

**Meeting of the Consultative Group for the North American
Pollutant Release and Transfer Register (PRTR) Project**

Montréal, Québec, Canada
3 and 4 December 2007

**Discussions on Pollutant Release and Transfer Registers and
Consultations for the *Taking Stock 2006* Report
on North American Pollutant Releases and Transfers**

Discussion Paper



Introduction

The Commission for Environmental Cooperation of North America (CEC) is holding a public meeting in Montréal, Québec, Canada on 3 and 4 December 2007, as a forum for exchanging ideas about pollutant release and transfer registers (PRTRs) and obtaining stakeholder input for the *Taking Stock 2006* report and corresponding website, *Taking Stock Online*. The aim of this paper is to introduce a range of issues, with relevant background information, as a basis for the discussions at this meeting.

Taking Stock is an annual report providing information on pollutants in North America, based on data collected through the national PRTRs. The report is based on “matched” data, using only those chemicals and sectors that are common to the national registers. The national registers are designed to track the quantities of certain chemicals that are released to the air, water and land, and transferred off-site. The CEC recognizes the importance of these PRTRs—such as the Toxics Release Inventory (TRI) in the United States, the National Pollutant Release Inventory (NPRI) in Canada and the *Registro de Emisiones y Transferencia de Contaminantes* (RETC) in Mexico—for their potential to enhance the North American environment. Tracking chemicals through PRTRs is essential to:

- increase public and industry understanding of the types and quantities of chemicals released into the environment and transferred off-site as waste;
- encourage industry to prevent pollution, reduce waste generation, decrease releases and transfers and assume responsibility for chemical use; and
- track environmental progress and assist governments in identifying priorities.

PRTRs collect data on individual chemicals, rather than on the volume of waste streams containing mixtures of substances, because this allows tracking releases and transfers of individual chemicals. Reporting by facility is important in locating where releases occur and which facility generated them. Much of the power of a PRTR comes from the public disclosure of its contents. Active dissemination to a wide range of users in both raw and summarized form is important. Publicly available chemical- and facility-specific data allow interested persons and groups to identify local industrial sources of releases and support geographically-based analyses. The national PRTRs are continually changing and expanding, and each new *Taking Stock* report reflects these developments. Future reports will strive to include as much as possible from the additional data being collected by the national PRTRs.

Taking Stock 2004 (released in October 2007) reflected Mexico's significant progress in developing mandatory, publicly accessible reporting. Data from 2004, the first year of mandatory reporting to the RETC, were released by Semarnat in November 2006. *Taking Stock 2004* incorporated these data, and presented the first picture of pollutant releases and transfers in Canada, Mexico and the United States. This was an important step towards the CEC goal of achieving a more

complete picture of pollutant releases and transfers in North America, but much work remains to be done.

In previous years, comments from participants in the consultative meetings have resulted in significant changes to the format and content of the *Taking Stock* report. The Consultative Group has identified areas of particular interest that have then been explored in greater depth through special feature chapters focusing on, for example, specific industry sectors and chemicals, reporting of pollution prevention activities, and uses of PRTR data by industry and community groups.

The CEC invites and encourages interested parties to discuss PRTRs and contribute to the development of the *Taking Stock 2006* report and website. The meeting of the Consultative Group—a public forum open to all interested parties—is a significant opportunity to discuss PRTRs, and obtain new ideas and refine the *Taking Stock* report and website. The CEC is seeking feedback on a number of ideas, outlined below, and welcomes new ideas. Following the meeting, the presentations will be posted on the CEC website for public review.

If you are not able to attend the meeting but would like to provide input, please send your written comments to Orlando Cabrera-Rivera at the CEC in advance of the meeting, if possible, or by **21 December 2007**. Following the public meeting and receipt of written comments, the CEC will prepare a Meeting Summary and Response to Comments document that will summarize the meeting, the comments received and outline the proposed approach for the development of the *Taking Stock 2006* report.

Monday, December 3

Session 1: Update on CEC activities

1.1 Update on the CEC PRTR Project

The CEC PRTR project continues to focus on:

- developing the *Taking Stock* report and web site as a means of fostering information access and use;
- increasing PRTR comparability among countries; and
- improving the quality of PRTR information from the three countries.

All three countries have committed to operating a PRTR. In the United States, the Toxics Release Inventory (TRI) started in 1987 and is now collecting data on releases and transfers of more than 650 chemicals from over 20,000 facilities (<<http://www.epa.gov/tri>>). In Canada, the National Pollutant Release Inventory (NPRI) started in 1993 and now collects data on releases and transfers of over 300 chemicals from 8,000 facilities (<<http://www.ec.gc.ca/pdb/npri>>). In Mexico, over 1,200 facilities reported on 104 chemicals to the *Registro de Emisiones y Transferencia de Contaminantes* (RETC), which became mandatory with the 2004 reporting year (<<http://www.semarnat.gob.mx/gestionambiental/calidaddelaire/Pages/retc.aspx>>).

Supporting the development of Mexico's RETC has been a long-standing priority of the CEC's PRTR project. Mexico intends to add chemicals to the existing list of 104 chemicals currently reported to the RETC.

1.2 Update on *Taking Stock 2004* and 2005 reports

Some of the key findings of *Taking Stock 2004*, released in October 2007, included:

- more than 3 million tonnes of chemicals were released and transferred in 2004 from the 23,000 facilities in the Canada-US matched data set;
- releases and transfers declined by 9 percent from 1998 to 2004, with US TRI facilities showing generally larger decreases than those reporting to Canada's NPRI;
- the group of facilities that reported smaller and medium amounts of releases and transfers (less than 100 tonnes in 1998) generally showed increases in their releases and transfers, whereas the group of facilities reporting largest releases and transfers (more than 1,000 tonnes in 1998) reported decreases over time; and
- the first presentation of matched data from Canada, Mexico and the United States, comprising 56 chemicals, 9 industry sectors, and about 10,000 facilities, revealed releases and transfers totaling about 415,000 tonnes.

The report also examined the criteria air contaminants commonly reported in all three countries [sulfur dioxide (SO₂) nitrogen oxides (NO_x), and volatile organic compounds (VOCs)]. Many of these air pollutants are associated with smog, acid

rain and reduced visibility. The report used the data on criteria air contaminants from NPRI and matched this with data from the US National Emissions Inventory and the Mexican *Cédula de Operación Anual* (COA). For the first time, *Taking Stock 2004* also included information on greenhouses gases released from industrial sources.

The special feature chapter in *Taking Stock 2004* focused on transfers to recycling: where such transfers originated, where they went, what types of chemicals are being sent for recycling and what economic, regulatory and corporate policy factors influence a facility's decision to recycle. The key findings of this chapter included:

- transfers to recycling accounted for one-third of total releases and transfers reported in Canada and the United States in 2004;
- two-thirds of these transfers were copper, zinc, and lead and their compounds;
- two industry sectors accounted for 62 percent of all transfers to recycling in 2004: primary metals (smelters and steel mills); and fabricated metals; and
- factors affecting a facility's decision to recycle include: price of disposal and recycling options, regulatory requirements, and prices for scrap metals.

The *Taking Stock Online* web site has been revised and comments on the new format are welcome. The site allows customized queries of the matched data sets, time trends and downloading of the report. The site is available at <<http://www.cec.org/takingstock/>>.

Taking Stock 2005 is under development, with an expected release in the spring of 2008. Based on discussions at the last Consultative Group meeting, the special feature of the report is expected to focus on analyzing the releases and transfers from the petroleum sector (including oil and gas extraction, and petroleum refining).

1.3 Update on Google Earth PRTR mapping

In June 2007, the CEC launched a North American PRTR mapping tool for *Google Earth* <<http://www.cec.org/naatlas/prtr/>>. This mapping tool is a downloadable file that can be opened with *Google Earth* mapping service to display over 30,000 industrial facilities in North American reporting to PRTRs in 2004. This powerful new mapping tool creates a seamless map of PRTR reporting in Canada, Mexico and the United States and provides access to pollutant data in PRTR databases in each country. This mapping tool allows users to quickly find places of interest, identify nearby industrial PRTR facilities, view detailed satellite or aerial imagery, and access, using a direct hyperlink, detailed pollutant data for these facilities. Users can also explore the PRTR data layer with other map layers developed by *Google Earth* and others. The facilities displayed are the entire data set from each national government, so they are broader than the "matched" facilities used in *Taking Stock*.

The CEC plans to update the mapping tool with 2005 data from all three countries. Environment Canada already has an NPRI mapping tool for *Google Earth* with facilities reporting in 2005 organized by province and twelve industrial sectors <<http://www.ec.gc.ca/npri-inrp-comm/>>.

1.4 Status of trilateral PRTR Action Plan

Over the past seven years, the three governments have collaboratively developed the *Action Plan to Enhance the Comparability of Pollutant Release and Transfer Registers in North America* (available at <http://www.cec.org/files/pdf/POLLUTANTS/PRTR-ActionPlan-2005_en.pdf>).

This plan was adopted by the CEC Council through Resolution 02-05 in June 2002, and reaffirmed in 2005. The plan describes a number of areas where comparability among the national PRTRs could be improved and outlines proposed actions to address them. Early changes in the PRTRs increased the amount of comparable data. Progress has been made in the following areas: mandatory reporting, use of industry classification codes in Canada and the United States (North American Industrial Classification System—NAICS codes), addition of industry sectors and chemicals; lowering of thresholds for some substances, such as mercury and lead; fewer reporting exemptions; improved pollution prevention reporting.

However, more recent changes have reversed the trend of increasing comparability. For example, changes such as lowered reporting thresholds for arsenic, cadmium and chromium for NPRI, but not for TRI, have led to data that cannot be matched for these substances. Because changes in all three systems are making the PRTR data less comparable, there is a growing need to work together to increase comparability.

Each year the governments review the *Action Plan*, discuss ideas and propose new actions. Suggestions from stakeholders and the public are welcomed.

1.5 Update on the CEC Air Program

In 2001, under Resolution 01-05, the CEC Council agreed to work towards promoting the comparability of air emissions inventory information in North America. Since 2001, the CEC has supported the development of a national criteria air emissions inventory in Mexico that uses a common reporting format and estimation methods comparable to those employed in Canada and the United States. The first-ever national criteria air emissions inventory in Mexico was released in 2006 and represents a collaborative effort between the CEC, the *Instituto Nacional de Ecología* (INE), Semarnat, and the Western Governors' Association.

In 2005, the CEC released a report on air emissions from individual power plants in each North American country. The report looked at 2002 emissions of four pollutants (sulfur dioxide, nitrogen oxides, mercury and carbon dioxide) and was the first comprehensive compilation of air emissions from a single source sector

across all of North America. The report is available on the CEC web site <http://www.cec.org/files/PDF/POLLUTANTS/PowerPlant_AirEmission_en.pdf>, along with downloadable spreadsheets containing the publicly available power plant data compiled in the report.

Enhancing North American Air Quality Management: Project

This project will provide a more complete North American picture of air quality and air emissions to support decision-making on air quality management. This will be accomplished by:

- identifying air quality–related information and capacity needs of the Parties;
- ensuring that the capacity exists to develop comparable air quality–related information and programs for North America;
- updating Mexico’s National Emissions Inventory;
- developing information products to identify emerging trends and issues; and informing decisions relevant to the shared environmental interests of the Parties.

1.6 Outreach to indigenous communities and environment and health linkages

The CEC’s Joint Public Advisory Committee, the Puebla Declaration and the PRTR Consultative Group have noted the limited involvement of indigenous groups in CEC activities and encouraged further outreach and engagement. At the 2006 PRTR Consultative Group meeting in San Diego, two case studies were presented that dealt with the priority concerns and chemical information needs of indigenous groups. One case study was focused on the Great Lakes region on the Canada-US border (Aamjiwnaang and Garden River First Nations); and the second study was in the US-Mexico border region. The CEC also convened a meeting specifically with indigenous/tribal representatives on 30 November 2006, to further discuss opportunities for collaboration.

Indigenous representatives from the three countries also shared their concerns and experiences relating to industrial chemicals, public health, and the environment, at a meeting hosted by the CEC’s Joint Public Advisory Committee in Winnipeg in September 2007.

In May 2006, the CEC published the report, *Toxic Chemicals and Children’s Health in North America*, which analyzed PRTR data and identified specific chemicals of concern to children’s health. This was the final report and activity supported under the CEC’s Cooperative Agenda for Children’s Health and the Environment.

1.7 Update on international PRTR activities

Several international organizations have active PRTR programs. The Organisation for Economic Co-operation and Development (OECD) has a task force on PRTRs, which assists member countries in fulfilling the OECD

recommendation encouraging all OECD countries to implement a PRTR. Several reports are available: a compendium of release estimation techniques for off-site transfers and diffuse sources, an evaluation framework for release estimation techniques, and the uses of PRTRs and tools for communication. The Center for PRTR Data is a searchable database of PRTR data from different countries, launched in June 2006 and on the Internet at <<http://www.oecd.org/env/prtr/>>.

In May 2003, 36 countries and the European Union (not including Canada, Mexico and the United States) signed a global protocol on PRTRs, developed under the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters. This legally-binding protocol sets minimum requirements for reporting. The PRTR Protocol closed for signatures on 31 December 2003, but remains an “open global protocol,” allowing for accession by countries that are not signatories to the entire Convention. Sixteen states are required to ratify the Protocol for it to enter into force. As of September 2007, there were five parties to the PRTR Protocol: Estonia, the European Union, Germany, Luxembourg and Switzerland. The first year of reporting under the expanded European PRTR would be 2007. The next meeting of the parties is June 2008. The full text of the PRTR protocol and updates are available at <<http://www.unece.org/env/pp/welcome.html>>.

The Inter-Organisation Programme for the Sound Management of Chemicals (IOMC) has discontinued its PRTR Coordinating Group <<http://www.who.int/iomc>> and some of these activities were folded into the OECD work.

The United Nations Institute for Training and Research (UNITAR) PRTR Training and Capacity Building Program assists countries in the design and implementation of a PRTR. A number of developing countries and countries with economies in transition continue to express interest in developing a PRTR with support from UNITAR, including Chile, Armenia, Brazil, Macedonia, Paraguay, Peru and Togo. A series of 300 documents about PRTRs has been collected into a summary CD. A virtual classroom was started in order to foster exchange on PRTRs. For more information, see <<http://www.unitar.org/cwg/specialised/prtr.html>>.

Session 2: Update on the three North American PRTR programs

During this session, governmental representatives from Mexico, Canada and the United States, will present an update on their national programs. This will include current data, time trends, methods used for data comparability, program updates and uses of PRTR data.

2.1 Changes for the 2006 reporting year

The 2006 report will continue to present the:

- trilateral view using data from TRI, NPRI and RETC, and
- bilateral view using data from TRI and NPRI.

The trilateral matched data set is based on 9 industrial sectors, 56 chemicals and about 10,000 facilities. The bilateral matched data set is based on 25 industrial sectors, 204 chemicals and 23,000 facilities. In addition, *Taking Stock* would present the summary data from each country, for comparison with the CEC's matched data sets.

There have been some changes to NPRI and TRI for the 2006 reporting year that will affect the matched data set:

- first year of TRI reports using North American industrial codes (NAICS);
- first year of TRI facilities reporting using the burden reduction rules;
- removal of the exemption for the mining sector in NPRI;
- addition of several chemicals to NPRI; and
- expansion of the definition of portable facilities in NPRI.

Session 3: How do stakeholders use PRTR data to foster reductions in pollution in North America? How can further reductions be managed?

During this session, experiences with using PRTR data to reduce pollution will be presented. Participants are encouraged to bring their ideas to the meeting on how further reductions could be achieved.

Session 4: Opportunities for *Taking Stock 2006*

Each year, the *Taking Stock* report develops new analyses and new ways of presenting the data. The CEC is proposing the following topics as a starting point for discussion during the meeting, with a view to identifying those opportunities and potential analyses for *Taking Stock 2006* that are of greatest interest.

The proposals for a special feature analysis for the *Taking Stock 2006* report include:

1. Focus on releases to water
2. Focus on chemicals of special interest
3. Focus on smaller versus larger reporters
4. Your ideas

Opportunity one: Focus on releases to water

This special feature would focus on water releases. It could analyze:

- Total amount of on-site surface water releases;
- Chemicals released in the largest amounts and by toxic equivalent potential;

- Amount of water releases of chemicals considered to be 1) carcinogens, 2) reproductive and developmental toxicants, and 3) persistent, bioaccumulative toxics (PBTs);
- Sectors and facilities reporting the largest amounts of releases;
- Water bodies receiving the largest amounts of releases;
- Time trends in water releases;
- Possible reasons for time trends; or
- Pollution prevention activities.

All three PRTRs report on chemicals released to surface waters, so this special feature would allow both trilateral and bilateral analyses. In 2004, TRI and NPRI facilities reported almost 110,000 tonnes of chemicals released to water. This was about 10 percent of on-site releases and 4 percent of the total releases and transfers. About 1 percent of water releases were chemicals considered to be carcinogens and 0.3 percent were chemicals considered to be reproductive and developmental toxicants.

The top three sectors were Food Products, Primary Metals and Chemical Manufacturing, accounting for about three quarters of the total water releases. The top three chemicals were: 1) nitric acid and nitrate compounds (accounting for 87 percent of the total), 2) methanol and 3) manganese and its compounds. Water releases decreased by 6 percent from 1998 to 2004, driven by TRI reductions. Water releases in NPRI increased by 41 percent, largely due to the Paper Products sector. Looking trilaterally and using a smaller set of chemicals, about 1,000 tonnes were released into water from NPRI, TRI and RETC facilities. This was about 1 percent of on-site releases and about 0.2 percent of total reported amounts of releases and transfers in the trilateral database.

This special feature also has potential for mapping. Several maps could be developed: facilities releasing chemicals to water, facilities releasing chemicals of special interest, and/or water bodies receiving largest amounts of chemicals.

This special feature could also be expanded to include transfers to sewage, enabling an analysis of facilities discharging directly into water, as well as those discharging to sewer systems and indirectly into water.

Questions for discussion:

Is there interest in this type of analysis?

Suggestions for analyses of the most interest?

Should this chapter make links to transfers to sewage?

Opportunity two: Focus on chemicals of special interest

Taking Stock 2006 has an opportunity to analyze the chemicals of special interest, such as compounds considered to be: 1) known or suspected carcinogens, 2) reproductive and developmental toxicants and 3) persistent, bioaccumulative toxics (PBTs), such as lead, mercury, and dioxins and furans.

This special feature would present trends and probe the underlying reasons for the changes.

Taking Stock reports have consistently found that releases and transfers of known or suspected carcinogens and reproductive and development toxicants have decreased at a faster rate than other chemicals. From 1998 to 2004, the releases and transfers of known or suspected carcinogens decreased by 22 percent, with reductions in air of 31 percent and water of 14 percent. For reproductive and developmental toxicants, the releases and transfers decreased by 32 percent, with air decreasing by 14 percent and water by 4 percent. The overall rate of decrease for all chemicals from 1998–2004 was 9 percent, with a 22 percent decrease in air and 6 percent decrease in water releases.

This is an encouraging trend, as the releases and transfers of chemicals associated with these particular health effects are declining more quickly than other chemicals. The chapter would probe the possible reasons for this trend; it would ask the question: Why are releases and transfers of these chemicals decreasing at a faster rate than other chemicals?

As part of this analysis, the data would be examined to see if a few facilities, chemicals, or sectors were responsible for releases, or were driving the change. This would then suggest avenues to investigate. As part of these analyses, the role of pollution prevention in reducing releases and transfers of chemicals of concern would also be explored.

Because of the reporting differences, data for some chemicals of concern, such as dioxins and furans, would need to be discussed separately. These differences in reporting are also opportunities to learn from each others' PRTR programs.

Questions for discussion:

Is there interest in this type of analysis?

Any suggestions for analyses of the most interest?

Are there any possible reasons for these decreases that are of most interest to explore?

Opportunity three: Focus on smaller versus larger reporters

In recent *Taking Stock* reports, facilities in Canada and the United States reporting smaller amounts of releases and transfers have generally shown increases, while facilities reporting larger amounts have generally shown decreases. This special feature would probe the underlying possible reasons for this observation. It would try to answer the question: Why is the group of facilities reporting smaller amounts generally showing increases, while the group of facilities reporting larger amounts is generally showing decreases?

When we look at NPRI and TRI trends overall, we tend to be reassured by a steady decrease in releases and transfers. However, the decreases seen in releases and transfers from 1998–2004 are generally driven by a few facilities.

These facilities have reported large decreases in releases and transfers, which overshadow the changes reported by all other facilities. While these facilities are important because they contribute over half of the total releases and transfers, they are few in number (4 percent of the total number of facilities reporting in 2004).

Because reporting by these largest facilities tends to overshadow all the others, *Taking Stock* investigated the trends for four different groups: smallest, medium, larger and largest reporters, and looked at the trends over time for these four groups.

Generally, the group of largest reporters showed reductions in releases and transfers (decreases of 28 percent for on-site releases from TRI facilities and 33% from NPRI facilities). The smallest reporters showed the opposite trend: substantial increases in all types of releases and transfers (increases of 544 percent for on-site releases from NPRI smallest reporters and increase of 191 percent from TRI smallest reporters—for more details, see *Taking Stock 2004*, section 5.2.5, page 67). The increase among the smallest reporters is of concern because they are very numerous—over 6,500 facilities, or almost half of the reporting facilities. To really make progress in reducing releases and transfers, all four groups of facilities need to show reductions. Note that the terms “smallest” and “largest” refer to the amount of releases and transfers (smallest being facilities reporting less than 10 tonnes in 1998, and largest being those reporting 1,000 tonnes or more in 1998). The terms do not refer to the physical size of the facility, number of employees, or amount of production.

This chapter will look at trends for the different groups of reporters from 1998 to 2006 and break these trends down into more detail by media (air/water/underground injection/land), by sector, by jurisdiction, by chemical, and by chemicals of concern, etc. This will determine if the trend is driven by one or two facilities, by a particular sector, etc. This will then allow for further investigations. This analysis could also look at the role of pollution prevention in these different groups to see if pollution prevention is more prevalent among larger reporters, and what role it may play in the decreases.

Questions for discussion:

Is there interest in this type of analysis?

Are there any particular analyses that would be of interest?

Are there any particular chemicals or sectors that would be of interest?

Opportunity four: Your Ideas

Participants are encouraged to come to the meeting with other ideas for special analyses or areas of interest that could be considered for the *Taking Stock* report. Your feedback and suggestions on the format of the report and the web site, *Taking Stock Online* (www.cec.org/takingstock), are also welcome.

Tuesday December 5

Session 5: New ways to present PRTR data: Mapping panel

Speakers in this session will present new methods of mapping environmental data. Some of these methods may provide ideas to adopt for the *Taking Stock* report and website.

Since the beginning, the *Taking Stock* report has used a variety of methods to communicate information including maps, graphs, charts and tables. *Taking Stock* 2004 included new types of maps, including point maps and proportional symbol maps to display facility locations and chemical amounts. In earlier *Taking Stock* reports, the common type of map used was the choropleth map. In choropleth maps, each spatial unit is filled with a uniform color or pattern that represents the data associated with that spatial unit. For instance, in the map of jurisdictions (e.g., states/provinces) in *Taking Stock*, the jurisdictions are shaded according to the amount of releases and transfers. Each color represents one quarter of the total amounts. While these maps can be familiar and useful to some readers, choropleth maps may imply a false sense of geographic pattern of the underlying point data, and add little value to tabular data displays. It might be useful to consider other mapping methods, such as emission density heat maps, or normalized bar charts.

There is also the possibility of creating interactive maps using *Google Earth* or *Google Maps*. Currently, the *Google Earth* PRTR layer presents the PRTR data for each country, rather than the matched *Taking Stock* data. The facility links currently to the national PRTR databases, with no links to the CEC *Taking Stock Online* data. Various options for improving interactive mapping capacity include *Google Earth* layers of the matched *Taking Stock* data, organized by industry sector; links to *Google Maps* of facilities, based on query results from *Taking Stock Online*; and/or including comparative information on mapped facilities/industry rank in North America, and so on.

Questions for discussion:

Are the maps in Taking Stock report useful?

Are there other themes that could be mapped?

Are there any other mapping techniques that could enhance communication?

Are there any other improvements that could be made to the figures, tables in the Taking Stock report?

For additional information or to provide comments, please contact:

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