
**UNITAR Series of PRTR Technical
Support Materials - No. 1**

Addressing Industry Concerns Related to Pollutant Release and Transfer Registers

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* *Note: The documents in the guidance series are also available in Spanish.*

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INTRODUCTION

Countries which are in the process of developing a national Pollutant Release and Transfer Register (PRTR) programme or which are considering the potential benefits and possible challenges of such a system, may be encountering some questions regarding the implications of PRTR reporting for industry. To assist countries in addressing some of these issues, this document presents five of the most common concerns related to PRTR from the perspective of industry. Drawing upon experiences in countries with existing PRTR programmes, the document describes actions that have been taken by both government and industry to avoid, address or minimize each of these concerns, and provides some practical guidance based on the results and lessons learned.

The five areas of concern related to PRTRs were identified in a survey of business and governmental managers¹. The concerns are:

- 1) How will a company know whether it needs to report?
- 2) How will a company obtain and compile the data?
- 3) Will making the data public harm a company's competitiveness?
- 4) How can misinterpretation and misuse of the data be avoided?
- 5) What resource burden will reporting place on a company?

For each question, the guidance:

- describes the concern and the reasons for it;
- explains how the concern was handled, using examples of actions taken by industry and government;
- analyzes the extent to which the concern was substantiated, overcome, or mitigated.

The information in this document derives primarily from experience in Canada with the National Pollutant Release Inventory (NPRI), for which 1993 was the first reporting year, and in the United States with

¹ The survey was carried out in 1995 as part of an Environmental Science and Management Fellowship Capstone Project at Tufts University, and included company personnel in the United States and Canada.

the Toxics Release Inventory (TRI), for which 1987 was the first reporting year. It also draws, though in less detail, on experience with PRTRs in the Netherlands and the United Kingdom, individual states within the United States, and the three countries (Czech Republic, Egypt and Mexico) which participated in the UNITAR PRTR pilot programme. Thus, when making use of the document, the reader should bear in mind that the guidance and strategies described in the document should be tailored to each country's specific circumstances including level of industrial development, regulatory climate, and political, social, and economic priorities.

- The concerns addressed in this document were identified through a 1995 Tufts University survey of industrial and governmental managers based on individual recollections of early implementation of PRTRs. Thus the document focused primarily on the roles of government and industry. The views of other parties of interest, such as research and consulting groups, professional organizations, communities and advocacy groups, are covered in much less detail.

1. HOW WILL A COMPANY KNOW WHETHER IT NEEDS TO REPORT?

1.1 The Concern

Uncertainty about how PRTR reporting requirements apply to them is one cause for concern among industrial facilities.

Uncertainty about how PRTR reporting requirements apply to them is one cause for concern among industrial facilities, particularly when a PRTR programme is first introduced. This concern may stem from a lack of familiarity with the reporting criteria and/or uncertainty about how to determine whether a facility meets the criteria. In some cases, companies may not be aware of the chemicals they use and thus may not know that they need to report. A Swedish pilot study, for which response was voluntary, showed widespread lack of knowledge among companies of what chemicals they were using and releasing. In other cases, companies may be confused by differences between the PRTR and other reporting requirements. As the example of the copper wire company in [Box 1](#) illustrates, failure to report within the context of a mandatory PRTR reporting scheme can result in an enforcement action or fine, serving to heighten the level of concern on this issue.

1.2 Addressing the Concern

Governments have addressed the need to assist companies in determining whether they need to report in two ways.: through the design of the PRTR system and by conducting extensive outreach.

Governments have addressed the need to assist companies in determining whether they need to report under a PRTR in two ways: through the design of the PRTR system and by conducting extensive outreach.

In designing their PRTR programmes, countries have defined reporting criteria in different ways. Usually the thresholds for reporting include some combination of facility size and the types and amounts of chemicals used. In Canada and the United States, companies report on those listed chemicals for which their use exceeds a specified minimum quantity. However, Canada starts from the presumption that all sources must report and then lists exemptions. The United States, in contrast, lists the industrial sectors that are included. The United Kingdom chose to require reporting for its Chemical Release Inventory by facilities that come under its integrated pollution control system. Thus, reporting in the United Kingdom is congruent with the sites and pollutants controlled in permits. Mexico is using data from a regional pilot trial to determine reporting thresholds based on chemical, facility size, and industry. This PRTR pilot trial, which took place in 1996, involved collection of data from facilities located in a single region that had volunteered to participate.

**Box 1: Understanding PRTR Reporting Requirements:
The Case of a Small Copper Wire Company**

A small facility producing copper wire in Fairfield, New Jersey, did not submit Toxics Release Inventory (TRI) reporting forms ("Form Rs") to the U.S. Environmental Protection Agency (EPA) for 1987 or 1988 because company personnel mistakenly believed that the facility did not meet TRI reporting requirements. In 1990, the company hired a consultant to assist in environmental matters, who determined that the company was delinquent in filing. A company official explained the initial confusion over reporting requirements:

In 1987, the State of New Jersey's Industrial Survey required facilities to report to the state based on maximum quantity of listed chemicals existing on site rather than a year's total use. Since the TRI reporting requirement was similar to New Jersey's, the company official stated that he did not read the threshold requirements carefully enough, thinking that similar reporting programmes would have the same thresholds. The company used three substances that met the TRI threshold—ammonia, copper, and 1,1,1-trichloroethane. However, only copper was used in sufficient quantities for the maximum amount on site in any one day to meet the New Jersey threshold.

Even though the facility's copper use should have triggered TRI reporting, there was additional confusion over physical state. The company official assumed that only copper fume or dust would be reportable, rather than any copper used on site. Had he read the complete list of chemicals, he would have realized that TRI made that distinction for other metals, such as zinc, but not for copper. According to the official, many of the company's suppliers and customers also believed that solid pieces of metal were non-toxic and therefore exempt from reporting requirements.

Once the company was aware that it was delinquent in filing, personnel took steps to alert U.S. EPA to the problem and file Form Rs for 1987 and 1988. Nevertheless, the company was fined for failure to report.

Although the company accepts responsibility for its failure to report, the company official believes that several steps could have been taken to avoid confusion in reporting requirements: New Jersey or U.S. EPA could have assisted by letting facilities know how the TRI reporting threshold differed from New Jersey's, and U.S. EPA could have followed up with non-reporters to make sure they were not delinquent. Although the company official received one questionnaire from U.S. EPA asking if the facility was eligible to report, he feels that a second round of mailings might have brought the TRI reporting requirements to their attention sooner and lessened the fine for the company.

The data will be analyzed to determine if multiple thresholds can capture the significant portion of releases and transfers while minimizing the reporting burden on facilities. The results will be used to develop the criteria for nationwide reporting.

Phasing in reporting is one way to give both government and business an opportunity to learn over a period of time how PRTRs work.

Phasing in reporting is one way to give both government and business an opportunity to learn over a period of time how PRTRs work. The U.S. EPA has used this approach. Since the inception of the TRI programme, U.S. EPA has added chemicals to the list, increased the facilities covered to include those operated by the federal government, and is now adding facilities in other economic sectors. Canada is also considering adding chemicals to its NPRI list.

Outreach and awareness-raising is another important approach used by government to address industry's concerns regarding PRTR reporting requirements. Countries have experimented with a wide range of ways to inform companies whether they need to report. Initially, the United States used data available from Dun and Bradstreet to identify facilities that might be subject to TRI reporting, namely those in the manufacturing sector with more than 10 employees. The headquarters and regional offices of U.S. EPA sent brochures to these facilities explaining the TRI reporting requirements. The facilities also received reporting packets with forms and instructions. In addition, U.S. EPA provides information on reporting issues through telephone hotlines, government documents, and workshops. Individual states have also taken steps to ensure that facilities are aware of TRI reporting requirements. [Box 2](#) describes the type of outreach conducted by U.S. EPA Region 2 and the State of New Jersey Department of Environmental Protection to inform industry of TRI reporting requirements.

Environment Canada sent a general mailing to facilities prior to issuing the 1993 NPRI forms. The agency also had the assistance of industry associations in getting the word out about NPRI reporting, and used information from Statistics Canada to identify facilities that produced or used NPRI chemicals.

Building upon lessons learned can be an important part of effective outreach. As follow-up to the 1987 TRI reports, U.S. EPA conducted a telephone survey of facilities that had not responded in order to assess reporting compliance. The survey showed a self-identified non-respondent rate of 18.4 percent. That is, 18.4 percent of facilities contacted decided they should have reported but had not. The questions

**Box 2: The Early Stages of TRI—
Federal, Regional, and State Actions to
Raise Awareness of Reporting Requirements**

At the beginning of the Toxics Release Inventory (TRI) program in the United States, U.S. EPA mailed brochures to facilities in the manufacturing sector (U.S. Standard Industrial Classification (SIC) codes 20-39) with more than 10 employees. The agency used the Dun and Bradstreet company/facility database to identify the facilities. The brochure described the TRI reporting requirements, including which facilities needed to report, the list of chemicals, and other important information.

Individual states and U.S. EPA regional offices were also responsible for publicizing the reporting requirements and answering facilities' questions. For example, the State of New Jersey sent TRI Form R reporting packages to all manufacturing facilities in the state that had more than 10 employees, using the state's Department of Labor database to identify these facilities. U.S. EPA Region 2, located in Edison, New Jersey, held 10 workshops in 1987 on TRI reporting.

Follow-up with both non-reporters and reporting facilities has proven to be an important part of efforts to ensure that facilities understand PRTR reporting requirements. U.S. EPA Region 2 sent out letters to facilities during the first 3 years of TRI reporting, and continues to answer reporting questions from facilities. Most of these questions are about reporting criteria — which chemicals are on the TRI list and whether particular facilities meet TRI reporting requirements — rather than questions on estimation of data.

from industry can create a learning process for governments, whereby subsequent information provision can be better targeted to industry's needs. For example, the U.S. EPA has included as an annex to the TRI Form R instructions a list of answers to over 200 of industry's most commonly-asked questions.

1.3 The Results

Experiences in countries have shown that effective outreach and clear thresholds can help to avoid confusion.

Countries such as the United States and Canada have found it challenging to ensure that industry understands PRTR reporting requirements, nevertheless experiences in these countries have shown that effective outreach and clear thresholds can help to avoid confusion. Clear, concise reporting guidelines are crucial, particularly for smaller companies. The relationship of PRTR reporting to other reporting requirements also must be made clear. Several mailings or other forms of contact may be necessary, since companies are constantly changing their processes and managers, and new companies are established every year. Thus, PRTR programmes need a continuing way of informing businesses that meet the criteria for reporting. Reporting instructions and mailings should stress similarities to (or even duplications of) existing reporting requirements under other programmes.

The involvement of industry associations, the use of available information on facilities to target outreach efforts, and enlisting the assistance of local/regional government, are some strategies which have proven to be useful.

2. HOW WILL A COMPANY OBTAIN AND COMPILE THE DATA?

2.1 The Concern

Collecting the various types of data needed for PRTR reporting can be a challenge for facilities, particularly at the beginning.

A typical PRTR system require facilities to report data to a governmental agency on the amounts of listed chemicals that they release to air, water, and land or transfer to waste management facilities. The information reported by facilities may be either measured data or estimates based on production levels, standard emission factors, etc. Some PRTR programmes also require information on chemical production and use, in addition to release and transfer data.

Collecting the various types of data needed for PRTR reporting can be a challenge for facilities, particularly at the beginning. In most cases, small and medium-sized companies will not have previously collected the necessary data. Larger companies often collect some of the data, but are not likely to have experience with compiling them at the facility level as is required for PRTR reporting. In the United States, the larger firms usually know how to collect the data needed for TRI reporting, but find that communication and interaction among internal operating groups, which is necessary for compiling PRTR data across the entire facility, can present a challenge.

Many smaller companies were not sure initially how to collect or estimate the data needed to report. They lacked both the appropriate expertise and the specific knowledge about how to obtain the data and keep the records. Given this lack of experience, some companies were concerned that they would be vulnerable to governmental enforcement action if their data estimates led to inaccurate reporting. For example, the environmental manager at a small tool manufacturing company in the State of Massachusetts recalled that the company did not have immediate access to chemists or chemical engineers. It was difficult for the company to determine how much chromium was released from raw steel used during its manufacturing processes, nor did managers know how much chromium was contained in its final product.

2.2 Addressing the Concern

At the facility level, record keeping provides the foundation for collecting and reporting PRTR data. Companies find that the first step is to develop a system to track three kinds of records for PRTR chemicals:

- material safety data sheets;

At the facility level, record keeping provides the foundation for collecting and reporting PRTR data.

- purchasing and vending orders; and
- data on production and manufacturing usage.

The small tool manufacturing company mentioned above lacked the expertise to assess the amount of chromium in the steel used in its manufacturing processes — information it needed to estimate its PRTR data. The company first contacted the vendor of the steel. Through the vendor, the company located the supplier who was able to provide the needed information about chromium levels in the steel. The company now maintains records of purchasing, vending and shipping orders, as well as material safety data, as the basis for its PRTR reporting.

Even when a company can characterize its input materials, other record keeping may still be necessary for PRTR reporting. A medium-sized producer of calcium carbonate used in the plastics and sealants industry found that, because of the composition of its product, it could easily keep track of PRTR chemicals in input materials. However, the company found it necessary to develop an internal database of amounts of PRTR chemicals used. This entailed compiling all purchasing and vending orders, conducting an inventory of all company departments, examining accounting records, gathering data from the production department, and organizing the information in a spreadsheet.

Not just environmental, health, and safety programmes needed to participate. Reporting for a PRTR also requires help from production/manufacturing, purchasing, accounting, engineering, and technical systems departments.

Larger companies often have both the relevant expertise and records needed for PRTR reporting. For them, the task is largely organizational. It requires building stronger links among a company's divisions through better coordination and clearer designation of responsibility. Not just environmental, health, and safety programmes needed to participate. Reporting for a PRTR also requires help from production/manufacturing, purchasing, accounting, engineering, and technical systems departments. One company, for instance, built a more centralized chemicals management system. It delegated chemical purchasing responsibility to just a few people and managed use of chemicals more strictly.

Industry associations can provide useful services to ensure that companies are able to collect and estimate PRTR data. The pulp and paper industry in both the United States and Canada has been extremely active in advising its members on PRTR reporting. The National Council for Air and Stream Improvement (NCASI), an organization for the pulp and paper industry, has been advising U.S. companies on TRI reporting since 1987, researching the literature for emissions data and conducting in-plant studies. NCASI holds two workshops each year for member companies, providing updates on chemical-by-chemical reporting guidance. The Canadian Pulp and Paper Association (CPPA)

and Paprican also provide similar guidance and have held training sessions for member companies to prepare reports for NPRI.

Even with this kind of guidance, facilities still have to develop a system for generating and compiling the data needed for estimating emissions. “It took a while to find production numbers, since the CPPA emission factors were based on production. It took time to put a system in place,” said one company official. Once the system was in place, however, the company found that reporting was “not particularly difficult,” and the data seem to be accurate. “We compared the data to measurements we took to monitor scrubber performance, and they turned out pretty well.”

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Governments have used several approaches to address industry's concerns about obtaining the data needed to report under a PRTR programme. The U.S. EPA issued general and industry-specific guidance clarifying what types of data are needed. The guidance calls for measured data when available and mass-balance or engineering estimates when measured data are not available. The company must indicate on the reporting form how the data were obtained. For the 1989 TRI, 26% of the pounds reported were measured, 22% were obtained using mass balance, 4% were obtained using emission factors, and the rest were based on other methods such as engineering calculations.

Obtaining data is less an issue for companies reporting to the United Kingdom's Chemical Release Inventory because they use the same data used to demonstrate compliance under the national integrated permitting system. Data are entered into the registers by government inspectors.

Pilot studies can test the level of knowledge about methods for obtaining the PRTR data. Some countries that are planning PRTRs have already carried out such pilots. Through such a pilot, Sweden found that its smaller and medium-sized companies did not have the expertise to identify the chemicals they used in mixtures. It concluded that the companies would need extensive but simple guidance. Finland found that its smaller enterprises had difficulty assessing emissions, but could gather credible information on the amounts of substances used in processes.

2.3 The Results

Industry managers and governmental officials in countries with operating PRTRs stress that it takes time to learn how to obtain the necessary data, how best to manage the records, and how to report the data. There is a learning curve. The TRI numbers for the first year of

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reporting in the United States were poor mostly because companies were not sure of what data needed to be reported nor how to obtain, estimate, or monitor them.

PRTR reporting schemes in countries like the United States, which rely largely on estimates rather than monitored data, show that the accuracy of the data improves as the reporting industries gain experience. Although most reports under the U.S. TRI are estimates rather than precisely determined quantities, this has had little impact on the usefulness of the data because conclusions based on the data are not sensitive to the uncertainties in the estimates. A limited number of facilities, chemicals, industries, and geographic areas tend to dominate the totals when PRTR data are aggregated. More precise estimates are unlikely to change this situation substantially. The uncertainties in estimation thus have not been as much of a problem as some expected when the U.S. TRI was established. Companies are expected to do what is practical to obtain the data; the data can also be corrected or improved by monitoring particular points of uncertainty at a later time.

Although some small facilities initially may have had trouble compiling their data, it has been the experience of Canadian chemical producers that these facilities currently have little trouble compiling their reports. According to an industry official with the Canadian Chemical Producers' Association (CCPA), facilities with environmental management systems in place should not have difficulty assembling release and transfer data for PRTRs.

Some companies find that there are additional benefits of setting up data tracking systems for chemical release and/or use.

Some companies find that there are additional benefits of setting up data tracking systems for chemical release and/or use. For instance, a small boat manufacturer in the United States used its reporting system to streamline its use of chemicals. By reducing the number of waste streams, it reduced the time spent reporting. Costs of raw materials and waste management expenses can also be reduced in this way, and protection of workers from potential health effects can be improved.

3. WILL MAKING DATA PUBLIC HARM A COMPANY'S COMPETITIVENESS?

3.1 The Concern

An often-cited concern among industry is that PRTR reporting will disclose confidential data that might damage their competitiveness.

An often-cited concern among industry is that PRTR reporting will disclose confidential data that might damage their competitiveness. Any data disclosure that reveals information about market share, manufacturing capacity, product formulation, the marginal cost of production, or business plans could affect a company's ability to compete.

Companies in all countries with PRTRs express this concern. A representative of the Chemical Manufacturers' Association (CMA), representing about 180 U.S. chemical companies, explains that when companies invest significant capital in developing a new process or product, corporate officials fear that any reporting scheme may lead to release of proprietary information. A 1992 study funded by CMA on the adverse impact of all types of environmental reporting concluded that public disclosure reduces competitiveness of U.S. companies by allowing competitors, both domestic and foreign, access and use at no cost to the intellectual property generated at significant cost to the owner of this information. (CMA 1993) Brought together, the many types of reporting information can make it easier for competitors to "reverse engineer" products.

The degree of concern varies to some extent among parts of a company and by types of data. CMA finds that individuals at the corporate level view trade secrecy with more concern than those at the facility level. More concern is usually expressed about mass balance or materials accounting data related to production processes and products than about emissions data. A representative of a large chemical company located in Tennessee suggests that data on the amounts of chemicals entering and leaving a plant could seriously affect competition. "This information could potentially enable international competitors to calculate price margins to the point that the U.S. market share would be displaced both at home and abroad. With such information—and the use of 'reverse engineering'—the 'competitive intelligence' industry would have a heyday." The representative suggests that companies might choose to introduce high technology products in other countries to avoid reporting.

A large multi-national chemical company in Canada agrees that requiring throughput data can place an unfair burden on facilities in terms of resources and their ability to remain competitive. "You have to

balance the burden on facilities with the public's right to know," according to the company's director of environmental quality. "It is unreasonable to ask facilities to report throughput data. But the public has a right to know a facility's releases and transfers, and it is reasonable for facilities to report them."

3.2 Addressing the Concern

Recognizing industry's concern about potential damage to competitive-ness, governments have designed PRTRs to allow companies an opportunity to protect data they view as confidential.

Recognizing industry's concern about potential damage to competitiveness, governments have designed PRTRs to allow companies an opportunity to protect data they view as confidential. In general, this entails substituting a generic identity for specific chemical substances when making the data publicly available and establishing security measures to protect confidential data that is submitted. In the United States, a facility requesting protection of information it considers to be confidential is required to justify its request: a significant fine ensures that a company thinks through the need for protection and helps to avoid frivolous claims. If the claim is granted, a generic identity replaces the specific identity of the chemical in the TRI.

Both the U.S. and Canada found that the first year of reporting was a learning process. In the first reporting year of the U.S. TRI, about 200 claims were made among the 80,000 forms filed. Only 42 chemical reports from 28 facilities remained confidential (covering less than 0.1 percent of the volume of releases and transfers reported) after review. In subsequent years, U.S. EPA worked closely with companies to explain the trade secret provisions and to facilitate claims. By 1990, the number of claims had decreased to about 30. That number has remained stable in subsequent years.

Canada had a similar experience in the first year of reporting under the National Pollutant Release Inventory. About 130 facilities initially requested confidentiality, largely due to reporting facilities' lack of familiarity with the provisions. After review, only five claims remained out of over 5,000 forms submitted.

3.3 The Results

Experience shows that few confidentiality claims are made by industry in reporting PRTR data, and that the claims cover minuscule percentages of the volume reported. No examples of damage to competitiveness have been documented. However, such documentation would be difficult, and concern about the potential for damage remains widespread.

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Company experience with existing PRTRs ranges from finding protection of trade secrets effective, to finding no need to make claims, to finding reasons for continuing concern about the potential for damage to competitiveness. Some companies report that they can successfully protect their ability to compete using provisions in PRTRs to make trade secret claims. For example, one environmental health and safety manager reported that his company has protected the identities of two substances, enabling it to remain competitive in an international market. Others find that they do not need protection. A director of environmental and energy conservation for a company which manufactures aircraft, residential and commercial appliances and electronics, and provides energy and environmental services, says that his company has not required trade secret protection for reporting. Vice president for environmental affairs of a large chemical company in Canada agrees that trade secrecy has not been an issue for his company, but also feels that Canada's trade secret policy has worked well.

No pattern of the types or size of companies that make trade secret claims has emerged. A U.S. EPA attorney says that it is not possible to generalize about companies that submit confidentiality claims. A staff member of the Massachusetts Toxics Use Reduction Program² notes that claims submitted in 1993 ranged from a small photographic repackaging firm with under 100 employees to a large chemical company with 30,000 employees worldwide.

The number of trade secret claims submitted by companies and approved by regulatory agencies covers less than 3 percent of all reports filed. For schemes that cover release and transfer data, claims are well below 1 percent of the total forms submitted. Only a very small percentage of the forms filed under PRTRs in the United States request protection of data as trade secrets. These claims affect less than 0.001 percent of the total releases and transfers reported under TRI.

Environment Canada believes that competitiveness has not been as much of an issue for Canadian facilities as for U.S. facilities because NPRI requires fewer details than TRI. For the 1993 reporting year, for example, reporting of off-site transfers to recycling was mandatory but became voluntary for 1994. Nonetheless, the majority of facilities continued to report the quantity voluntarily, indicating minimal opposition to this reporting.

2 The 1989 Massachusetts Toxics Use Reduction Act requires chemical use reporting and planning, as well as numerical reduction goals for use reduction. In addition to annual reporting of data that are used to calculate chemical use, facilities also report annual use reduction progress on a process level.

Although more concern is generally expressed about the need for confidentiality for production and use data, claims in systems that collect these data are just slightly higher. The number of facilities making claims in New Jersey on throughput data over a five-year period has ranged from three to five during that period – always under 1 percent of the facilities reporting. The number of chemical records with claims has risen from 12 to 35, or from 0.8 to 1.2 percent, in that period.

Industrial representatives suggest several reasons for the low number of claims. A spokesperson for CMA says, “the burden of making a confidential business information claim is great under the New Jersey statute; and, there is not a full appreciation at the facility level that obscure, individual pieces of information from permit applications and reports together can provide complete pictures of products and company business plans.” A company representative in Massachusetts points out that companies may not realize who can gain access to their reports.

This is an issue on which views continue to differ. While confidentiality procedures are apparently effective in protecting facilities' data, a more general concern remains that increased public reporting will damage competitiveness. At the same time, other analysts suggest that regulation – including reporting schemes – strengthen the competitiveness of companies. (Porter and van der Linde 1995)

4. HOW CAN MISINTERPRETATION AND MISUSE OF THE DATA BE AVOIDED?

4.1 The Concern

Companies are concerned that the users of the data will not have the knowledge or capacity to fully understand the nuances of the data.

Companies fear that information about the identities and quantities of the chemicals they use and release to the environment will be misinterpreted and misused. They are concerned that the users of the data will not have the knowledge or capacity to fully understand the nuances of the data. They also fear that some groups might use the data in a campaign that could damage a company's image and therefore its business.

In terms of misinterpretation of PRTR data, some of industry's main concerns are that:

- users of the PRTR data may equate the amounts of releases with the potential risk; they may focus on the quantity of emissions and thus, in some cases, overestimate the potential impact;
- users may not consider the quantities of release in relation to levels of production, thus larger producers that come out at the top of lists of the largest sources of pollution may be judged unfairly;
- users may not distinguish transfers to waste treatment plants or underground wells from direct releases to the environment, which are likely to present a more immediate and greater risk; and
- users may draw erroneous conclusions from comparing facilities' PRTR data, because they may not recognize that differences in PRTR data may be simply due to different estimation methods used by facilities, and that it is not always possible to compare facilities' data directly without further information, even for facilities in the same company or industry.

Suppliers may be concerned that their customers will switch from using a chemical on the PRTR list to one that is not listed in order to avoid PRTR reporting, thereby reducing the market share of suppliers of listed chemicals. Furthermore there is concern that these shifts away from listed chemicals may be done without careful assessment of the risks of the alternative chemicals.

The possibility for misuse of PRTR data is another source of industry concern. For example, companies are often concerned that:

- PRTR data may be used as evidence in a civil or regulatory proceeding, potentially resulting in audits or expensive penalties;
- PRTR data may be used in public campaigns that could affect a company's image, weaken its position in the market or cause it to skew its spending toward what it considers to be its less important priorities; or
- PRTR data on use of chemicals may highlight the large quantities of chemicals that are used as raw materials in making other products, potentially leading to efforts to ban or limit use of these chemicals.

In addition to these issues, there are specific reporting concerns that could cause problems for industry. For example, data may be entered incorrectly into the PRTR databases, as in the case cited in [Box 3](#), leaving companies to explain incorrect data until they can be revised. In recent years, the U.S. EPA has encouraged companies to report their TRI data electronically, which greatly reduces this kind of error. Canada has required electronic reporting to NPRI since the beginning. Misinterpretation of data can also occur when reporting requirements are not clearly defined, which may result in some facilities reporting larger quantities than others, even when there is no difference in operations.

4.2 Addressing the Concern

PRTR data may also be used by industry to demonstrate progress towards environmental management goals.

Many companies have addressed concerns about misinterpretation and misuse by taking the initiative. Some companies issue environmental reports in which they present data with their own interpretations and analyses sometimes before the PRTR annual reports are made public by the government. Such reports can provide a baseline, illustrate trends, and explain reasons for changes in emissions/transfers. Industry associations and groups of companies also issue such reports.

PRTR data may also be used by industry to demonstrate progress towards environmental management goals. For example, when TRI data were first released in the United States, some companies obtained favorable publicity by setting ambitious reduction goals. The Chemical Manufacturer's Association programme Responsible CareTM, in which many U.S. chemical companies participate, makes use of TRI data to measure progress.

Some companies have found PRTRs to be a good basis for communicating, both internally across company divisions and externally with a broader range of concerned parties. One company

developed a programme to educate its employees and a telephone hotline to answer the public's questions. The company encourages visits from the local community and the state regulatory agency. To deal with negative publicity, the company documents its activities and has increased its involvement with environmental groups, trade associations, and regulatory agencies. Other companies are working with their customers to encourage appropriate use of chemicals and to modify activities and operations that could result in releases.

Some companies have found PRTRs to be a good basis for communicating, both internally across company divisions and externally with a broader range of concerned parties.

In some cases, industry has worked with government to improve the way that PRTR data is presented to the public, thereby reducing the likelihood of misinterpretation. For example, companies have provided input to U.S. EPA on ways to highlight the difference between direct releases to the environment and transfers to waste management facilities when presenting TRI data in public reports.

Governments have handled the concern of misinterpretation and misuse by taking the lead in publishing and using the data, incorporating PRTR data into national policies and programmes, providing outreach and assistance that give users the tools they need to interpret the data, and hosting forums for exchange.

Governments have taken steps to issue or support the development of reports that put PRTR data in context. For example, The Netherlands presents its data in relation to about 30 target economic sectors and priority environmental themes including acidification and dispersion of toxic substances. It displays data spatially through the use of geographical information systems. The United States and Canada also provide reports that include extensive analyses and aggregations to place the data in context. An official from a large petroleum firm believes that the U.S. EPA does a good job of explaining TRI data in its public data releases, providing information on chemicals and explaining how the data can and cannot be used. Canada does not aggregate total releases and transfers of NPRI chemicals by facility in its public data release, but does aggregate total releases by chemical at each facility. Environment Canada believes that this is a more accurate way to present the data, since all chemicals are not equally hazardous. In addition, Environment Canada notifies top releasers a week before publication that they will be named in the public data release, to give the facilities time to prepare for inquiries from the press and public.

Another approach taken by governments is to establish "challenge" programmes to encourage reduction of pollution. The U.S. EPA targeted 17 TRI chemicals for 50% reduction by 1995, using a 1988 baseline. The State of Louisiana organized a statewide emissions

Governments have taken steps to issue or support the development of reports that put PRTR data in context.

prevention and reduction program seeking a 45% reduction in toxic chemical emissions by 1997, using a 1992 baseline.

Governments can also provide tools and organize events to help users understand and interpret the data. The United States has provided basic toxicological profiles of chemicals listed in the TRI. Australia plans to make tools available to local communities to combine PRTR data with geographic information. The U.S. EPA sponsors a regular conference on use of the TRI data which provides an opportunity for users of the data to exchange information on uses and to highlight any problems. The agency has also supported analyses of data by non-governmental organizations.

Governments can provide tools and organize events to help users understand and interpret the data.

Providing ready access to the data can also help to ensure balanced presentation and interpretation of the data. Both Canada and the United States make the actual data available on the Internet so that anyone can check accuracy and identify misinterpretations or misuse. A non-governmental group in the United States operates RTK-Net which promotes the principle of right-to-know (RTK) by making the TRI and many other databases available to interested users.

4.3 The Results

While PRTR data, like any other data, have the potential to be misunderstood and misused, the problem has not been nearly as severe as first feared.

While PRTR data, like any other data, have the potential to be misunderstood and misused, the problem has not been nearly as severe as first feared. Companies and governments are finding that taking some proactive measures can help minimize misinterpretation and misuse of the data. Environment Canada reports very little adverse reaction to industry resulting from release of the NPRI data. Since the facilities have time to prepare for potentially bad publicity, there are few instances of industry claiming misinterpretation of the data. However, the line between misuse and appropriate use is not a clear one. In some cases, it depends on one's perspective. Some of the concerns such as use of the data in public campaigns are the very uses that others would argue makes PRTRs such an effective policy tool.

For example, the Silicon Valley Toxics Coalition, a community-based environmental group in the United States, used TRI data to identify the companies releasing the highest amounts of toxic chemicals in their region. The coalition initiated a campaign calling for reductions, which was covered by the news media. As a result of the campaign, 25 companies in the Silicon Valley decreased their collective releases of TRI chemicals by 74 percent. (Mazmanian 1992)

Many business leaders are coming to accept the benefits of PRTRs in

stimulating reduction in releases of chemicals although less so in regards to reduction in chemical use while trying to mitigate the potential for misinterpretation and misuse.

Companies and governments are finding that taking some proactive measures can help minimize misinterpretation and misuse of the data.

- “The system is imperfect; it can be misused but its mere existence has revolutionized environmental reporting,” commented one chemical company manager.
- “The need to publish emissions figures is slowly being accepted by industries in Europe, however it should not be just a listing of pounds per year without some explanation. Without proper perspective, raw data numbers can lead to misunderstandings.”
- “Many companies, like our members, support a broad public disclosure and believe that the environmental community and representatives of labor want a properly designed environmental data collection and disclosure system that provides the public with workable and common sense approaches to communicating real risk.” (MARC 1994).

Box 3: Data Misinterpretation: One Company's Experience

A large firm in the petroleum industry experienced problems both with data entry errors and unclear reporting definitions. The company's facilities submitted data that were entered incorrectly into the U.S. TRI database. As a result of this error, the corporate environmental division received many inquiries from the press and environmental groups, and had to repeatedly explain the erroneous data. This issue has since been resolved to the company's satisfaction with TRI electronic reporting.

The issue of definitions has been of particular importance to the petroleum industry, since TRI requires reporting of quantities of chemicals recycled on site under the Pollution Prevention Act of 1990. Many of the process streams could be considered as in-process recovery, which does not have to be reported to TRI as on-site recycling. Refineries that nevertheless reported these streams as on-site recycling thus appeared to have greater waste generation than other refineries.

5. WHAT RESOURCE BURDEN WILL REPORTING PLACE ON A COMPANY?

5.1 The Concern

Faced with PRTR reporting, industry is often concerned about the additional reporting burden and associated costs. The costs, including staff time, associated with PRTR reporting include:

- understanding the reporting requirements and determining whether they apply to the facility;
- identifying the data needed and how they can be obtained;
- obtaining the data by contacting vendors, performing calculations or carrying out monitoring;
- completing the reporting form;
- setting up an internal system to track data from year to year;
- providing in-house training for any of these tasks; and
- obtaining software and/or hardware.

In the early phases of implementing a PRTR, companies face a one-time investment of resources to develop the skills and systems to report.

In the early phases of implementing a PRTR, companies face a one-time investment of resources to develop the skills and systems to report. Resources are then needed on a continuing basis to operate the system and generate reports. Initial costs can be significant for small and medium-sized companies which may need to invest in systems to track chemicals. For larger companies, which are more likely to have reporting and record-keeping mechanisms in place, PRTRs may simply add to existing environmental reporting and record keeping requirements.

A few estimates give a sense of the costs to industry of PRTR reporting in the United States. A 1992 analysis concluded that the average facility, which reports on four chemicals per year, would need 211 hours to report. A 1995 analysis estimated a facility would spend \$5,170 per chemical to report for the first year and a little over half that per chemical in subsequent years. (Ekart 1994)

5.2 Addressing the Concern

The first step for most companies has been to assign a person at the facility level to coordinate PRTR reporting.

The first step for most companies has been to assign a person at the facility level to coordinate PRTR reporting. Most companies have not needed to hire new personnel. Rather, they have rearranged internal responsibilities. The person designated to handle PRTR reporting has varied from company to company. In some cases, it has been the person in charge of environmental compliance. In others, it has been a staff person in waste management, materials purchasing, production, or operations management.

Larger companies that already collect certain types of information (e.g. process control or worker exposure data) that can be used to estimate PRTR data often purchase software to develop more comprehensive inventory and management systems. Consulting and engineering firms, insurance providers, and others provide software record keeping services to assist facilities in setting up such systems. Some smaller companies may continue to keep records manually. Once record keeping and data management systems are developed, they are frequently used by the facility for other purposes which helps to reduce costs.

One approach companies have used to keep costs manageable is to first estimate their releases and then select specific areas in which to monitor actual releases. With this type of targeted approach, facilities are able to gradually improve the accuracy of their data at a reasonable cost.

Governments have attempted to reduce costs by providing training and guidance, offering financial assistance, and providing software for electronic reporting. Governments also have developed guidance on how to build and maintain a record keeping system. The U.S. EPA offered workshops on the TRI, which have been continually revised as the agency gains a better understanding of industries' concerns. Some companies, for example, found initial EPA workshops too general. Participants wanted information more specific to their industry or facility so they could use it directly.

Governments are increasingly designing PRTRs so that reporting can be done electronically and in a way that is compatible with other software. When Environment Canada proposed the NPRI reporting form, members of the Canadian Chemical Producers' Association noted its similarity to the form that member companies submit to the organization each year. The NPRI staff decided to use and build upon the software that CCPA had already developed, so that CCPA members could produce their NPRI and CCPA reports with the same data and

Governments have attempted to reduce costs by providing training and guidance, offering financial assistance, and providing software for electronic reporting.

software. In the United States, the computerized form for TRI reporting has been found to be easy to use and helpful, since it facilitates the process of filling out the Form R.

Organizations outside of government have also provided assistance to help minimize the reporting burden for facilities. For example, trade associations in the United States have worked with U.S. EPA to determine how best to provide their member companies with sector-specific guidance materials and training. Other groups, such as consultants, law firms, professional training organizations, and environmental groups also offer training and assistance.

5.3 The Results

PRTR reporting is likely to require facilities to expend additional resources, at least at first. For smaller companies, resources are needed to acquire and obtain the data. For larger companies, much of the cost is associated with the need to coordinate and compile data that may be scattered throughout the company. While some companies stress the costs, others have found the cost of maintaining a tracking system to be trivial.

Many companies find that the costs are at least partially offset by benefits which go beyond the improvement of systems for tracking chemicals, such as savings achieved through source reduction.

Many companies find that the costs are at least partially offset by benefits which go beyond the improvement of systems for tracking chemicals, such as savings achieved through source reduction. For example, the State of New Jersey released a report of early results from its pollution prevention planning programme, which found that for every dollar spent on planning for source reduction initiatives, facilities would save between five and eight dollars by implementing such projects. Pollution prevention plans developed by facilities under this programme rely heavily on PRTR data that is reported to the state. The planning costs cited in the report include administrative time for the state environmental agency. (NJDEP 1995)

PRTR data are also useful for general efficiency measurements. A survey of Minnesota facilities reporting to TRI showed that 83 percent of respondents used their facilities' TRI data to analyze processes and operations. These analyses in turn can lead to gains in efficiency with potential benefits that extend beyond reduced environmental costs. (Kiesling 1994)

CONCLUSIONS

Many of the initial concerns voiced by industry have been overcome in countries with operating PRTRs, as companies and governments have gained experience and developed strategies to overcome the concerns.

Many of the initial concerns voiced by industry have been overcome in countries with operating PRTRs, as companies and governments have gained experience and developed strategies to overcome the concerns. Industry and governmental managers alike recognize the usefulness of PRTR data for highlighting opportunities for source reduction and improved chemicals management, for providing a basis for discussion with communities, and for tracking progress made in the context of voluntary reduction programmes. Some concerns remain, however, particularly about the potential for PRTR reporting to harm competitiveness.

The following is some suggested guidance, based on experiences gained in countries with existing PRTR programmes, addressed to both industry and government in countries that are in the early stages of establishing PRTRs.

- **Careful design of reporting requirements and clear instructions for facilities can help avoid confusion and reporting errors.**

Companies need a clear description of the criteria for reporting in order to know whether to report and, if so, how. It is particularly helpful to point out how a PRTR relates to and/or differs from other reporting requirements. This is especially important when PRTR-like data are already collected. One approach is to use the PRTR form to incorporate and replace other reporting requirements as has been done in Norway, where permit reporting is included on the PRTR forms. In addition to clear reporting criteria, it is also important to fully explain the procedures and conditions for claiming trade secrets.

- **Piloting the PRTR in a region or within a specific sector can help identify ways to avoid confusion. Implementing a PRTR in several stages also provides an opportunity for learning on the part of industry as well as government.**

Sweden's pilot identified the level of training and assistance needed by companies to be able to report under a PRTR. Finland's pilot provided information useful in selecting the chemicals to be included. Mexico's Registro de Emisiones y Transferencias de Contaminantes (RETC) pilot reporting trial alerted the Instituto Nacional de Ecología, Mexico's environmental agency, to potential problems and issues related to reporting, and gave facilities a chance to estimate their emissions and determine the kinds of data they might need to collect before the initiation of PRTR reporting on a national scale.

Phasing in a PRTR, for example by starting out with a smaller number of facilities or a shorter list of chemicals, allows both government and industry personnel the opportunity to gradually gain experience in handling the reporting, management, analysis, and dissemination of PRTR data. One disadvantage of phasing in chemicals and sources of pollution is that the baseline for tracking trends must be readjusted as each change is made.

- **Training helps companies, particularly smaller ones, overcome the initial hurdle of learning how to report PRTR data.**

Training workshops are useful in introducing PRTRs to companies and increasing their understanding of what is required of them. Industry associations are often well situated to develop sector-specific training programmes on methods for tracking the chemicals used at the facility level and techniques for estimating releases. Industry associations may also work with their members to improve methods of data estimation. Larger companies play an important role by working with their suppliers and customers to ensure that information is available on chemical substances and products, information which is often needed for PRTR reporting.

- **Investment in analysis, dissemination and use of PRTR data reduces the likelihood of misuse or misinterpretation.**

Experience demonstrates that companies can reduce or avoid misuse and misinterpretation of PRTR data by taking the lead in using the data to initiate dialogue and by being proactive in reducing their releases. Companies themselves can issue reports that present their data in the context of environmental management plans. They can use the data to publicize progress toward reduction goals and as a basis for working with communities and other concerned parties.

Governments can fund and disseminate regular, prompt analyses of the data which track the sources, amounts, and types of pollution. Linking the data to national environmental goals and displaying it by geographic region helps put the data into context, thereby enabling users to better interpret its significance. Providing ready access to PRTR data (e.g. through the Internet), thereby allowing interested individuals and groups to use the data directly and to check the analyses performed by others, can help to discourage misuse or misinterpretation.

- **Costs of reporting can be balanced by other benefits associated with facility-level data tracking systems, including opportunities to reduce material and waste management costs and to better protect workers.**

Governments and trade associations can work through technical assistance programmes, voluntary initiatives, and pollution prevention planning programmes to encourage companies to use their PRTR data to help identify opportunities to reduce costs and reduce chemical-related risks. In addition, collection and analysis of PRTR data may also help a company improve product quality and lower its production costs, in addition to reducing environmental expenses.

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