of the TRI database to identify sector-wide P2 practices that resulted in hazardous substance reductions and applying these practices to other facilities

Notes for the Facilitator

Online Resource: Navigate to the TRI P2 Web page using the hyperlink on the slide. From the page, launch the P2 search tool.

Instructions: If the Internet is not available, use the screenshots provided.



Subtopic

Using the TRI P2 Search tool
20 minutes
(Elapsed time: 1 hour, 30 minutes)

Specific Outcomes

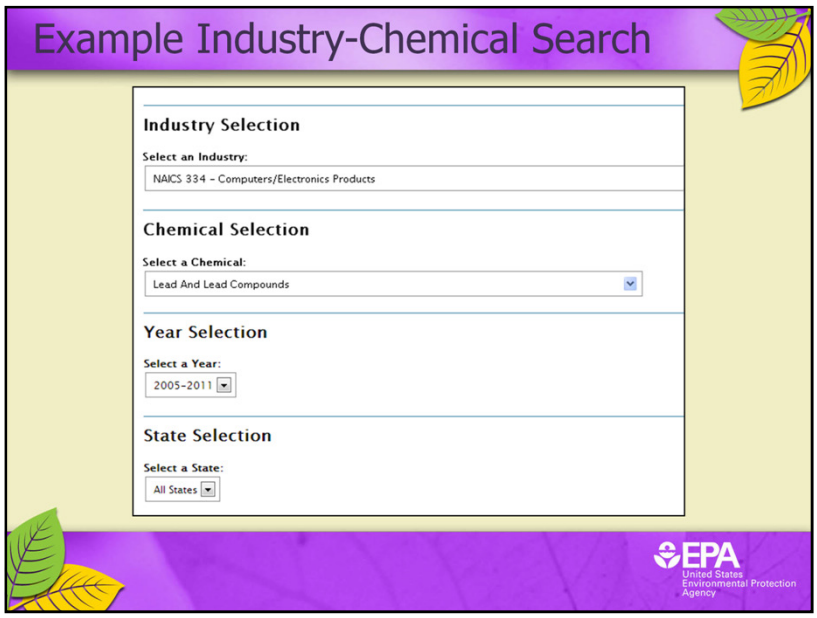
Increased use of the TRI/P2 Search tool to support hazardous substance reduction P2 assessments

Notes for the Facilitator

Online Resource: Navigate to the TRI P2 Web page using the hyperlink on the slide. From the page, launch the P2 search tool.

Instructions: Demonstrate using the drop-downs to narrow a search. If the Internet is not available, use the screenshots provided.

Say: There are four drop-downs that you can use to narrow your search. The first drop-down is for industry, which we typically group at the three- to four-digit NAICS level for purposes of analysis. You can also go down to the six-digit level if you want to do a very specific search using the North American Industrial Classification System. TRI data are broken down by NAICS code.



Subtopic

Using the TRI P2 Search tool
20 minutes
(Elapsed time: 1 hour, 30 minutes)

Specific Outcomes

Increased use of the TRI/P2 Search tool to support hazardous substance reduction P2 assessments

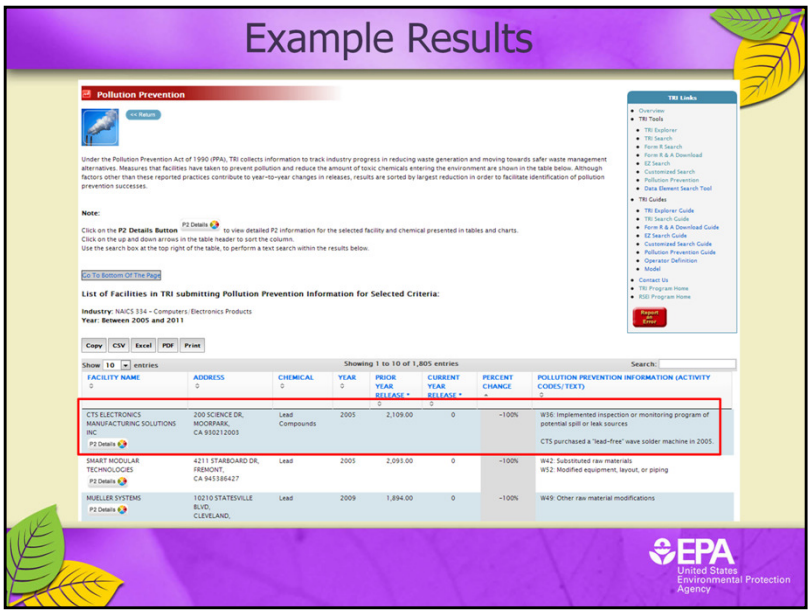
Notes for the Facilitator

Online Resource: Navigate to the TRI P2 Web page using the hyperlink on the slide. From the page, launch the P2 search tool.

Instructions: Demonstrate using the drop-downs to narrow a search. If the Internet is not available, use the screenshots provided.

Say: The second drop-down menu contains more than 600 chemicals that are reported to TRI. For this example, let's select lead and lead compounds. You can also search by year or state.

For the purpose of this example, we can use this search to answer the question of why lead releases for the computers/electronics industry have declined so much over the past decade. Select computers and electronic products in the industry drop-down menu.



Subtopic

Using the TRI P2 Search tool
20 minutes
(Elapsed time: 1 hour, 30 minutes)

Specific Outcomes

Increased use of the TRI/P2 Search tool to support hazardous substance reduction P2 assessments

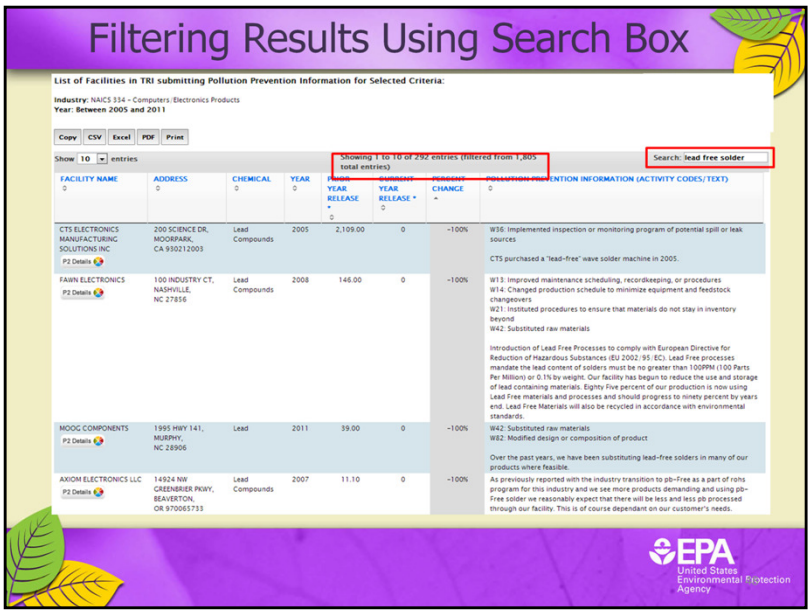
Notes for the Facilitator

Online Resource: Navigate to the TRI P2 Web page using the hyperlink on the slide. From the page, launch the P2 search tool.

Instructions: Demonstrate using the drop-downs to narrow a search. If the Internet is not available, use the screenshots provided.

Say: The search returns results of all P2 activity codes and descriptions for the specified criteria; these are displayed under "Pollution Prevention Information" in the rightmost column. Search results are automatically sorted by percent change in releases for the year in which P2 information was provided. This does not mean that the activities reported are entirely responsible for the decreases in releases, but it helps the user gauge which practices may be most promising. When searching, you can scan through and see what entries look interesting or useful.

Specifically, this table shows results of 1,800 P2 activities that met our search criteria. The first one is CTS electronics, a facility in California. In 2005, this facility reported P2 activities for lead compounds. They reported that a lead-free solder machine was purchased. The company's lead releases the prior year had been 2,109, but in 2005—the current reporting year—their reported releases were zero. This table will sort the entries by the percent change.



Subtopic

Using the TRI P2 Search tool
20 minutes
(Elapsed time: 1 hour, 30 minutes)

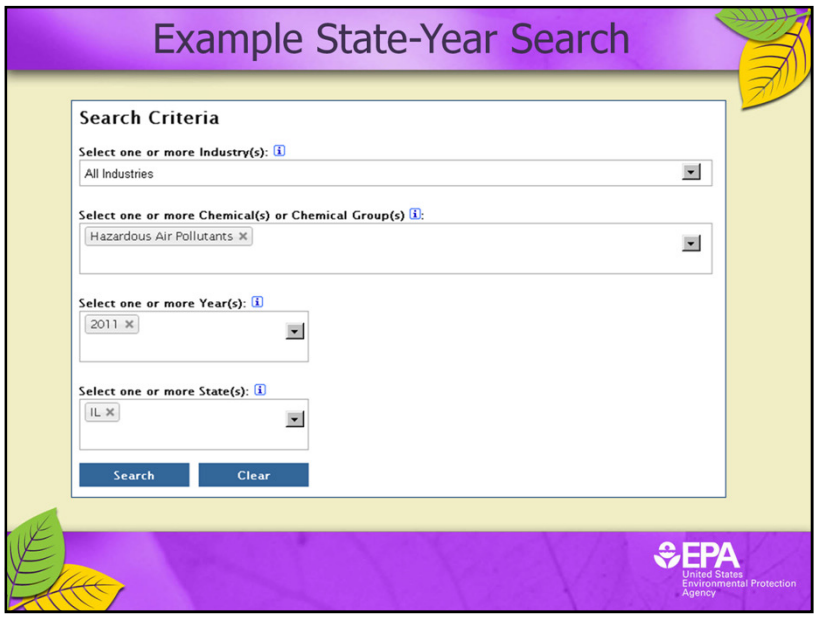
Specific Outcomes

Increased use of the TRI/P2 Search tool to support hazardous substance reduction P2 assessments

Notes for the Facilitator

Online Resource: Navigate to the TRI P2 Web page using the hyperlink on the slide. From the page, launch the P2 search tool.

Instructions: Explain how the search box can be used to focus on entries with specific keywords. In this case, there are 292 entries that reference "lead free solder," which suggests that this is a major trend in the industry. If the Internet is not available, use the screenshots provided.



Subtopic

Using the TRI P2 Search tool
20 minutes
(Elapsed time: 1 hour, 30 minutes)

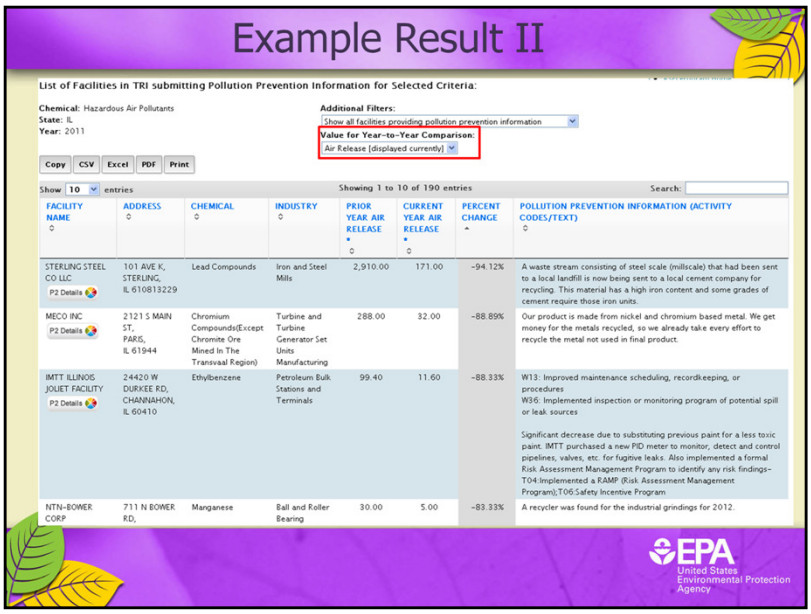
Specific Outcomes

Increased use of the TRI/P2 Search tool to support hazardous substance reduction P2 assessments

Notes for the Facilitator

Online Resource: Navigate to the TRI P2 Web page using the hyperlink on the slide. From the page, launch the P2 search tool.

Instructions: Demonstrate the state-year search. If the Internet is not available, use the screenshots provided.



Subtopic

Using the TRI P2 Search tool
20 minutes
(Elapsed time: 1 hour, 30 minutes)

Specific Outcomes

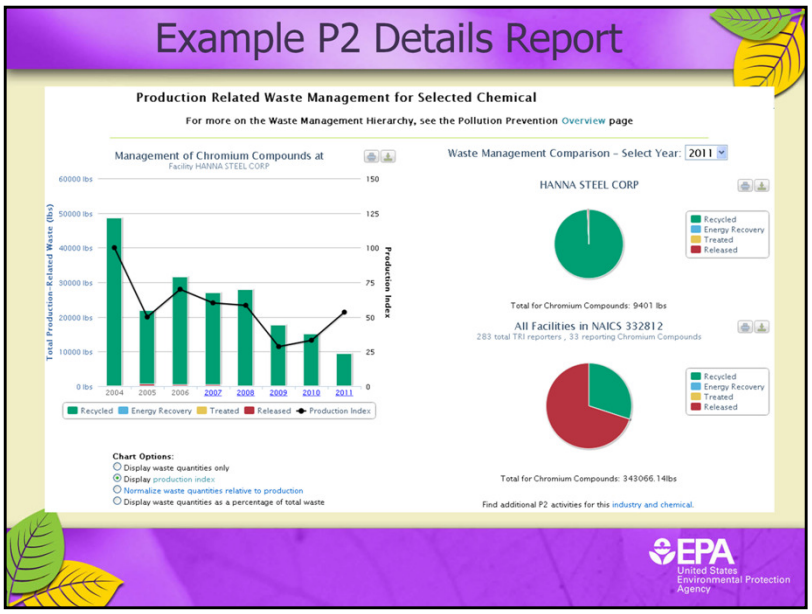
Increased use of the TRI/P2 Search tool to support hazardous substance reduction P2 assessments

Notes for the Facilitator

Online Resource: Navigate to the TRI P2 Web page using the hyperlink on the slide. From the page, launch the P2 search tool.

Instructions: Demonstrate the state-year search. If the Internet is not available, use the screenshots provided.

Say: This shows the "Value for Year-to-Year Comparison" box, which allows you to sort entries based on the decline in total releases, total waste, or releases to specific media. This example identifies the facilities in Illinois that reduce their HAP emissions by the most in 2011 and reported P2 information. You can also print or export results using different formats and you can search within your results.



Subtopic

Using the TRI P2 Search tool
20 minutes
(Elapsed time: 1 hour, 30 minutes)

Specific Outcomes

Increased use of the TRI/P2 Search tool to support hazardous substance reduction P2 assessments

Notes for the Facilitator

Online Resource: Navigate to the TRI P2 Web page using the hyperlink on the slide. From the page, launch the P2 search tool.

Instructions: Demonstrate the P2 Details page. If the Internet is not available, use the screenshots provided.

Say: By clicking on the "P2 Details" page from the previous screen, you arrive at the Pollution Prevention Details report. Clicking on the years that are hyperlinked displays the detailed P2 description that the facility provided in that year.

Discussion Questions:

- Which strategies identified in this training module could complement your current approach for identifying facilities?
- What are the barriers and/or challenges your organization may face when adopting these strategies into your current protocol?

Summary: Accessing TRI P2 Data

Data Resource	What You Can Use It For
2011 Toxics Release Inventory National Analysis	• Read about overall trends in P2 and waste management • Download P2 stats and lists of P2 activities for 2011
P2 Search Tool	• Find P2 activities for particular industries, chemicals, or states • Gauge which practices may have been most effective
TRI Search	• Identify TRI facilities in your area of interest • View P2 and waste management trends for particular facilities
TRI.NET	• Design sophisticated queries involving P2 and other TRI data • Find downward trends in releases and see which companies and P2 activities contributed
myRight-to-Know	• Find P2 information for TRI facilities in your neighborhood using your mobile device

EPA United States Environmental Protection Agency

Subtopic

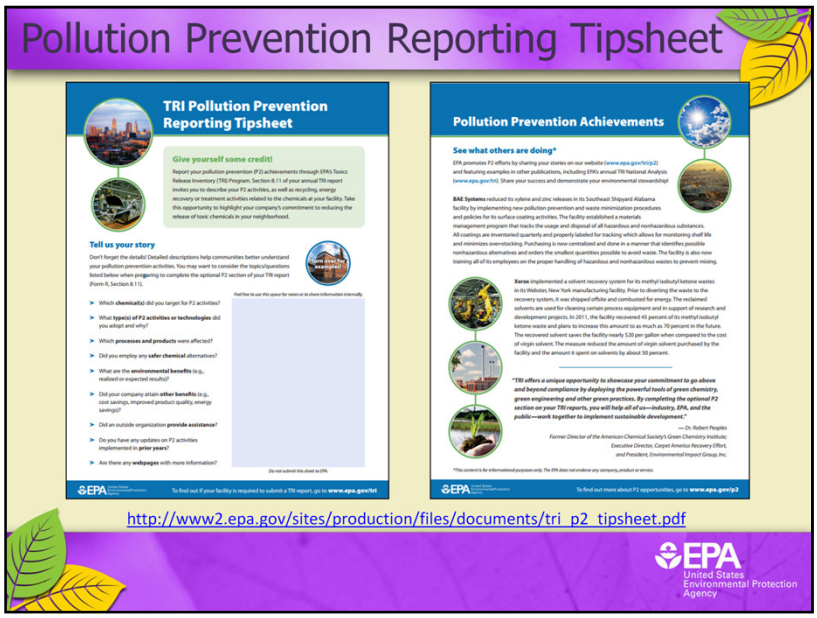
Using the TRI P2 Search tool
20 minutes
(Elapsed time: 1 hour, 30 minutes)

Specific Outcomes

Increased use of the TRI/P2 Search tool to support hazardous substance reduction P2 assessments

Notes for the Facilitator

Online Resource: The icons on the left side of the table are hyperlinks to the useful P2 data resources.



Subtopic

Using the TRI P2 Search tool
20 minutes
(Elapsed time: 1 hour, 30 minutes)

Specific Outcomes

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Notes for the Facilitator

Say: Available online, this is a tipsheet that you can share with facilities that may be interested in the opportunity to report P2 accomplishments to TRI. The tipsheet provides guidance on completing the optional P2 field on the form and also includes a writeable space where you can suggest topics for inclusion.