

A **CITIZENS' GUIDE** to the

National Pollutant Release Inventory

Community right to know: How to find out what
toxics are being released into your neighbourhood



A Project of the
Canadian Institute for Environmental Law and Policy

A Citizens' Guide to the


National Pollutant Release Inventory

**Community right to know: How to find out what
toxics are being released into your neighbourhood**

by John Jackson



Canadian Institute for Environmental Law and Policy
May 2000



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About the Canadian Institute for Environmental Law and Policy (CIELAP)

Founded in 1970, as the Canadian Environmental Law Research Foundation (CELRF), the Canadian Institute for Environmental Law and Policy (CIELAP) is an independent, not-for-profit professional research and educational institute committed to environmental law and policy analysis and reform. CIELAP is incorporated under the laws of the Province of Ontario and registered with Revenue Canada as a charitable organization. Our registration number is 11883 3417 RR0001.

CIELAP provides leadership in the research and development of environmental law and policy which promotes the public interest and the principles of sustainability, including the protection of the health and well-being of present and future generations, and of the natural environment.



TABLE OF CONTENTS

Part 1: The Citizens' Guide	1	Part 5: How to Interpret NPRI Data	20
Part 2: The Development of the NPRI	3	Year-to-Year Comparisons	20
The NPRI's History	3	Facility-to-Facility Comparisons	20
The NPRI's Legal Basis	3	Significance of Transfers	21
Part 3: Understanding the NPRI	4	Transfer Trends	21
Who Reports to the NPRI?	4	Currency of Data	22
The Fine Print on Who Reports	5	Basin-wide Reports	22
Employee Threshold	5	Part 6: The NPRI in Use	24
The Concentration Reporting Threshold	5	Regional Analyses	24
The Quantity Reporting Threshold	5	International Basin-Wide Analyses	25
What Substances are Reported to the NPRI?	6	Continent-wide Analyses	25
What Does a Facility Have to Report to the NPRI?	7	Mapping	26
Report Contents	7	Comparative Evaluations of Facility Releases and Transfers	27
Quantity Reported	8	The Scorecard Project	28
Methods of Determining Releases	8	Part 7: Knowledge into Action	30
Confidentiality Provisions	8	Appendices	
Government Monitoring and Enforcement	9	1. List of NPRI Offices	31
Part 4: How to Use the NPRI	10	2. List of NPRI Substances	33
Accessing the NPRI	10	3. Flowchart for Reporting to the NPRI	40
The NPRI Summary Report and Fact Sheets	10	4. Toxic and Cancer-Causing Substances on NPRI List	42
The NPRI Internet Site	10	5. Sources of Information on Environmental and Health Impacts	44
Initiating the Search	11	Glossary	46
Facility Summary	13		
Facility Location	14		
Substance Details	16		
Obtaining Copies of Data from the Internet Site	17		
Data Disk	19		
The NPRI Offices	19		
The Reporting Facility and Industrial Associations	19		





PREFACE

Dear Reader,

This *Guide* is a project of the Canadian Institute for Environmental Law and Policy (CIELAP) and is the third in our series of *Citizens' Guides*. It is our attempt to provide you with a plain language resource on what pollutants are being released into your environment by which facilities. The information on pollutant releases used in this *Citizens' Guide* comes from the companies themselves and is compiled by Environment Canada into something called the National Pollutant Release Inventory (NPRI).

This *Guide* provides you with the information you need to encourage facilities to reduce or eliminate their releases of pollutants and we hope it will be useful to you wherever you are — at home, in school or college, in the community or at work.

A great many people have made the production of this *Citizens' Guide* possible. First, on behalf of CIELAP, I would like to thank John Jackson, who did the research and writing of this *Guide*. As well, I would like to thank those who reviewed it. They include Peter Baltais, Imperial Oil, Toronto; Delores Broten, Reach for Unbleached, Whaletown, BC; Stéphane Gingras, Great Lakes United, Montreal; Burkhard Mausberg, Canadian Environmental Defence Fund, Toronto; Bruce Walker, STOP, Montreal; Linda Whalen, CLEAN, St John's, Newfoundland; Mark Winfield, CIELAP's Director of Research. As well, a number of people in Environ-

ment Canada reviewed the *Guide* and provided us with their comments. They include: Chris Roberts and Josh Campbell (Atlantic Region); Anne-Marie Carter (Quebec Region); Suzanne Spicer (Ontario Region); Art Beckett and Nancy Taschuk (Prairie and Northern Region); Michael DeAbreu and Kelli Dawson (Pacific and Yukon Region); François Lavallée, Lynne Robinson-Lewis and Lynne Patenaude (NPRI Headquarters, Ottawa).

Last, but by no means least, I would like to thank those who contributed the funds for this project. First, the Citizens' Clearinghouse on Waste Management contributed not only the initial idea but also it was through their efforts that the project received funding from the Laidlaw Foundation. The two other funders for this initiative were Environment Canada and Mountain Equipment Co-op.

The *Citizens' Guide* is available in both English and French. I would like to thank Environment Canada for doing the translation from English to French for us.

We hope this *Guide* will raise questions and stimulate discussion about what pollutants are being released into your environment. We'd love to know what you think of the *Guide* and how you are using it. We can be reached through our website at www.cielap.org.

Anne Mitchell
Executive Director





THE CITIZENS' GUIDE

DO YOU WANT TO KNOW HOW MUCH pollution is going into your neighbourhood from a factory in your community? Do you ever wonder how much industrial contamination is entering the river that you swim in? Do you live near a hazardous-waste landfill or incinerator and want to know how much and what kinds of chemicals are being shipped there? Do you want to know what kinds of contaminants are being emitted from the factory that you work in? It is your right to get answers to these kinds of questions.

One of the best sources of answers to these and many other questions about pollution releases is the National Pollutant Release Inventory (NPRI). The NPRI is a federal program that requires many polluters to report annually on many of the contaminants that they release into the air or water, bury in landfills on their property, put down deep wells, or ship off-site for recycling, treatment or disposal. All this information is readily available to you.

The information in the NPRI can help strengthen your case when you ask polluters to change their behaviour, when you ask governments to take action to protect your community, and when you reach out to educate your fellow citizens.

This *Citizens' Guide to the National Pollutant Release Inventory* will help you to:

- understand what information you can find by using the NPRI,
- learn how to access the NPRI and use its data,

- interpret the significance of the data you obtain through the NPRI, and
- understand what you can achieve by giving examples of how others have used the NPRI.



This *Guide* is a description of how to use and understand the NPRI. While it points out what the NPRI does and does not do, this *Guide* does not provide a critique of the NPRI or make suggestions on how the NPRI could be improved.

WHAT YOU WILL FIND IN THE NPRI AND WHAT YOU WON'T

The NPRI will provide you with:

- site-specific information on 268 substances (as of 2000),
- site-specific information about what pollutants and amounts an industrial-type facility releases to the environment and what quantities are shipped off-site for disposal, treatment or recycling,
- the ability to compile data for all discharges from industrial-type facilities to a specific watercourse (i.e., river, lake, stream),
- details on where pollutants are released to and where they are sent if they are shipped off-site, and



- access to information that is relatively consistent year over year, which will allow you to easily determine whether progress is being made on reducing pollution releases in your community.
- information on the kinds and quantities of toxic or hazardous materials that a particular factory uses — the NPRI is a pollutant release inventory, not a use inventory.

You may not be able to get answers to all your questions by going to the NPRI. For example, the NPRI will not provide you with:

- information on all pollutants,
- information on smaller facilities that release pollutants,
- information on some common air pollutants, including sulphur dioxide and carbon dioxide,
- information on pollutants that don't come from a specific industrial-type facility, such as runoff from agricultural operations, emissions caused by transportation, etc., and

Some of the information not available through the NPRI may be available from other sources. Contact the NPRI office in your region for suggestions on other places where you can get the information (see Appendix 1).

We hope that through this *Guide* you will learn to gain access to information that will help you better understand environmental conditions in your community and help you act to protect your community from the adverse impacts of contaminants on both your health and the natural environment.





THE DEVELOPMENT OF THE NPRI

ON A DECEMBER NIGHT IN 1984, AT LEAST 2,000 people living around a Union Carbide pesticides plant in Bhopal, India were killed when methyl isocyanate leaked from the plant. Most estimates conclude that 10 to 15 people still die each month from diseases caused by that event.

As the news of the disaster at Bhopal spread around the world, people thought about accidents in their own communities and about the daily releases of toxics through the normal operations of industrial-type plants in their neighbourhoods. As a result, a public outcry arose for much greater access to information about the hazardous materials being used and produced in their communities and for stronger actions by industries and governments to protect communities from these threats. A citizens' movement arose demanding the right-to-know and the right-to-act.

To help meet the public's right-to-know, governments in many countries developed publicly available inventories of the substances being released by certain polluters. One of these inventories is Canada's NPRI.

THE NPRI'S HISTORY

The NPRI was developed as part of the federal government's Green Plan initiative in the early '90s. A multi-stakeholder committee made up of representatives of nine industrial sectors or organizations, five environmental groups, one labour organization, three federal departments, and three provincial governments made recommendations to the government that formed the basis for the development of the NPRI.

In April 1995, the results of Canada's first NPRI were released. This report covered data on pollutants released during 1993. Each year since then, polluters have been required to report to Environment Canada under the NPRI.



The NPRI is a constantly evolving program. Since the NPRI began, substances have been added and deleted; the thresholds at which substances have to be reported have been adjusted; and requirements for reporting on recycling and energy recovery have been changed. These changes have always been made after public consultation, and, in the cases where the most substantial changes have been made, after input from a multi-stakeholder committee.

THE NPRI'S LEGAL BASIS

The renewed Canadian Environmental Protection Act (CEPA), which was passed in 1999 and went into force in April 2000, requires Environment Canada to have a "national inventory of releases of pollutants" and requires Environment Canada "to publish the national inventory of releases of pollutants." If they meet the reporting criteria determined by the Minister of the Environment, owners and operators of facilities are required by CEPA to report to the NPRI.

Prior to the new CEPA, the Minister of the Environment used the general information gathering powers of the former CEPA to require reporting of information to the NPRI.



3

UNDERSTANDING THE NPRI



From this point on in the *Guide*, you will find explanations for the words that are in **bold type** (the first time they appear in each section) in the glossary at the back of the *Guide*.

IN THIS SECTION, WE EXPLAIN HOW THE NPRI works, including who must report to the NPRI, what substances are reported, and what has to be reported for a facility. For more detailed information, contact Environment Canada for a copy of the latest *Guide for reporting to the National Pollutant Release Inventory*. You can also access the guide on the NPRI website.

The NPRI may appear to be a complicated system that seems to have a language all its own, but you will find that it is actually fairly easy to use and that valuable information can be quickly found in it.



The information in this *Citizens' Guide* is based on decisions that had been made as of January 2000.

WHO REPORTS TO THE NPRI?

The owner or operator of a **facility** usually reports if they meet all three of the following criteria:

- the facility has 10 or more full-time employees (or an equivalent of 20,000 worker-hours each year)

- the NPRI substance was **manufactured, processed or otherwise used** at a concentration of 1% by weight or more, and
- the facility manufactured, processed or otherwise used 10 tonnes (10,000 kg) or more of an NPRI substance during the calendar year.

If any one of these criteria is not met, there is no requirement to report.

It is important to remember that if you do not find a facility that you are concerned about in the NPRI data, you should not assume that the facility does not produce or release pollutants to the environment — it just may not meet the reporting thresholds.

Reporting is done by facility, which means the operations found on one site or on adjacent sites. If a company has facilities in different parts of a province or territory or in different provinces or territories, it has to report separately for each facility that meets all three criteria listed above. The company does not have to report if none of its facilities meet all three reporting criteria.



There are exceptions to the three overall criteria just listed. Be sure to read the flowchart in Appendix 3, which describes the decision-making process that a company or facility owner works through to determine whether they have to report. This flowchart, prepared by Environment Canada, also details the exceptions to the three general reporting criteria listed above.



Across the whole of Canada, 1,973 facilities reported data to the NPRI for 1997. This is only a small percentage of all the facilities in Canada that manufactured, processed or otherwise used NPRI substances and of all the sources of NPRI substances in our environment.

THE FINE PRINT ON WHO REPORTS

Some facilities are exempted from reporting without having to assess whether they meet the three criteria listed above. In most cases, they have been exempted because it is considered unlikely that a facility in the specific category would be large enough to meet all three of the overall reporting criteria.

Employee Threshold:

Environment Canada found that some types of facilities that emit significant quantities of NPRI substances usually did not have to report because they did not meet the 20,000 hours /10 full-time employees threshold. To correct this problem, Environment Canada added a list of types of facilities that must report regardless of whether they meet the employee threshold. (These facilities are listed in the flowchart in Appendix 3.) Some types of facilities that normally do not meet the employee threshold, such as water-treatment plants, wastewater treatment plants, dry cleaners, landfill sites and bulk terminals used for fuel distribution, continue to be exempted from reporting unless they have 10 full-time employees.

The Concentration Reporting Threshold:

Facilities are not required to report if the concentration of the substance in the item manufactured, processed or otherwise used is less than 1% by weight. The operator of the facility is not allowed to dilute the material in order to fall below this 1% concentration threshold.

Beginning with the 2000 reporting year, mercury, 17 kinds of polycyclic aromatic hydrocarbons (PAHs), hexachlorobenzene and dioxins and furans have to be reported at any concentration.

The less-than-1% concentration exemption also does not apply to **by-products**. This is intended to ensure that high-volume releases of NPRI substances that might otherwise be missed are reported. For example, a coal-burning power plant may release large quantities of certain metals at concentrations of less than 1%. The plant would have to report to NPRI because the metals released to the air would be defined as by-products.

The Quantity Reporting Threshold:

If an NPRI substance is manufactured, processed or otherwise used by a facility in annual quantities of less than 10 tonnes (10,000 kg.), then the facility usually does not have to report. Even if a facility produces a number of NPRI substances and the total of these substances is greater than 10 tonnes, it usually does not have to report unless any one of the substances is produced in quantities of 10 tonnes or more.

In calculating whether the 10-tonne threshold has been met, materials used in the following ways are not included:

- used as structural components of the facility,
- used in routine janitorial or facility grounds maintenance,
- for personal use by employees or other persons,



Part 3: Understanding the NPRI

- used for the purpose of maintaining motor vehicles operated by the facility or
- is found in intake water or intake air, such as in water used for process cooling or air used as compressed air or for combustion.



Routine janitorial maintenance does not include maintenance of processing equipment. For example, solvents used to clean manufacturing equipment must be included in the calculations if they meet the 1% concentration threshold.

Concern about the impact on reporting of the 10-tonne weight threshold, particularly for toxic pollutants such as dioxins and furans, has led to the adoption of lower thresholds for certain substances beginning with the 2000 reporting year. The substances qualifying for alternate thresholds were drawn from the following categories:

- micro pollutants/persistent, bioaccumulative, and toxic substances, and
- other substances of special environmental or health concern that are not captured at current reporting thresholds, including those targeted for reduction in domestic or international agreements.

Based on these categories, the following changes have been made to the reporting thresholds for the 2000 reporting year:

- Releases and transfers of mercury must be reported if five kilograms or more of mercury has been manufactured, processed or otherwise used during the year.

- Releases and transfers of 17 different PAHs must be reported if the substance was **incidentally manufactured**, resulting in the release or transfer of a total of 50 kilograms or more during the year.
- Any release or transfer of dioxins and furans or of hexachlorobenzene must be reported for 16 specified activities. (See Appendix 3 for the list of activities for which reporting is required.)



For dioxins, furans and hexachlorobenzene, the use of the words “any release” can be misleading. Any facility that engages in a designated activity must submit a report. It only has to submit an actual quantity measurement, however, if the release or transfer is above a **level of quantification** designated by Environment Canada. If the release and transfer is below the level of quantification, the facility can state that there is no release above the level of quantification or that there are no data available. In addition, dioxins and furans are reported using **toxic equivalents factors** instead of individual numbers for each kind of dioxin and furan.

WHAT SUBSTANCES ARE REPORTED TO THE NPRI?

As of 2000, releases of 268 substances have to be reported under the NPRI. At the time of writing, 55 substances on the NPRI list were known to be toxic or cancer-causing based on whether the substances had been declared toxic under *CEPA* or had been designated as cancer-causing or probably cancer-causing to humans by the International Agency for Research on Cancer (IARC). These 55 substances are listed in Appendix 4. Appendix 5 lists some sources where you can find out more about the environmental and health effects of NPRI substances.





The list of NPRI substances changes over time. For example, 73 substances were added to the NPRI list for 1999. Twenty-three more substances were added starting with the 2000 reporting year. If you find that a facility reported a substance one year but not in another year, you should check to see if the difference is due to a change in the NPRI substances list by checking with one of Environment Canada's NPRI offices (see Appendix 1).

Substances that are considered for addition to the NPRI list are:

- those that have been added to the U.S. Toxics Release Inventory list,
- those appearing on Canada's Priority Substances List, and
- those on the CEPA Toxics list.

Substances can also be deleted from the NPRI list. Environment Canada considers the following questions when deciding whether to delete a substance:

- Is the substance no longer considered to be of health or environmental concern?
- Has the substance been deleted from the Toxics Release Inventory in the U.S. or other lists that were the source for the NPRI list?
- Has the substance been reported under the NPRI for the past several years?
- What are the industrial uses of the substance?
- If not currently used, is future use likely or possible?
- If the substance is not being reported, is it possible that an alternate threshold should be

developed for it or are current exemptions for reporting inappropriate? and

- What is to be gained by deleting the substance?

As of January 2000, one substance — acetone — has been deleted from the NPRI list.

WHAT DOES A FACILITY HAVE TO REPORT TO THE NPRI?

Report Contents:

Every year, each facility that meets the reporting thresholds for an NPRI substance must report its **releases** and **transfers** for that substance. While the thresholds that determine who has to report are based on a facility's use or production of an NPRI substance, it is only the facility's actual releases or transfers of that substance that are reported. If a facility meets the requirements to report, but actually has not released or transferred any NPRI substances, it reports 0.0 kg. released.

For each NPRI substance that is released or transferred, the facility must report the following information:

- The total quantity released during the year to air, water, underground injection and land. The quantities must be reported separately for each of these media along with the name of the lake, river or stream that a substance is released to if applicable.
- The total quantity transferred off-site during the year for **disposal** or treatment, the type of facility the substance was transferred to (e.g., landfill, sewage-treatment plant, incinerator) as well as the location of the facility.



- the total quantity transferred off-site during the year for **recycling**. This must be broken down by energy recovery, recycling of solvents, refining or reuse, etc., and the location where the materials are sent for recycling must be listed.
- The reasons for changes in releases from the previous year.
- The reasons for transferring NPRI materials off-site for disposal or recycling, and reasons for the changes in materials transferred off-site.
- Anticipated changes in releases and transfers in each of the next three years.
- Types of pollution-prevention methods used.

Quantity Reported:

Once a facility has met the threshold requiring it to report on an NPRI substance, any release or transfer of the pollutant must be reported. If the release or transfer is less than one kilogram, the reporter does not give an exact number; if the amount is between 0.9 and 0.5 kilograms, the number is rounded up to one kilogram; if the amount is below 0.5 kilograms, the quantity is entered as zero. Therefore, if there is a zero in the column next to a reported substance, it does not necessarily mean that there was no release or transfer.

If the total release is less than one tonne, the reporter has the option of reporting a total release or transfer, rather than reporting whether it is released to air, water, land, etc.

Methods of Determining Releases:

Under the NPRI system, polluters prepare reports on their releases and send them to Environ-



ment Canada. The facilities are required to provide any information on their releases or transfers that they have available, but are not required to undertake additional direct measurements if the information is not already on hand. Facilities are also given various options for providing their information, but must state the method by which they determined their release levels: **direct measurement, mass-balance calculations, emission factors, or engineering calculations.**



Most of the release data in the NPRI are based on the mass-balance calculation method; less than one-fifth of reports are based on direct measurement. In 1997, for example, approximately 40% of the release figures were determined by mass-balance calculations, 26% by emission factors, 18% by direct measurement, and 15% by using engineering calculations.

Confidentiality Provisions:

Information reported under the NPRI is public information. But while acknowledging the public's right-to-know, industry has raised concerns that in some cases information may be proprietary. The release of such information may provide competitors with trade secrets (such as helping a competitor figure out what the "secret" ingredient is) or disclose information that would interfere with commercial negotiations.

Regardless of confidentiality concerns, NPRI data must be submitted to Environment Canada if the reporting thresholds are met. When companies submit their data, they can, however, ask Environment Canada to keep the information confidential. Under CEPA, the Minister will rule on whether the information should be released to the public based on the following factors:

- the disclosure is in the interest of the protection of the environment, public health or public safety; and
- the public interest in the disclosure outweighs in importance:
 - any material financial loss or prejudice to the competitive position of the person who provided the information or on whose behalf it was provided, and
 - any damage to the privacy, reputation or human dignity of any individual that may result from the disclosure.

In the first NPRI reporting year (1993), there were 130 requests to Environment Canada to keep information submitted confidential. Environment Canada agreed to four of these requests. The number of requests to keep information confidential has decreased over the lifetime of the NPRI program and the number of requests that Environment Canada has agreed to has remained relatively unchanged. For example, in the 1997 reporting year, NPRI reports were submitted for 1,973 facilities. Environment Canada agreed to keep the information for six of these facilities confidential.



NPRI data for the steelmaker Ipsco Inc have been held in confidence by Environment Canada since the NPRI program began.

This is because Ipsco has launched a court case challenging Environment Canada's right to require companies to report to the NPRI. The data held in confidence is for plants in Regina and Calgary.

Government Monitoring and Enforcement:

Facilities are required by law to report the relevant release and transfers information if they meet the reporting criteria. It is the owners and operators of the facilities who are responsible for calculating and submitting this information — not the NPRI offices of the federal government. To encourage compliance with these legal requirements, the NPRI offices inform possible reporters of their obligations, give them information to make it easier for them to comply with the NPRI requirements and carry out a monitoring and enforcement program.

The monitoring and enforcement program has several elements. Each regional NPRI office checks to see who is reporting and contacts those that it thinks might meet the reporting criteria but who have not reported. The regional and national offices of the NPRI also look at the reported data and contact the reporter if the releases and transfers are substantially different from what they would have expected for that kind of facility.

If these actions do not produce results that satisfy the NPRI offices, they can take legal action; convictions for violation of the NPRI requirements can result in fines or imprisonment. To date, however, there have been no charges or convictions for violations of the NPRI requirements, although warning letters have been issued. (For the 1997-98 period, Environment Canada issued 172 warning letters.) These letters go on the company's compliance history file. No survey has been conducted to estimate the degree of compliance with NPRI reporting requirements.



4

HOW TO USE THE NPRI

ACCESSING THE NPRI

You can access NPRI data from several sources: the NPRI annual Summary Report and fact sheets; the NPRI internet site; a data disk with the NPRI information on it; through requests to an NPRI office; or by contacting a reporting facility or industry association directly.

THE NPRI SUMMARY REPORT AND FACT SHEETS

When it releases each year's data to the public, Environment Canada puts out a Summary Report. You can obtain a copy of this report by contacting the national NPRI office or your regional NPRI office (see Appendix 1).

The Summary Report gives an overview of the information on **releases** and **transfers** of NPRI substances for Canada as a whole; the data are also broken out individually for each province and territory. This report also provides comparative data showing changes over the past several years. As well, the report contains information on the largest individual polluters for each substance reported under the NPRI.



If you do not see a facility on these lists, it does not necessarily mean that the facility did not report on that substance. It may just mean that it was not among the largest emitters of the substance. To be sure, you should check one of the other methods listed here for accessing the NPRI.



Summary information on other sources of pollutants that are not reported on under the NPRI are also included in this report. This additional information varies from year to year, but has included information on transportation sources, dry cleaning, greenhouse gases, etc.

Each provincial and territorial NPRI office releases a regional fact sheet when the annual NPRI data is released. These fact sheets give you more detail on your region than is found in the National Summary Report. You can obtain these through your regional NPRI office (listed in Appendix 1) or on the NPRI internet site.

THE NPRI INTERNET SITE

If you have access to the internet, Environment Canada's NPRI site — www.ec.gc.ca/pdb/npri — is a wealth of information. Its most valuable feature is its data search tool.

What follows is a sample search that will give you an indication of how this site can help you. This example shows how to look for facilities emitting NPRI pollutants in your community and how to get details on a facility. It also shows you the range of information that is available on the site.



This is only one of many types of searches that you can conduct on the NPRI site. For example, you could do a search that shows you all the sources within your community of a particular kind of carcinogen or other substance coming from facilities reporting to the NPRI. You

Click here
to begin a
search

Click here
to receive
the full
database
on CD-ROM

could find all facilities in the country that are part of a particular industry, such as all pulp and paper mills reporting to the NPRI. By following our example search, however, you will be well enough acquainted with the site that you can easily undertake other kinds of searches.

Initiating the Search:

On the home page of the NPRI site, click on “Data Search” on the left-hand side of the screen. The “Search the NPRI Database” screen will come up. (See Table 1 on page 12.)

You do not have to fill out all the items on the search page. If you are looking for a specific

company, you can just fill in the “Who?” space and then the “Where?” space. (Under the “Where?” column, you can find the source you need without having to give the postal code.)

If you want to find all the polluters who reported in your area, just fill in the “Where?” column. Here you can just fill in the province/territory space and in “City” put the name of your municipality. Or you can just enter the postal code for your area and get all reporters in that postal code. By using just the first three letters/digits of your postal code (ie. M4A), you can get information on reporters from a broader area.

Part 4: How to Use the NPRI

npri Search the NPRI Database

Who? Enter Facility Name: NPRI ID:

What? Chemical Name: CAS No:

When? Report Year: 1997 (Data as of September 1997)

Where? Enter Province/Territory:
 Enter City: Kitchener Postal Code:

Why? Enter 2-Digit Canadian SIC Code:
 Enter Canadian SIC Code:
 Enter American SIC Code:

You can search for information in your area simply by entering the name of your city or the first three characters of your postal code

← Table 1

▼ Table 2

npri NPRI Facilities

The following facilities meet your search criteria. Select a facility to retrieve detailed information.

NPRI ID	Report Year	Facility Name	City	Province
Sort		Sort	Sort	Sort
0064	1997	B&W Heat Treating (1975) Ltd.	Kitchener	ON
0311	1997	Baran Colour Concentrates Limited - Kitchener Plant	Kitchener	ON
4907	1997	BUDD CANADA INC. - Budd Canada Kitchener	KITCHENER	ON
0155	1997	Canada Alloy Castings	Kitchener	ON
1531	1997	J.M. Schneider Inc. - Courtland	Kitchener	ON
4006	1997	Kaufman Footwear - Kaufman Footwear - Plant #1	Kitchener	ON
4500	1997	Kaufman Footwear - Kaufman Footwear - Plant #2	Kitchener	ON
4525	1997	KITCHENER FIBREGLASS - BRIDGE STREET	KITCHENER	ON
3111	1997	<u>Kartz Electroplating Inc.</u>	Kitchener	ON
3472	1997	Nichols North America (Canada) Inc. - Kitchener - Ontario	Kitchener	ON
1849	1997	Parmalat Canada - Maple Lane	Kitchener	ON
4003	1997	Versitech Industries - Apex Metals Inc.	Kitchener	ON

If you would like a copy of this data in a form ready for use in other programs, enter your email address here:

Click on the name of the facility for more information



▼ Table 3

npri **Kuntz Electroplating Inc.**

NPRI ID - 3111

851 Wilson Avenue
Kitchener, ON
N2C 1J1

[Click here for more facility information.](#)
[Click here to see several years of data.](#)
[Click here to see where this facility is on a map.](#)

1997 Facility Substance Summary (tonnes)

Click on a CAS Number or Substance Name for Substance-Specific Release Details

CAS Nr.	Substance Name	Releases	Disposal	Recycle
		Details	Details	Details
NA - 04	Chromium (and its compounds)	0.44	54.00	0.00
NA - 06	Copper (and its compounds)	0.00	0.00	10.00
7647-01-0	Hydrochloric acid	0.04	0.00	0.00
7664-39-3	Hydrogen fluoride	0.01	0.00	0.00
NA - 11	Nickel (and its compounds)*	0.00	0.00	108.00
7697-37-2	Nitric acid	0.06	0.00	0.00

Look at a multi-year summary by clicking here

Locate the facility by clicking here

Click on a substance for more information about its use

Once you have filled in the search information, click on the search button at the bottom of the page to see the results. When you put “Kitchener” in the city space, a list of 12 facilities that reported to the NPRI in 1997 comes up. (See Table 2 on page 12.)

Facility Summary:

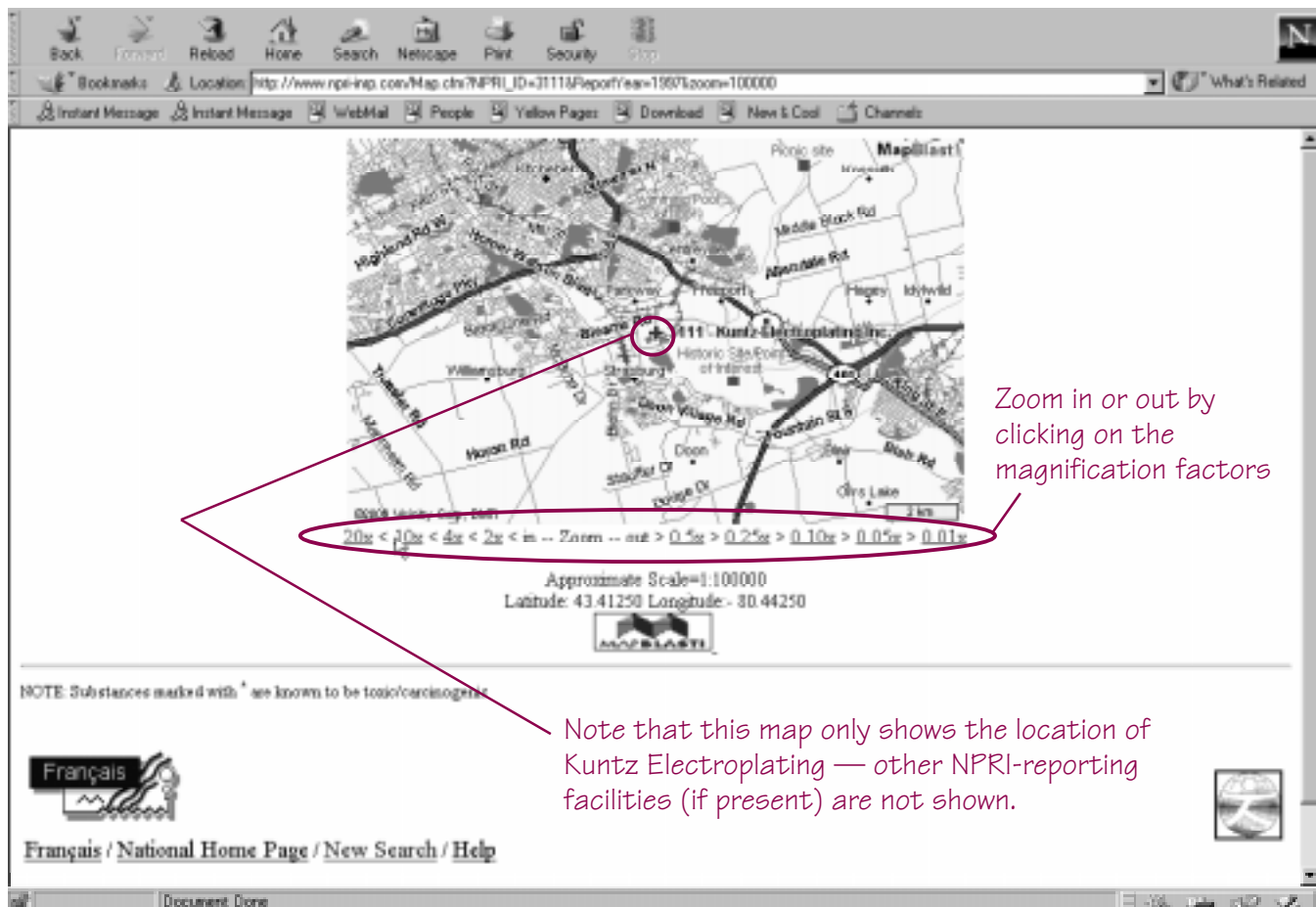
To get the details on each facility, just click on the name of the facility. For example, if you click on the “Kuntz Electroplating Inc.” line, the following screen comes up. (See Table 3 above.)

This page summarizes the data from the facility showing how much was released, disposed of, or **recycled** by each substance that was reported on.

This page also has a bar chart that shows the releases and transfers. (To print out this chart, you will need a browser that can print graphics generated by Java applets. A suggestion on how you may be able to copy this chart instead is included at the end of the “Search Help” that you can access from the first page of the NPRI database site.)

Notice that in the Facility Substance Summary you see zeroes in all of the columns behind some substances. This will happen frequently. If a reporter meets the threshold of **manufacturing, processing** or **otherwise using** more than 10 tonnes of the substance over the year, they have to report on that substance even if their **releases**





are zero. If the amount released or transferred off site during the year is less than one kilogram, they may also put “zero” in the reporting column, although some facilities round up to “one”.

Any substance on this list that has an asterisk behind it is known to be toxic or carcinogenic.

Facility Location:

You can also pull up a map that shows the location of the reporting facility. Just click on “Show me where this facility is on a map” below the facility’s address at the top of the page. These maps are very useful since they show roads and

the location of housing, schools, other community facilities and green spaces. This is helpful in indicating sensitive areas near the facility. (See Table 4 on page 14.)

In the Kuntz example, the map shows that the plant is near housing, a major tourist site (Doon Pioneer Village), an outdoor community swimming pool and a picnic area.



In some rural areas you may not find this kind of detail on the maps. As well, all the maps show only one facility at a time. Therefore, the map will not alert you if there is another facility reporting to NPRI within the geographic area shown on it.



Substance Details:

For more detail on one of the substances, click on that substance. For example, in this case if you click on "Chromium", the following screen will come up. (See Table 5 on page 16.)



If there is an asterisk after the substance's name, it means that the substance is known to be toxic or a carcinogen.

In most cases, under the name of the substance, you will find a heading "Click here for physical-chemical information" and one that says "Click here for toxicological information." Clicking on these will give you basic information on the synonyms for the substance, nature of the substance and links to other sites that have more detailed information.

In the case of chromium, there is no such link. The reason is that NPRI lists "chromium and its compounds" and, as a result, it is not considered one specific substance. In many instances where the substance is listed as "and its compounds" you will also find that there is no physical-chemical and toxicological information. In Appendix 5, you will find some suggestions of other sources for information on environmental and health impacts of NPRI substances.

If you go back to the report from the facility on the substance (see Table 5), you will find why the substance is found at the facility. For example, in this case chromium is used as a physical or chemical processing aid.

The table is then divided into two parts: the first part has information on releases; the second part has information on transfers off-site.

Releases

At Kuntz Electroplating, 0.44 tonnes of chromium were released in 1997 through a stack or point release to the air. The amount listed in the table is the total amount that was released over the entire year. This part of the table also shows how the release was determined. In this case, the number was derived by a **mass-balance calculation**.

On this table, possible reasons for changes in the quantity released from the previous year are listed. The reporter ticks off the one(s) that apply. In this case, the company has noted that there was no significant change over the previous year.

The table also indicates if the amount of **release** varied substantially at different times of the year. In this case, there was little variation. The company is also required to predict their releases for the next few years. Kuntz was not expecting any substantial change from 1997 to 2000.

Transfers

The second part of the table lists off-site transfers. In this case, Kuntz sent 54 tonnes of chromium off-site for **disposal**. The table also shows what type of treatment or disposal was involved. In this case it was all sent to a chemical-treatment plant.



The facility must also identify to the NPRI the off-site locations where the substance was disposed of or recycled. However, you cannot access this information through the NPRI internet site — you will have to obtain the database on disk and construct your own search system or go through hard copies of the facility reports to get this information. Or you could obtain these reports directly from the facility owner or manager.





npri Kuntz Electroplating Inc.
 NPRI ID - 3111
 851 Wilson Avenue
 Kitchener, ON
 N2C 1J1

1997 Facility Substance Details

Chromium (and its compounds)*

Because this is not considered one specific substance, there are no links for further information

Standard Industrial Classifications		
Canadian	30	Fabricated Metal Products Ind. (Except Machinery and Trans. Equipment Ind.)
	3041	Custom Coating of Metal Prods. Ind.
American	3471	Plating and Polishing

Nature of Activities	
Manufacture	For on-site use/processing
	For sale/distribution
	As a by-product
	As an impurity
	As a constituent

Table 5
 (various sections of the Facility Substance Details page)

Off-Site Transfers for Disposal, tonnes		
Disposal Method	Percentage	Quantity, tonnes
Physical treatment	0.00%	0.00
Chemical treatment	100.00%	54.00
Ecological treatment	0.00%	0.00
Incineration or thermal	0.00%	0.00
Containment, landfill	0.00%	0.00
Containment, other storage	0.00%	0.00
Municipal sewage treatment plant (MSTP)	0.00%	0.00
Underground injection	0.00%	0.00
Land treatment	0.00%	0.00
Total Transfers:	100.00%	54.00

Reasons for Changes in Quantities Transferred from Previous Year

- Changes in Production Levels
- Changes in extraction methods
- Pollution Prevention Activities
- Changes in On-site Treatment
- Changes in Off-site Transfers for Recycling
- Other
- It's significant change (not than 30% change)
- Not Applicable (First year reporting)

Anticipated Transfers

1996	1997	2000	2001	2002



▼ **Table 6**

MultiYear Summary (tonnes)

Chromium (and its compounds)¹ - NA - 04

YEAR	Releases	Disposal	Recycle
1994	0.44	56.34	0.00
1995	0.44	56.34	0.00
1996	0.44	60.00	0.00
1997	0.44	54.00	0.00

Copper (and its compounds) - NA - 06

YEAR	Releases	Disposal	Recycle
1994	0.00	0.00	25.73
1995	0.00	0.00	28.25
1996	0.00	0.00	10.00
1997	0.00	0.00	10.00

This table allows you to track trends in toxic releases from a facility

Comparisons

If you go back to the “Facility Substance Summary” (see Table 3), you can pull up a table that compares releases, off-site disposal and off-site **recycling** from the first year that NPRI reporting existed to the most recent data year. (See Table 6 above.)

Obtaining Copies of Data from the NPRI Site:

Near the bottom of each screen on the NPRI website there is a box just above which it says: “If you would like a copy of this data in a form ready for use in other programs, enter your e-mail address here.” The data will then be e-mailed to you immediately. This can save you a

lot of time by putting the data on your computer where you can make use of it. The e-mail message that you receive will include instructions on how to use the data. See Table 3A on page 18 for an example of such an e-mail message.

You can also download the entire NPRI database from the internet site. It will be captured as a flat file database and you will need a spreadsheet program to use this data.



If you have questions about the website or suggestions on how the site could be improved, contact the NPRI office in Edmonton (see Appendix 1).



Return-path: <NPRI@ec.gc.ca>
 Envelope-to: you@youraddress.com
 Delivery-date: Tue, 9 May 2000 12:38:27 -0400
 From: NPRI@ec.gc.ca
 To: you@youraddress.com
 Subject: National Pollutant Release Inventory Data Request
 Date: Tue, 9 May 2000 12:33:58 -0400

Here's the data you requested from the National Pollutant Release Inventory Query Site on 09-May-00 at 12:33 PM Eastern Time.

Select the text between (but not including) the dashed lines and save it as a .txt file. Most spreadsheets, word processors or database programs will import this as a delimited ASCII file.

In many cases you can also use your cursor to highlight the script, and copy it (type Control-c or Apple-c) and then paste it into your application where you can then use a feature such as "Change Text to Table/Columns" to convert it back to a usable data format.

We regret that we can not provide application-specific instructions on importing data. Please check the application manuals and help-files for assistance on "importing data"

<<<Facility Substance Summary (tonnes)>>>

Search Criteria for this data was:

Reporting Year: 1997

NPRI ID Number: 3111

Facility Name (or name fragment): Kuntz Electroplating Inc.

City (or name fragment): Kitchener

Province: ON

"CAS Nr.,"	"Substance Name","	"Releases","	"Disposal","	"Recycle"
"NA - 04","	"Chromium (and its compounds)","	0.44","	54.00","	0.00"
"NA - 06","	"Copper (and its compounds)","	0.00","	0.00","	10.00"
"7647-01-0","	"Hydrochloric acid","	0.04","	0.00","	0.00"
"7664-39-3","	"Hydrogen fluoride","	0.01","	0.00","	0.00"
"NA - 11","	"Nickel (and its compounds)","	0.00","	0.00","	108.00"
"7697-37-2","	"Nitric acid","	0.06","	0.00","	0.00"
"7664-93-9","	"Sulphuric acid","	0.08","	0.00","	0.00"



DATA DISK

Environment Canada has put together a CD-ROM disk that contains much of the information that has been described in this *Guide*. The disk contains the Canada Gazette notices, descriptions and definitions of NPRI terms, the provincial and regional fact sheets and the NPRI summary reports from 1994 to 1997. To read these files, you will need Adobe Acrobat Reader (available free from www.adobe.com).

In addition, the CD-ROM contains all the data by facility from 1994 to 1997. The data on the disk is in d-Base format. You will need Microsoft Access or a similar database program in order to use this data. The package has pre-set search queries that you can easily carry out or you can create your own queries. You can obtain this CD-ROM from your regional NPRI office (see Appendix 1).

THE NPRI OFFICES

If you do not have access to the internet or if you need help in understanding the information and/or need more detail than is available from the

website, you can contact the national office of the NPRI or one of the 10 regional NPRI offices located across the country (see Appendix 1).

THE REPORTING FACILITY AND INDUSTRIAL ASSOCIATIONS

By law, each reporting facility is required to submit their data to the NPRI office by June 1 of the year following the reporting year, but this data will not become available to you through the NPRI offices for close to another year. To obtain the data while it is more current, you can contact the facility operator at the site that you are concerned about and ask them to give you the information at the same time as they give it to Environment Canada. This is also a way to obtain all the information that may not be easily available through the NPRI website.

In addition, some industry associations put together reports on their members based on NPRI data. This information is usually available to the public — just call the association and ask if they have such reports.

5

HOW TO INTERPRET NPRI DATA

THIS PART OF THE *GUIDE* DESCRIBES SOME common ways that people use NPRI data to help them in their work. It also describes the cautions that you should exercise when you interpret NPRI data and suggests some ways of overcoming these difficulties.

Year-to-Year Comparisons:

One of the purposes of the NPRI is to allow you to assess the progress or deterioration in the pollution-release activities of a facility over time. The NPRI Summary Reports compare changes in the amounts of substances **released** and **transferred** off site for all Canadian facilities by province or territory and by sector from year to year. These comparisons are also made for toxic and carcinogenic substances. For individual facilities, you will find a chart under each facility when you use the NPRI internet site that compares changes in the release and transfer of substances from year to year.

You have to exercise some cautions when making year-to-year comparisons, however. If a substance is being reported for the current year, but not for previous years or if a facility is no longer reporting a substance reported in previous years, this does not necessarily mean the substance was not found at the facility in previous years or that it is not there now. In fact, it may mean only that the substance was **manufactured, processed** or **otherwise used** in quantities that did not meet the threshold levels for reporting (to see if this is the reason, contact the facility owner or operator). It also may mean that the particular substance was added to or deleted from the NPRI

list of substances that facilities must report on (to check on these changes, contact your regional NPRI office — see Appendix 1).

In addition, the requirements for reporting may have changed. For example, because no transfers of substances off-site to **recycling** facilities appear in 1997, it doesn't mean that this did not happen. For 1993, reporting of off-site recycling was mandatory. From 1994 to 1997 such reporting was voluntary. Starting with the 1998 reporting year, reporting on transfers to recycling facilities again became mandatory. Contact your regional NPRI office to find out if this is the reason for the change.

Facility-to-Facility Comparisons:

It can be useful to compare the releases and transfers from a facility in your community with similar facilities elsewhere in Canada. This can give you the grounds to suggest to a company or government agency that it should change its operation to stop using or releasing a substance that is polluting your community.

However, it isn't always easy to make comparisons. To begin with, you need to find facilities that produce or do similar things. To do this, go to the "Facility Summary" page of the NPRI website for the facility you are concerned about. Click on "Click here for more facility information." On the page that comes up, look under the Standard Industrial Classifications (SIC) listing and note the SIC numbers that apply to the facility. Then go back to the original search page on the NPRI site. In the "Why?" field, enter the SIC number. Then hit the "search" button and all the reporting facilities in that category will appear on your screen.



You could also begin at the search screen and look at the listing of industrial categories that appear when you click on “All” under the “Enter 2-Digit Canadian SIC Code” column. A listing of all the SIC categories will appear and you can choose the one that you are most interested in searching for.

Other factors that you have to take into account when comparing facilities include the size of the operation, how much product they produce, the location of the operation, and how modern the facility is. While much of this information is not available through the NPRI, facilities do have to report the number of employees that they have which can give you an indication of the size of the operation. However, this information is not available through the NPRI website; you will have to go to the actual facility reports, which are available through the NPRI offices (see Appendix 1).

Significance of Transfers:

Under NPRI, facilities have to report on both releases and transfers. Transfers refers to the shipment of materials from one facility to another to be treated or **disposed** of or recycled.

There is considerable controversy around the significance that should be placed on transfers. Some say that transfers are not releases to the environment and, therefore, should not be seen as negative in the same way that releases are.

Others say that transfers eventually result in a release to the environment from the receiving/treatment facility and should, therefore, be seen as polluting activities. The federal government’s official policy on pollution prevention says that even with off-site reuse and recycling “environmental risks and impacts could also increase as a result, for example, of increased transportation or the production of waste and pollutants associated with recycling operation.”¹

One of the stated purposes of the NPRI program is to encourage pollution prevention. The federal government says that pollution prevention “focuses on avoiding the creation of pollutants rather than trying to manage them after they have been created.”² It goes on to state that pollution prevention includes “on-site reuse and recycling, equipment modification and training” but does not include off-site reuse and recycling.³ Therefore, an increase in transfers shows movement away from a pollution-prevention approach.

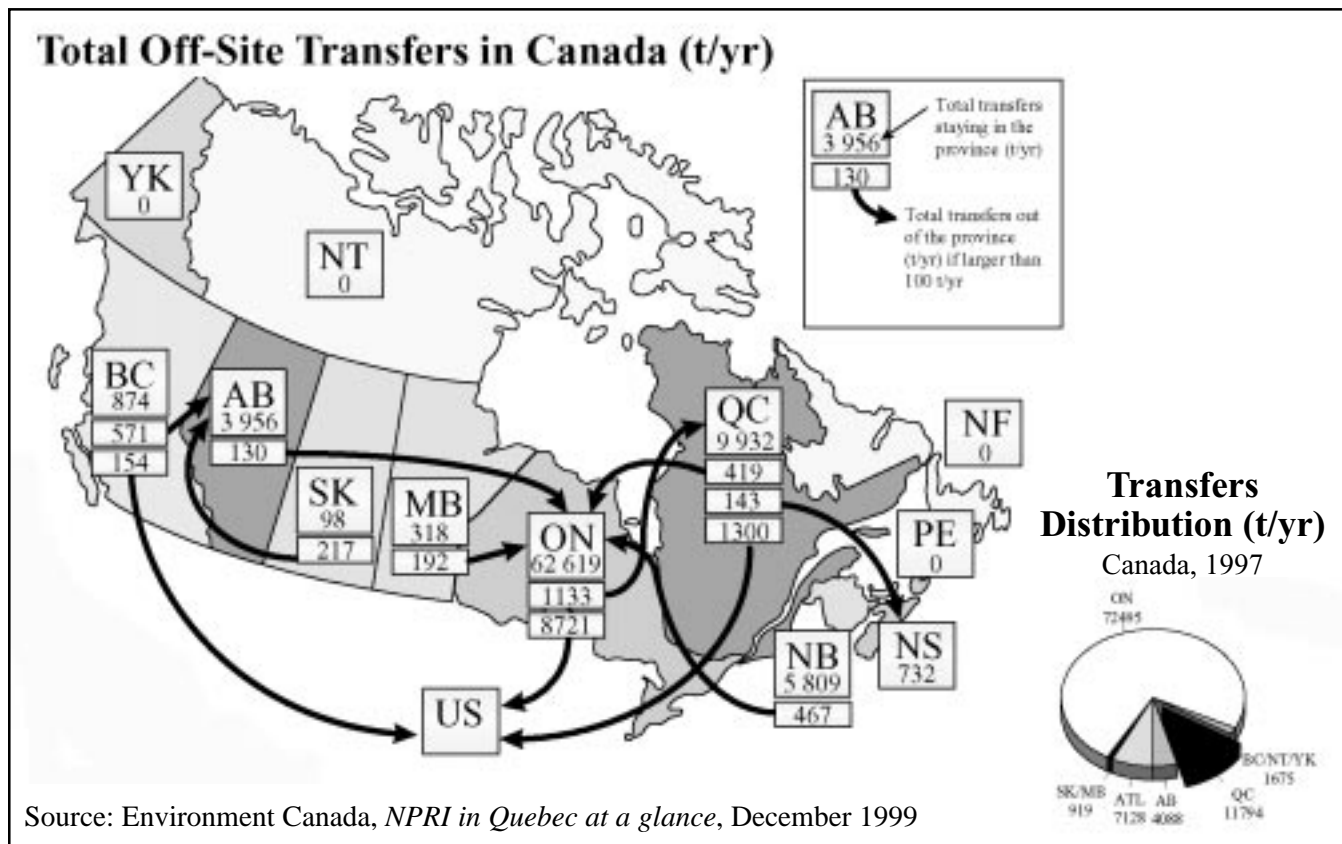
You may also find that in one year transfers from a particular facility are substantially higher than in other years. This may be caused by cleanup activities at the site.

Transfer trends:

According to the 1997 NPRI data, country-wide totals for on-site releases have been going down, but off-site transfers have been going up. When it released the 1997 data in December 1999, Environment Canada conducted a matched-data analysis so it could make a reasonable comparison of releases and transfers between 1995 and 1997. It found that over these three years, releases decreased by 14,925 tonnes or 10.6%, but during the same period, transfers off-site increased by 10,574 tonnes or 22.6%.

As stated earlier, you cannot access information on where NPRI substances are transferred to through the NPRI website — you have to go to the actual reports that were submitted. However, some of the provincial and territorial fact sheets contain information on the major places that NPRI substances are sent to. As of the 1997 data year, the fact sheets for Alberta, the Atlantic provinces, Manitoba, Quebec, and Saskatchewan contained this information. (See chart from Quebec fact sheet on page 22.)





Currency of Data:

When you use NPRI data, the polluter may challenge you by saying that your data is out of date. Unfortunately, this may be a valid criticism. Usually the NPRI information has not been made publicly available until one-and-a-half to two years after the year that the data covers. For example, the data for 1997 did not become available to the public until December 1999. Environment Canada is changing their processing and reporting methods to shorten this time lag by six to nine months.

If your concerns are questioned because your information is out of date, you should ask the company or government agency to give you their

most recent data so that you don't have to wait for the official public release by Environment Canada.

Basin-Wide Reports:

To help gain a perspective on pollution sources within an area, (e.g., a watershed or airshed) you may want to pull together information from all the facilities that reported within that area. As you will see in the next section of this guide, some groups have used such reports in very effective ways.

When a reporting facility discharges NPRI pollutants to a water body, they are required to report on which water body they discharge into. Until the 1997 reporting year, Environment Cana-



da's annual summary report listed all water bodies receiving more than 500 tonnes of pollutants a year. Environment Canada stopped doing this, however, because it led to invalid comparisons across the country. Some regional offices of Environment Canada still put together regional NPRI fact sheets that show discharges to particular water bodies. For the 1997 data year, these fact sheets listed total releases to the main waterways for Alberta, Manitoba, the Northwest Territories and Nunavut, Québec, and Saskatchewan.

Putting together watershed or airshed reports can be a very complicated effort, since a watershed's or airshed's boundaries rarely correspond to the political boundaries used on the NPRI website. (Even though data is reported to the NPRI by watershed, you cannot search by watershed using the search tools on the NPRI website.)

Here are a few ways that you can obtain and compile information for the air or watershed as a whole.

- Using the NPRI website search system, pull up the information for each municipality in the watershed. You may then have to sort out the facilities within each municipality since a municipality will frequently cover more than one watershed. This can be a long, laborious process.
- If you have a good computer system and technical programming skills, you can set up your own search program and use the downloadable database file from the NPRI site.

- You can contact your regional NPRI office, and ask them to send you the data for the watershed that you are interested in.

Many watersheds will be affected by releases from both Canadian and U.S. sources. In these cases, you will need to use U.S. Toxics Release Inventory data as well as NPRI data. This is complicated by the fact that these two inventory systems, although similar, are not identical. Nevertheless, as you can see in the next part of this *Guide*, a few organizations have successfully put together inventories of watersheds crossing the Canada-U.S. border.

Approximately 70% of NPRI substances are released to the air. Identifying airsheds is extremely complicated because the distance that a substance moves through the air before it falls out onto the land or onto waterways varies by substance. Also the distance travelled and the direction that substances travel through air varies according to the weather. Therefore, it is very difficult to obtain an understanding of the total airshed pollutants from the NPRI database for your community. However, as you will see in the next section, Environment Canada did make such a compilation for the Great Lakes region. Reading their report will give you some ideas on how you might also do this.

¹ Government of Canada, *Pollution Prevention: A Federal Strategy*, 1995, p. 3.

² *Ibid.*, p. 1.

³ *Ibid.*, p. 4.

6

THE NPRI IN USE

THE NPRI IS A VAST DATABASE THAT IS ONLY valuable if people use it. In this part of the *Citizens' Guide*, we provide examples of how people from across Canada have used the NPRI database to increase awareness of pollution in their area and to work to improve their communities.

In Part 4 of this *Guide*, we demonstrated how you can easily obtain information that will be invaluable to you in approaching local polluters and encouraging them to improve their behaviour and in understanding what is happening in your community.

In this section, we give examples of more elaborate types of activities that Canadians have carried out using NPRI data in order to provide insights and foster environmental improvements in communities. These examples are intended to give you a sense of the types of activities that you might yourself conduct. In each case, we have provided a contact for you to get directly in touch with those who carried out the activity. They will be glad to give you more information.

REGIONAL ANALYSES

❖ The **Société pour Vaincre la Pollution, Union St-Laurent Grands Lacs (Great Lakes United), STOP, and World Wildlife Fund (Fonds mondial pour la nature)** combined to analyze and compare discharges along a strip of the St. Lawrence River between Valleyfield and Sorel – a strip of the river that includes Montreal Island.

The groups' objective was to determine which dischargers were having or potentially having the greatest negative impact on that part of the St. Lawrence River. To do this, they couldn't simply add up all releases from one source and compare them with other sources because all NPRI substances do not have the same potential effects. Instead, the groups took the NPRI data and used two weighting systems to determine impacts on the river. The Chemiotox system was used to calculate the total toxicity of all contaminants released from a specific source while the Biological and Ecological Effects Potential (BEEP) system was used to calculate the potential effects of pollution on aquatic life.

This weighted analysis showed that the Montreal Urban Community's new sewage treatment plant was one of the worst polluters along this part of the St. Lawrence River. SVP, GLU, STOP and WWF used this finding as a basis for a report that urged action to improve Montreal's sewage-treatment system by requiring industries that discharge into Montreal's sewers to pre-treat or eliminate their toxic discharges.

For more information on this project, contact SVP at (514) 844-5477 or greentox@total.net.

❖ Each year, through its Toxic Tracker Program, the **Citizens' Environmental Alliance of Southwestern Ontario** compiles a report on the releases and transfers reported to the NPRI in their area. Their annual 10-20 page report shows the total amount of releases and transfers in Windsor and Essex County, pointing out what quantity of these is toxic and/or carcinogenic and listing the largest polluters in the area. The report also com-



compares releases and transfers across different years to help in assessing progress. In their report, the Alliance also includes recommendations on how to improve the NPRI. It takes the group between two and three months of concentrated time to pull the analysis together.

The Alliance released its latest report in February 2000, based on 1997 data. It showed that on-site releases and off-site transfers of toxic and carcinogenic substances in the area increased over the previous year by 64 tonnes, a 50% increase. The polluters highlighted in the report were auto-assembly plants, a casting plant, a chemical plant, an auto-wrecker plant, and a municipal pollution-control plant.

The release of the Alliance report always results in considerable media attention, including feature stories. For example, the headline in *The Windsor Star* on October 1, 1998 said "Polluters fail to cut discharges: Dumping of toxins, carcinogens rises by 25 tonnes in 1996, study shows."

As well as increasing community awareness, the report helps the Alliance to determine which issues are priorities for their attention.

For more information, contact the Citizens' Environmental Alliance at (519) 973-1116 or cea@mnsi.net. You can find their reports on their web site at www.mnsi.net/~cea.

INTERNATIONAL BASIN-WIDE ANALYSES

❖ The **Ontario Region of Environment Canada** prepared a report called *Industrial Releases Within the Great Lakes Basin* based on NPRI and U.S. Toxics Release Inventory data. One of their objectives in preparing the report was to establish a baseline against which progress on pollution reduction efforts in the Great Lakes basin could be assessed.

In addition to compiling data on releases to water, air and land from the Canadian and U.S. sides of the Great Lakes basin, the report pulled together information on air releases from outside the Great Lakes basin that will fall into the basin and, as a result, affect the Great Lakes environment. Environment Canada did this by determining the "one-day airshed" for the Great Lakes basin — in other words, the area outside of the basin from which air discharges would drop out into the Great Lakes basin within one day under normal atmospheric conditions.

Taking into account sources from outside of the Great Lakes basin had a dramatic impact on the calculation of the total pollutants in the Great Lakes basin. Total releases to the Great Lakes basin doubled when out-of-basin air sources were taken into account. The proportion of pollutants from air of the total pollutants from air, water and land increased from 73.2% to 85.5%.

For more information on this report and how it was compiled, contact the Ontario Regional NPRI office at (416) 739-5886 or by e-mail at npri_ontario@ec.gc.ca.

CONTINENT-WIDE ANALYSES

❖ The **Commission for Environmental Cooperation (CEC)** prepares a report entitled *Taking Stock* each year. In this report, the CEC compiles information from pollutant release and transfer registers from Canada, the U.S., and Mexico. Since the Mexican pollution release registry is just under development, the CEC data to date has primarily been based on Canadian and U.S. figures.

In its report, CEC totals the releases and transfers in Canada and the U.S., ranks substances according to total releases and transfers,



and lists the largest releasers and transferors of pollutants on the continent. It also compares Canadian and U.S. data and compares changes in releases and transfers from year to year. In its report for 1996, for example, it found that, on average, each reporting facility in Canada released and transferred one and one-half times more respectively than each U.S. facility. The CEC also compiles information on transfers across the Canadian, Mexican and U.S. borders and of releases in the border regions.

Each year, CEC also conducts some special studies, which it includes in its *Taking Stock* report. These special studies have included compiling total releases and transfers by parent company, assessing releases and transfers from the pulp and paper industry, comparing changes in releases and transfers of substances covered by voluntary reduction programs, and providing examples of how communities have used information from pollutant release and transfer registries to improve conditions.

The CEC reports receive considerable media attention when they are released. For example, on October 7, 1998, the *Kitchener-Waterloo Record* reported: "Ontario still top polluter: Lags behind only Texas, Louisiana in North America." On the same date, the *Globe and Mail* said: "Canadian factories fingered in NAFTA pollution study." Almost a year later, the *Globe and Mail* reported on August 10, 1999, "Ontario's pollution second only to Texas on list of offenders." *The Gazette* in Montreal said on August 11, 1999, "We get pollution drift: Living downwind from second-worst offender." *The Edmonton Journal* headline read: "City-area polluters 2nd worst in Canada: Most of it stored in wells."

For more information, contact the CEC at (514) 350-4300 or at their web site www.cec.org.

MAPPING

One of the most effective ways to increase public awareness is by preparing maps that locate releasers of contaminants.

❖ Based on 1996 NPRI data, the **Canadian Institute for Environmental Law and Policy** prepared a glossy 55 cm by 85 cm poster-style map showing releases and transfers in Canada. This map uses bar graphs to show releases, transfers, and 3Rs and energy recovery for each province and territory. The map also locates and identifies the areas where the largest releases and transfers of NPRI pollutants occur. On the back of the map, the releases and transfers for each NPRI substance are listed and the largest releasers and transferors are listed. The Cartography Office in the University of Toronto's Geography Department helped CIELAP design the map.

CIELAP printed 6,000 of these maps. Their primary purpose was to increase public awareness of the existence of the NPRI and to encourage people to use the NPRI database. The most frequent users of the map have been educators and community media.

CIELAP also put together a poster map showing individual pollutant releases and transfers in three North and Central American cities (Hamilton, Ontario; Lake Charles, Louisiana; and Queretaro, Mexico). This three-city map was intended to raise awareness of the availability of pollutant release data in all three countries and to highlight differences in the systems in each country.

These maps can be obtained for free from CIELAP at (416) 923-3529 or cielap@cielap.org.

❖ In 1998, **Great Lakes United**, a coalition of citizens' groups from Canada, the U.S. and First Nations, held 10 citizens' hearings on Great Lakes



and St. Lawrence River pollution. To help in its outreach and educational work around these hearings, GLU used NPRI and U.S. Toxics Release Inventory data to prepare maps showing pollution sources.

GLU prepared a Great Lakes basin-wide map showing where pollutants were being released. It showed that the NPRI and TRI inventories reported releases of 173,000 tonnes of contaminants into the Great Lakes basin.

GLU also prepared a local map for each community in which they held a hearing. These maps identified local pollutant releases by size and identified the largest polluters. Finally, GLU also publishes a list of the top toxic releasers on the Canadian and U.S. sides of the Great Lakes basin in their newsletter, which has a distribution of approximately 4,000 copies.

For further information, contact Great Lakes United at (514) 396-3333 or glu@glu.org.

COMPARATIVE EVALUATIONS OF FACILITY RELEASES AND TRANSFERS

❖ **STOP**, an environmental group in Montreal, used NPRI data to evaluate the performance of two petroleum refineries in their community. The group analyzed benzene emissions as reported in the NPRI for a Shell Canada plant and a Petro Canada plant. They found that the Petro Canada plant was releasing almost twice as much benzene as the Shell plant. They also used NPRI data to assess fugitive emissions.

In 1998, the three petroleum refineries in Québec signed a voluntary memorandum of understanding in which they pledged to reduce their benzene emissions. One of the activities that stimulated the development of this commitment was STOP's use of NPRI data to track emissions.

For further information, contact STOP at (514) 393-9559.

❖ The **Pembina Institute** in Drayton Valley, Alberta, used NPRI data to compare the emissions from a plant in their community, an oriented strandboard (OSB) plant owned by Weyerhaeuser, with other OSB plants in Canada. In 1997, the OSB plant in Drayton Valley was the fourth-largest emitter of formaldehyde in Canada.

They also regularly use NPRI data to assess the environmental performance of industry as a whole in Alberta. On a province-wide basis, they compare emissions of certain types of facilities with each other and with comparable facilities in other provinces. This gives an indication of the impacts of corporate and government policy and activities in the province on reducing toxic emissions.

For example, this kind of analysis shows that in Alberta releases of pollutants to surface water have been reduced at rates similar to those in other provinces. But, unlike the situation in other provinces, in Alberta industry has tended to redirect these water releases to deep-well disposal. This indicates that provincial regulators in Alberta are not requiring the same types of practices and technologies that are being required and used in other parts of Canada.

For further information, contact the Pembina Institute at (403) 269-3344 or piad@pembina.org.

❖ The **Concerned Citizens of Come By Chance and Area** and the **Centre for Long-term Environmental Action** in Newfoundland used the NPRI to find out about the emissions from the North Atlantic Refining Ltd. oil refinery in their community. They received considerable media attention when they pointed out that emissions of two carcinogens – nickel and benzene – had increased

between 1995 and 1996 despite the company's claims to the contrary. This led the provincial health department to reassess health hazards associated with the plant.

For further information, contact CLEAN at clean_hq@yahoo.com.

❖ Through NPRI, **Imperial Oil** has improved the accuracy of its emissions estimates and has seen real gains in terms of reduced emissions during the last five years of reporting data to the government.

Imperial Oil is on target with an action plan it put into place in 1994 to manage its NPRI emissions performance. The plan called for implementing a leak detection and repair program, as well as improving the accuracy of emissions estimates and setting priorities for cost-effective emissions reductions. As a result, Imperial has achieved the following:

- Emissions from refining, chemicals and resources operations were reduced from 3,140 tonnes in 1997 to 2,880 tonnes in 1998.
- There has been a 63% reduction in volatile organic compounds such as benzene, ethylene and propylene, which contribute to smog. The reduction in these emissions from refineries and the Sarnia chemical plant has been achieved primarily through leak detection and repair programs.

For more information, call (416) 968-8278.

❖ In 1998, two researchers in the **Department of Economics at Simon Fraser University** carried out a study for the Federal Department of Finance to develop a methodology for assessing the intensity of releases from Canadian industry. They developed several indicators of toxic intensity of releases from each industry relative to

employment and the value of output. They found that the following industries have high toxic intensity: chemicals, mining, primary metals, and refined petroleum and coal. They found that the following industries have relatively low toxicity intensity: food, beverage, machinery, leather, and electrical and electronics.

They also compared emissions per job or per dollar of output for manufacturing industries in Canada and the U.S. They concluded that "overall, emissions per job and per dollar of output from Canadian manufacturing industries are 50-percent higher than releases from U.S. manufacturing industries."

For further information on this study, contact Nancy Olewiler or Kelli Dawson at (604) 291-5944 or by e-mail at olewiler@sfu.ca.

THE SCORECARD PROJECT

The Canadian Environmental Defence Fund, the Canadian Environmental Law Association and the Canadian Institute for Environmental Law and Policy are jointly developing a project to assist community activists in using the data in the NPRI. Called the *Scorecard*, this project is based on one that is currently operated by the Environmental Defence Fund in the U.S. The U.S. site can be accessed at www.scorecard.org.

The *Scorecard* will involve setting up a website that helps users to immediately access information on releases and transfers from facilities reporting to the NPRI. There will be a map on the first screen of the website. You will be able to select facilities of interest to you from a map of your community, rank the facilities using different criteria, understand the health and environmental impacts of pollutants, learn about the applicable federal and provincial environmental



laws and policies, and choose from a menu of potential actions that you can take.

In addition to setting up and maintaining a website, the project will include an outreach program, education and support services for public and community users of the information provided through the site.

For further information, contact cedf@web.net, cielap@cielap.org, or cela@olap.org.



KNOWLEDGE INTO ACTION

THE *CITIZENS' GUIDE TO THE NPRI* HAS discussed how you can use the NPRI to gain information that can help in your efforts to protect the well being of your community. It has also given you examples of how others have used NPRI information to help them in their work.

As the *Guide* makes clear, the NPRI cannot answer all the questions and concerns that you may have about pollution in your community, but it is one of the best tools that we have. In

addition to *using* the NPRI, we need to work to *improve* the NPRI so that it fulfils more of our requirements.

The NPRI is a very valuable tool, but it is without real value unless we use it to access data and turn that data into a basis for action. One of the best ways to turn knowledge into action is by working with our neighbours, with community groups and with environmental groups in our regions to clean up and protect our communities.



Appendix 1: List of NPRI Offices

Headquarters

National Pollutant Release Inventory
Environment Canada
9th Floor, Place Vincent Massey
351 St. Joseph Blvd.
Hull, QC
K1A 0H3
Tel.: (819) 953-1656
Fax: (819) 994-3266
E-mail: NPRI@ec.gc.ca

Newfoundland and Labrador, Prince Edward Island, New Brunswick and Nova Scotia

National Pollutant Release Inventory
Environment Canada
16th Floor, Queen Square
45 Alderney Drive
Dartmouth, NS
B2Y 2N6
Tel.: (902) 426-4482
Fax: (902) 426-8373
E-mail: npri_atl@ec.gc.ca

Quebec

National Pollutant Release Inventory
Environment Canada
105 McGill Street, 4th Floor
Montreal, QC
H2Y 2E7
Tel.: (514) 283-0193
Fax: (514) 496-6982
E-mail: Anne-Marie.Carter@ec.gc.ca

Ontario

National Pollutant Release Inventory
Environment Canada
4905 Dufferin Street, 2nd Floor
Downsview, ON
M3H 5T4
Tel.: (416) 739-5886 / 739-5891
Fax: (416) 739-4326
E-mail: npri_ontario@ec.gc.ca

Manitoba, Saskatchewan, Alberta, Northwest Territories and Nunavut

National Pollutant Release Inventory
Environment Canada
Twin Atria #2, Room 200
4999-98 Avenue
Edmonton, AB
T6B 2X3
Tel.: (780) 951-8726 / 951-8730
Fax: (780) 495-2615
E-mail: Art.Beckett@ec.gc.ca
Nancy.Taschuk@ec.gc.ca

National Pollutant Release Inventory
Environment Canada
123 Main Street, Suite 150
Winnipeg, MB
R3C 4W2
Tel.: (204) 983-7788
Fax: (204) 983-0960

Appendix 1: List of NPRI Offices

National Pollutant Release Inventory
Environment Canada
Room 300, Park Plaza
2365 Albert Street
Regina, SK
S4P 4K1
Tel.: (306) 780-6001
Fax: (306) 780-6466

National Pollutant Release Inventory
Environment Canada
3rd Floor, Diamond Plaza
5204 - 50th (Franklin) Avenue
Yellowknife, NT
X1A 2R2
Tel.: (867) 669-4727
Fax: (867) 873-8185

National Pollutant Release Inventory
Environment Canada
Iqaluit, Nunavut
Tel.: (867) 979-3660
Fax: (867) 979-8608

British Columbia and Yukon

National Pollutant Release Inventory
Environment Canada
224 West Esplanade
North Vancouver, BC
V7M 3H7
Tel.: (604) 666-3890
Fax: (604) 666-6800
E-mail: Michael.DeAbreu@ec.gc.ca

National Pollutant Release Inventory
Environment Canada
91782 Alaska Highway
Whitehorse, YT
Y1A 5B5
Tel.: (867) 667-3402
Fax: (867) 667-7962
E-mail: Benoit.Godin@ec.gc.ca



Appendix 2: List of NPRI Substances

Substances Listed on the National Pollutant Release Inventory for 2000

The substance numbers (#1-268) correspond to the numbers used in the *Canada Gazette* notice, published on December 25, 1999.

Name	CAS Registry Number ¹	Name	CAS Registry Number
PART 1			
1. Acetaldehyde	75-07-0	46. C.I. Food Red 15	81-88-9
2. Acetonitrile	75-05-8	47. C.I. Solvent Orange 7	3118-97-6
3. Acetophenone	98-86-2	48. C.I. Solvent Yellow 14	842-07-9
4. Acrolein ²	107-02-8	49. Cadmium ⁷	*
5. Acrylamide	79-06-1	50. Calcium cyanamide	156-62-7
6. Acrylic acid ³	79-10-7	51. Calcium fluoride	7789-75-5
7. Acrylonitrile	107-13-1	52. Carbon disulphide	75-15-0
8. Alkanes, C _{6-18'} chloro	68920-70-7	53. Carbon tetrachloride	56-23-5
9. Alkanes, C _{10-13'} chloro	85535-84-8	54. Catechol	120-80-9
10. Allyl alcohol	107-18-6	55. CFC-11	75-69-4
11. Allyl chloride	107-05-1	56. CFC-12	75-71-8
12. Aluminum ⁴	7429-90-5	57. CFC-13	75-72-9
13. Aluminum oxide ⁵	1344-28-1	58. CFC-114	76-14-2
14. Ammonia (total) ⁶	*	59. CFC-115	76-15-3
15. Aniline ³	62-53-3	60. Chlorendic acid	115-28-6
16. Anthracene	120-12-7	61. Chlorine	7782-50-5
17. Antimony ⁷	*	62. Chlorine dioxide	10049-04-4
18. Arsenic ⁷	*	63. Chloroacetic acid ³	79-11-8
19. Asbestos ⁸	1332-21-4	64. Chlorobenzene	108-90-7
20. Benzene	71-43-2	65. Chloroethane	75-00-3
21. Benzoyl chloride	98-88-4	66. Chloroform	67-66-3
22. Benzoyl peroxide	94-36-0	67. Chloromethane	74-87-3
23. Benzyl chloride	100-44-7	68. 3-Chloro-2-methyl-1-propene	563-47-3
24. Biphenyl	92-52-4	69. 3-Chloropropionitrile	542-76-7
25. Bis(2-ethylhexyl) adipate	103-23-1	70. Chromium ⁷	*
26. Bis(2-ethylhexyl) phthalate	117-81-7	71. Cobalt ⁷	*
27. Boron trifluoride	7637-07-2	72. Copper ⁷	*
28. Bromine	7726-95-6	73. Cresol ^{3,9}	1319-77-3
29. 1-Bromo-2-chloroethane	107-04-0	74. <i>m</i> -Cresol ³	108-39-4
30. Bromomethane	74-83-9	75. <i>o</i> -Cresol ³	95-48-7
31. 1,3-Butadiene	106-99-0	76. <i>p</i> -Cresol ³	106-44-5
32. 2-Butoxyethanol	111-76-2	77. Crotonaldehyde	4170-30-3
33. Butyl acrylate	141-32-2	78. Cumene	98-82-8
34. <i>i</i> -Butyl alcohol	78-83-1	79. Cumene hydroperoxide	80-15-9
35. <i>n</i> -Butyl alcohol	71-36-3	80. Cyanides ¹⁰	*
36. <i>sec</i> -Butyl alcohol	78-92-2	81. Cyclohexane	110-82-7
37. <i>tert</i> -Butyl alcohol	75-65-0	82. Cyclohexanol	108-93-0
38. Butyl benzyl phthalate	85-68-7	83. Decabromodiphenyl oxide	1163-19-5
39. 1,2-Butylene oxide	106-88-7	84. 2,4-Diaminotoluene ³	95-80-7
40. Butyraldehyde	123-72-8	85. 2,6-Di- <i>t</i> -butyl-4-methylphenol	128-37-0
41. C.I. Acid Green 3	4680-78-8	86. Dibutyl phthalate	84-74-2
42. C.I. Basic Green 4	569-64-2	87. <i>o</i> -Dichlorobenzene	95-50-1
43. C.I. Basic Red 1	989-38-8	88. <i>p</i> -Dichlorobenzene	106-46-7
44. C.I. Direct Blue 218	28407-37-6	89. 3,3'-Dichlorobenzidine	612-83-9
45. C.I. Disperse Yellow 3	2832-40-8		



Appendix 2: List of NPRI Substances

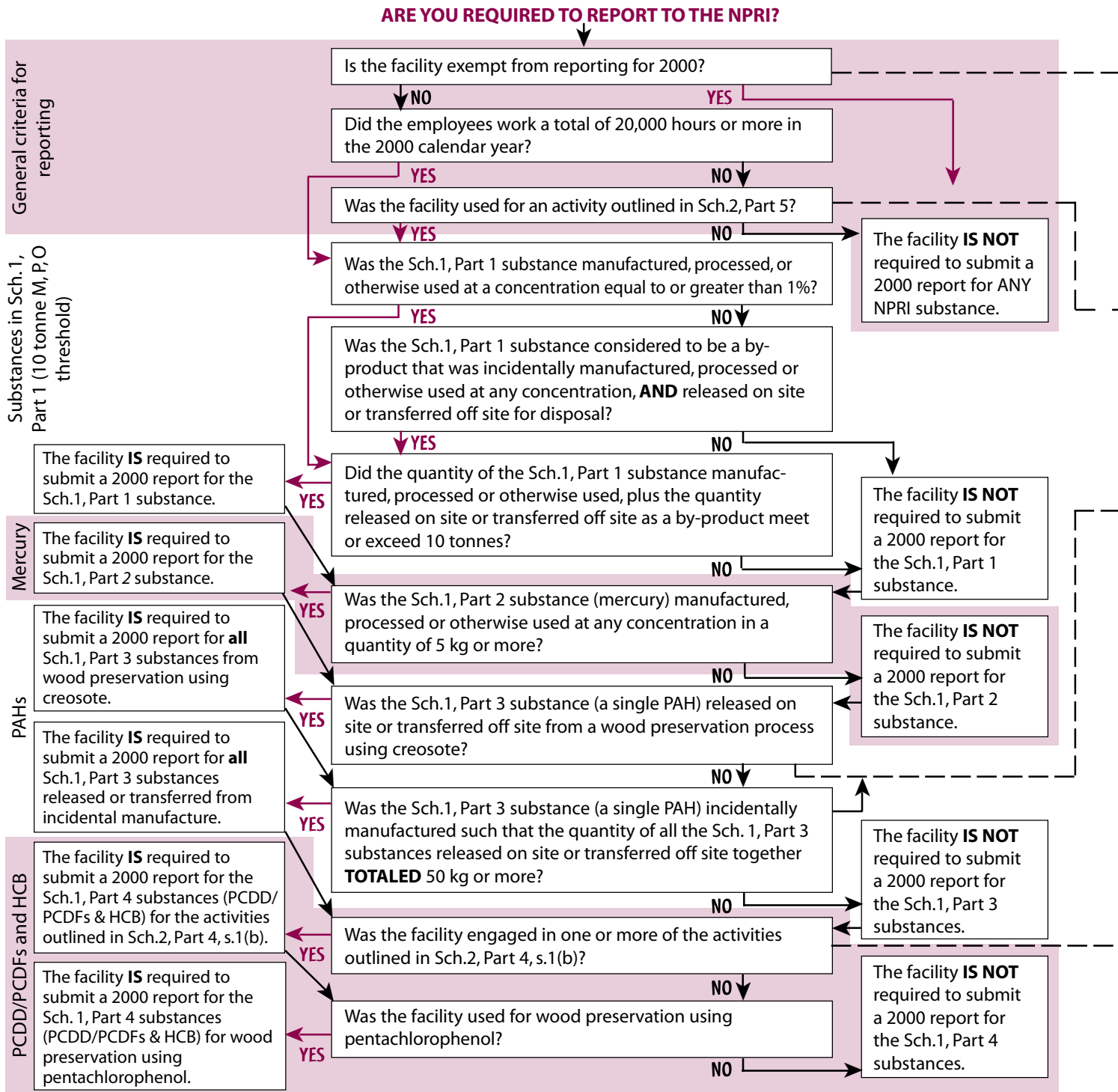
Name	CAS Registry Number	Name	CAS Registry Number
		dihydrochloride	147.
90.	1,2-Dichloroethane	107-06-2	148. <i>p,p</i> -Isopropylidenediphenol
91.	Dichloromethane	75-09-2	149. Isosafrole
92.	2,4-Dichlorophenol ³	120-83-2	150. Lead ⁷
93.	1,2-Dichloropropane	78-87-5	151. Lithium carbonate
94.	Dicyclopentadiene	77-73-6	152. Maleic anhydride
95.	Diethanolamine ³	111-42-2	153. Manganese ⁷
96.	Diethyl phthalate	84-66-2	154. 2-Mercaptobenzothiazole
97.	Diethyl sulphate	64-67-5	155. Methanol
98.	Dimethylamine	124-40-3	156. 2-Methoxyethanol
99.	<i>N,N</i> -Dimethylaniline ³	121-69-7	157. 2-Methoxyethyl acetate
100.	Dimethyl phenol	1300-71-6	158. Methyl acrylate
101.	Dimethyl phthalate	131-11-3	159. Methyl <i>tert</i> -butyl ether
102.	Dimethyl sulphate	77-78-1	160. <i>p,p</i> -Methylenebis(2-chloroaniline)
103.	4,6-Dinitro- <i>o</i> -cresol ³	534-52-1	161. 1,1-Methylenebis (4-isocyanatocyclohexane)
104.	2,4-Dinitrotoluene	121-14-2	162. Methylenebis(phenylisocyanate)
105.	2,6-Dinitrotoluene	606-20-2	163. <i>p,p</i> -Methylenedianiline
106.	Dinitrotoluene ⁹	25321-14-6	164. Methyl ethyl ketone
107.	Di- <i>n</i> -octyl phthalate	117-84-0	165. Methyl iodide
108.	1,4-Dioxane	123-91-1	166. Methyl isobutyl ketone
109.	Diphenylamine	122-39-4	167. Methyl methacrylate
110.	Epichlorohydrin	106-89-8	168. <i>N</i> -Methylolacrylamide
111.	2-Ethoxyethanol	110-80-5	169. 2-Methylpyridine
112.	2-Ethoxyethyl acetate	111-15-9	170. <i>N</i> -Methyl-2-pyrrolidone
113.	Ethoxynonyl benzene	28679-13-2	171. Michler's ketone ³
114.	Ethyl acrylate	140-88-5	172. Molybdenum trioxide
115.	Ethylbenzene	100-41-4	173. Naphthalene
116.	Ethyl chloroformate	541-41-3	174. Nickel ⁷
117.	Ethylene	74-85-1	175. Nitrate ion ¹⁴
118.	Ethylene glycol	107-21-1	176. Nitric acid
119.	Ethylene oxide	75-21-8	177. Nitrotriacetic acid ³
120.	Ethylene thiourea	96-45-7	178. <i>p</i> -Nitroaniline
121.	Fluorine	7782-41-4	179. Nitrobenzene
122.	Formaldehyde	50-00-0	180. Nitroglycerin
123.	Formic acid	64-18-6	181. <i>p</i> -Nitrophenol ³
124.	Halon 1211	353-59-3	182. 2-Nitropropane
125.	Halon 1301	75-63-8	183. <i>N</i> -Nitrosodiphenylamine
126.	HCFC-22	75-45-6	184. Nonylphenol
127.	HCFC-122 and all isomers ¹¹	41834-16-6	185. Nonylphenol hepta(oxyethylene) ethanol
128.	HCFC-123 and all isomers ¹²	34077-87-7	186. Nonylphenol, industrial
129.	HCFC 124 and all isomers ¹³	63938-10-3	187. Nonylphenol nona(oxyethylene) ethanol
130.	HCFC-141b	1717-00-6	188. <i>n</i> -Nonylphenol ⁹
131.	HCFC-142b	75-68-3	189. Nonylphenol polyethylene glycol ether
132.	Hexachlorocyclopentadiene	77-47-4	190. <i>p</i> -Nonylphenol polyethylene glycol ether
133.	Hexachloroethane	67-72-1	191. Nonylphenoxy ethanol
134.	Hexachlorophene	70-30-4	192. 2-(<i>p</i> -Nonylphenoxy) ethanol
135.	<i>n</i> -Hexane	110-54-3	193. 2-(2-(<i>p</i> -Nonylphenoxy)ethoxy)ethanol
136.	Hydrazine ³	302-01-2	194. 2-(2-(2-(<i>p</i> -Nonylphenoxy)ethoxy)ethoxy)ethoxy ethanol
137.	Hydrochloric acid	7647-01-0	195. 4- <i>tert</i> -Octylphenol ²
138.	Hydrogen cyanide	74-90-8	196. Oxirane, methyl-, polymer with oxirane, mono(nonylphenyl)ether ²
139.	Hydrogen fluoride	7664-39-3	197. Paraldehyde
140.	Hydrogen sulphide	7783-06-4	198. Pentachloroethane
141.	Hydroquinone ³	123-31-9	199. Peracetic acid ³
142.	Iron pentacarbonyl	13463-40-6	200. Phenol ³
143.	Isobutyraldehyde	78-84-2	201. <i>p</i> -Phenylenediamine ³
144.	Isophorone diisocyanate	4098-71-9	202. <i>o</i> -Phenylphenol ³
145.	Isoprene	78-79-5	203. Phosgene
146.	Isopropyl alcohol	67-63-0	204. Phosphoric acid
			205. Phosphorus ¹⁵



Name	CAS Registry Number	Name	CAS Registry Number
205. Phthalic anhydride	85-44-9	259. Dibenzo(a,h)anthracene ²	53-70-3
206. Polymeric diphenylmethane diisocyanate ²	9016-87-9	260. Dibenzo(a,i)pyrene ²	189-55-9
207. Potassium bromate	7758-01-2	261. 7H-Dibenzo(c,g)carbazole ²	194-59-2
208. Propargyl alcohol	107-19-7	262. Fluoranthene ²	206-44-0
209. Propionaldehyde	123-38-6	263. Indeno(1,2,3-c,d)pyrene ²	193-39-5
210. Propylene	115-07-1	264. Perylene ²	198-55-0
211. Propylene oxide	75-56-9	265. Phenanthrene ²	85-01-8
212. Pyridine ³	110-86-1	266. Pyrene ²	129-00-0
213. Quinoline ³	91-22-5	PART 4	
214. <i>p</i> -Quinone	106-51-4	267. Hexachlorobenzene ²	118-74-1
215. Safrole	94-59-7	268. Polychlorinated dibenzo- <i>p</i> -dioxins and polychlorinated dibenzofurans ^{2,17}	*
216. Selenium ⁷	*		
217. Silver ⁷	*		
218. Sodium fluoride	7681-49-4		
219. Sodium nitrite	7632-00-0		
220. Styrene	100-42-5		
221. Styrene oxide	96-09-3		
222. Sulphur hexafluoride	2551-62-4		
223. Sulphuric acid	7664-93-9		
224. 1,1,1,2-Tetrachloroethane	630-20-6		
225. 1,1,2,2-Tetrachloroethane	79-34-5		
226. Tetrachloroethylene	127-18-4		
227. Tetracycline hydrochloride	64-75-5		
228. Tetraethyl lead	78-00-2		
229. Thiourea	62-56-6		
230. Thorium dioxide	1314-20-1		
231. Titanium tetrachloride	7550-45-0		
232. Toluene	108-88-3		
233. Toluene-2,4-diisocyanate	584-84-9		
234. Toluene-2,6-diisocyanate	91-08-7		
235. Toluenediisocyanate ⁹	26471-62-5		
236. 1,2,4-Trichlorobenzene	120-82-1		
237. 1,1,2-Trichloroethane	79-00-5		
238. Trichloroethylene	79-01-6		
239. Triethylamine	121-44-8		
240. 1,2,4-Trimethylbenzene	95-63-6		
241. 2,2,4-Trimethylhexamethylene diisocyanate	16938-22-0		
242. 2,4,4-Trimethylhexamethylene diisocyanate	15646-96-5		
243. Vanadium ⁴	7440-62-2		
244. Vinyl acetate	108-05-4		
245. Vinyl chloride	75-01-4		
246. Vinylidene chloride	75-35-4		
247. Xylene ⁹	1330-20-7		
248. Zinc ⁷	*		
PART 2			
249. Mercury ^{7,16}	*		
PART 3			
250. Benzo(a)anthracene ²	56-55-3		
251. Benzo(a)phenanthrene ²	218-01-9		
252. Benzo(a)pyrene ²	50-32-8		
253. Benzo(b)fluoranthene ²	205-99-2		
254. Benzo(e)pyrene ²	192-97-2		
255. Benzo(g,h,i)perylene ²	191-24-2		
256. Benzo(j)fluoranthene ²	205-82-3		
257. Benzo(k)fluoranthene ²	207-08-9		
258. Dibenz(a,j)acridine ²	224-42-0		
<p>¹ CAS Registry Number denotes the Chemical Abstracts Service Registry Number, as appropriate.</p> <p>² new substance for 2000 reporting year</p> <p>³ "and its salts" – The CAS number corresponds to the weak acid or base. However, the NPRI listing includes the salts of these weak acids and bases. When calculating the weight of these substances and their salts, use the molecular weight of the acid or base, not the total weight of the salt.</p> <p>⁴ "fume or dust"</p> <p>⁵ "fibrous forms"</p> <p>⁶ "Ammonia (total)" means the total of both of ammonia (NH₃ – CAS No. 7664-41-7) and the ammonium ion (NH₄⁺) in solution.</p> <p>⁷ "and its compounds"</p> <p>⁸ "friable form"</p> <p>⁹ "mixed isomers"</p> <p>¹⁰ "ionic"</p> <p>¹¹ The isomers include, but are not necessarily limited to, HCFC-122 (CAS No. 354-21-2).</p> <p>¹² The isomers include, but are not necessarily limited to, HCFC-123 (CAS No. 306-83-2) and HCFC 123a (CAS No. 90454-18-5).</p> <p>¹³ The isomers include, but are not necessarily limited to, HCFC-124 (CAS No. 2837-89-0) and HCFC 124a (CAS No. 354-25-6).</p> <p>¹⁴ "in solution at a pH of 6.0 or greater"</p> <p>¹⁵ "yellow or white"</p> <p>¹⁶ The reporting requirements for mercury have changed for the 2000 reporting year.</p> <p>¹⁷ This class of substances is restricted to the following congeners: 2,3,7,8-Tetrachlorodibenzo-<i>p</i>-dioxin (1746-01-6); 1,2,3,7,8-Pentachlorodibenzo-<i>p</i>-dioxin (40321-76-4); 1,2,3,4,7,8-Hexachlorodibenzo-<i>p</i>-dioxin (39227-28-6); 1,2,3,7,8,9-Hexachlorodibenzo-<i>p</i>-dioxin (19408-74-3); 1,2,3,6,7,8-Hexachlorodibenzo-<i>p</i>-dioxin (57653-85-7); 1,2,3,4,6,7,8-Heptachlorodibenzo-<i>p</i>-dioxin (35822-46-9); Octachlorodibenzo-<i>p</i>-dioxin (3268-87-9); 2,3,7,8-Tetrachlorodibenzofuran (51207-31-9); 2,3,4,7,8-Pentachlorodibenzofuran (57117-31-4); 1,2,3,7,8-Pentachlorodibenzofuran (57117-41-6); 1,2,3,4,7,8-Hexachlorodibenzofuran (70648-26-9); 1,2,3,7,8,9-Hexachlorodibenzofuran (72918-21-9); 1,2,3,6,7,8-Hexachlorodibenzofuran (57117-44-9); 2,3,4,6,7,8-Hexachlorodibenzofuran (60851-34-5); 1,2,3,4,6,7,8-Heptachlorodibenzofuran (67562-39-4); 1,2,3,4,7,8,9-Heptachlorodibenzofuran (55673-89-7); and Octachlorodibenzofuran (39001-02-0).</p> <p>* No single CAS number applies to their NPRI listing.</p>			



Appendix 3: Flowchart for Reporting to the NPRI



*Draft as of May 25/00. **Please note:** The **FINAL** version of this flowchart will be available in the *Guide for Reporting to the National Pollutant Release Inventory — 2000*



A facility is exempt if it was used exclusively for one of the following activities (as listed in Schedule 2, s.2 of the Canada Gazette notice):

- (a) education or training of students, such as universities, colleges and schools;
- (b) research or testing;
- (c) maintenance and repair of transportation vehicles, such as automobiles, trucks, locomotives, ships or aircraft;
- (d) distribution, storage, or retail sale of fuels;
- (e) wholesale or retail sale of articles or products which contain NPRI substances, provided that the substances are not released to the environment during normal use at the facility;
- (f) retail sale of NPRI substances;
- (g) growing, harvesting, or management of renewable natural resources, such as fisheries, forestry or agriculture, but does not include those facilities which process or otherwise use renewable natural resources;
- (h) mining, but does not include those facilities which process or otherwise use mined materials;
- (i) drilling or operating wells to obtain oil and gas products, but does not include those facilities which process or otherwise use oil and gas products; or
- (j) otherwise use oil and gas products; or
- (k) the practice of dentistry?

Activities listed in Schedule 2, Part 5 of the Canada Gazette notice:

Was the facility used for an activity listed below:

- (a) biomedical or hospital incineration of 100 tonnes or more of waste per year;
- (b) hazardous waste incineration;
- (c) non hazardous solid waste incineration of 100 tonnes or more of waste per year, including small combustion units, teepee burners and beehive burners;
- (d) sewage sludge incineration; or
- (e) wood presentation?

Substances listed in Schedule 1, Part 3 of the Canada Gazette notice:

- | | |
|------------------------------------|--|
| * Benzo(a)anthracene (56-55-3); | * Dibenzo(a,h)anthracene (53-70-3); |
| * Benzo(a)phenanthrene (218-01-9); | * Dibenzo(a,i)pyrene (189-55-9); |
| * Benzo(a)pyrene (50-32-8); | * 7H-Dibenzo(c,g)carbazole (194-59-2); |
| * Benzo(b)fluoranthene (205-99-2); | * Fluoranthene (206-44-0); |
| * Benzo(e)pyrene (192-97-2); | * Indeno(1,2,3-c,d)pyrene (193-39-5); |
| * Benzo(g,h,i)perylene (191-24-2); | * Phenanthrene (85-01-8); |
| * Benzo(j)fluoranthene (205-82-3); | * Perylene (198-55-0); |
| * Benzo(k)fluoranthene (207-08-9); | * Pyrene (129-00-0). |
| * Dibenz(a,j)acridine (224-42-0); | |

Activities listed in Schedule 2, Part 4, s.1(b) of the Canada Gazette notice:

- (i) base metals smelting using chlorinated plastics or other chlorinated substances in their feeds;
- (ii) biomedical or hospital incineration of 100 tonnes or more of waste per year;
- (iii) non hazardous solid waste incineration of 100 tonnes or more of waste per year, including small combustion units, teepee burners and beehive burners;
- (iv) hazardous waste incineration;
- (v) sewage sludge incineration;
- (vi) manufacturing of portland cement;
- (vii) production of chlorinated organic solvents or chlorinated monomers;
- (viii) generation of electric power using fossil fuel;
- (ix) manufacturing of iron using a sintering process;
- (x) operation of electric arc furnaces in steel foundries;
- (xi) operation of electric arc furnaces in steel manufacturing;
- (xii) combustion of hog fuel originating from logs that were transported or stored in salt water in the pulp and paper sector;
- (xiii) combustion of fuel in kraft liquor boilers used in the pulp and paper sector;
- (xiv) smelting of secondary aluminum;
- (xv) smelting of secondary lead; or
- (xvi) production of magnesium?



Appendix 4: Toxic and Cancer-Causing Substances on NPRI List

CEPA Toxics Listed on the National Pollutant Release Inventory for 2000

	Name	CAS Registry Number	Schedule 1¹	PSL 1 CEPA Toxic²
PART 1				
1.	Acrylamide	79-06-1	✓	
2.	Alkanes, C ₆₋₁₈ , chloro	68920-70-7		✓
3.	Alkanes, C ₆₋₁₈ , chloro	85535-84-8		✓
4.	Arsenic ⁷ 10-13	*	✓	
5.	Asbestos ⁸	1332-21-4	✓	
6.	Benzene	71-43-2	✓	
7.	Bis(2-ethylhexyl) phthalate	117-81-7	✓	
8.	Cadmium ⁷	*	✓	
9.	Calcium fluoride	7789-75-5	✓	
10.	Carbon tetrachloride	56-23-5	✓	
11.	CFC-11	75-69-4	✓	
12.	CFC-12	75-71-8	✓	
13.	CFC-13	75-72-9	✓	
14.	CFC-114	76-14-2	✓	
15.	CFC-115	76-15-3	✓	
16.	Chromium ⁷	*	✓	
17.	3,3'-Dichlorobenzidine dihydrochloride	612-83-9	✓	
18.	1,2-Dichloroethane	107-06-2	✓	
19.	Dichloromethane	75-09-2	✓	
20.	Halon 1211	353-59-3	✓	
21.	Halon 1301	75-63-8	✓	
22.	HCFC-22	75-45-6	✓	
23.	HCFC-122 and all isomers ¹¹	41834-16-6	✓	
24.	HCFC-123 and all isomers ¹²	34077-87-7	✓	
25.	HCFC 124 and all isomers ¹³	63938-10-3	✓	
26.	HCFC-141b	1717-00-6	✓	
27.	HCFC-142b	75-68-3	✓	
28.	Hydrogen fluoride	7664-39-3	✓	
29.	Lead ⁷	*	✓	
30.	Nickel ⁷	*	✓	
31.	Sodium fluoride	7681-49-4	✓	
32.	Sulphur hexafluoride	2551-62-4	✓	
33.	Tetrachloroethylene	127-18-4	✓	
34.	Trichloroethylene	79-01-6	✓	
35.	Vinyl chloride	75-01-4	✓	



	Name	CAS Registry Number	Schedule 1¹	PSL 1 CEPA Toxic²
	PART 2		✓	
36.	Mercury ⁷	*	✓	
	PART 3		✓	
37.	Benzo(a)anthracene	56-55-3	✓	
38.	Benzo(a)phenanthrene	218-01-9	✓	
39.	Benzo(a)pyrene	50-32-8	✓	
40.	Benzo(b)fluoranthene	205-99-2	✓	
41.	Benzo(e)pyrene	192-97-2	✓	
42.	Benzo(g,h,i)perylene	191-24-2	✓	
43.	Benzo(j)fluoranthene	205-82-3	✓	
44.	Benzo(k)fluoranthene	207-08-9	✓	
45.	Dibenz(a,j)acridine	224-42-0	✓	
46.	Dibenzo(a,h)anthracene	53-70-3	✓	
47.	Dibenzo(a,i)pyrene	189-55-9	✓	
48.	7H-Dibenzo(c,g)carbazole	194-59-2	✓	
49.	Fluoranthene	206-44-0	✓	
50.	Indeno(1,2,3-c,d)pyrene	193-39-5	✓	
51.	Perylene	198-55-0	✓	
52.	Phenanthrene	85-01-8	✓	
53.	Pyrene	129-00-0	✓	
	PART 4		✓	
54.	Hexachlorobenzene	118-74-1	✓	
55.	Polychlorinated dibenzo- <i>p</i> -dioxins and polychlorinated dibenzofurans ¹⁷	*	✓	

¹ Pollutants listed on Schedule 1 List of Toxic Substances of the CEPA, as of May 2000

² Pollutants from the first Priority Substances List (PSL 1) assessed as toxic under Section 11 of the CEPA.

⁷ "and its compounds"

⁸ "friable form"

¹¹ The isomers include, but are not necessarily limited to, HCFC-122 (CAS No. 354-21-2).

¹² The isomers include, but are not necessarily limited to, HCFC-123 (CAS No. 306-83-2) and HCFC 123a (CAS No. 90454-18-5).

¹³ The isomers include, but are not necessarily limited to, HCFC-124 (CAS No. 2837-89-0) and HCFC 124a (CAS No. 354-25-6).

¹⁷ This class of substances is restricted to the following congeners:

2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (1746-01-6);
 1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin (40321-76-4);
 1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin (39227-28-6);
 1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin (19408-74-3);
 1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin (57653-85-7);
 1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin (35822-46-9);
 Octachlorodibenzo-*p*-dioxin (3268-87-9);
 2,3,7,8-Tetrachlorodibenzofuran (51207-31-9);
 2,3,4,7,8-Pentachlorodibenzofuran (57117-31-4);
 1,2,3,7,8-Pentachlorodibenzofuran (57117-41-6);
 1,2,3,4,7,8-Hexachlorodibenzofuran (70648-26-9);
 1,2,3,7,8,9-Hexachlorodibenzofuran (72918-21-9);
 1,2,3,6,7,8-Hexachlorodibenzofuran (57117-44-9);
 2,3,4,6,7,8-Hexachlorodibenzofuran (60851-34-5);
 1,2,3,4,6,7,8-Heptachlorodibenzofuran (67562-39-4);
 1,2,3,4,7,8,9-Heptachlorodibenzofuran (55673-89-7); and
 Octachlorodibenzofuran (39001-02-0).

* No single CAS number applies to their NPRI listing.



Appendix 5: Sources of Information on Environment and Health Impacts

Two excellent internet sources for information on the environmental and health impacts of specific substances on the NPRI list are:

1) **www.scorecard.org**: This site has been put together by the Environmental Defense Fund in the U.S. Go to the "Site Navigation" box on the first screen. On the list that pops up when you go to this spot, pull up "About the Chemical."

2) **www.atsdr.cdc.gov**. This site has been put together by the Agency for Toxic Substances and Disease Registry, an agency of the U.S. Federal government. On this site, you will find detailed toxicological profiles. On the opening screen, pull up the "ToxFAQs"

The information from the U.S. Agency for Toxic Substances and Disease Registry can also be obtained by writing to Division of Toxicology, Agency for Toxic Substances and Disease Registry, 1600 Clifton Road, Mailstop E-29, Atlanta, Georgia 30333 or by phoning (404) 639-6300.



Glossary

“By-product” is a substance that is incidentally manufactured, processed or otherwise used at the facility and released on-site to the environment or transferred off-site for disposal.

“Direct measurement” means that the release is periodically measured over the year (e.g., once a month) and then the total release is calculated based on knowing the total flow of the waste stream over the year. It rarely means that it is based on continuous emissions monitoring.

“Disposal” includes materials sent off-site for final disposal or storage and treatment prior to final disposal. It includes physical, chemical and biological treatment, incineration, landfill, storage, municipal sewage-treatment plants, underground injection, and land treatment.

“Emission factor” refers to knowing the average emissions that come from a similar type of operation. For example, experience with other companies that make the same product shows that per unit of production they release a certain quantity of an NPRI substance. Using this emission factor and knowing how much of the product they produced over the year, the company can calculate the emissions.

“Engineering calculations” refers to estimating releases based on the physical/chemical properties (e.g., vapor pressure) of the substance and mathematical relationships (e.g., ideal gas law).

“Facility” includes all buildings, equipment, structures or other stationary items that are located on a single site or on contiguous or adjacent sites and that are owned by the same company and operated as a single integrated site.

“Level of quantification (LoQ)” is defined by CEPA as “the lowest concentration that can be accurately measured using sensitive but routine sampling and analytical methods.” For dioxins and furans, the LoQ is defined as 32 picograms TEQ/cubic metre to air and 20 parts per quadrillion TEQ to water. For hexachlorobenzene, the LoQ is defined as 6 nanograms per cubic metre to air.

“Manufacture” means to produce, prepare or compound an NPRI substance. It also includes the incidental production of an NPRI substance as a by-product as a result of another substance being manufactured, processed or otherwise used. This latter situation is sometimes referred to as “incidentally manufactured.”

“Mass balance calculations” are determined by knowing the amount of an NPRI substance going into and out of the operation and then calculating that the amount of difference between input and output corresponds to the total release. For example, a company knows how much of a substance they purchased as input to their manufacturing process and knows how much was in the product that they sold or transferred off site as waste or for recycling. They then can calculate the difference and report this as a release.

“Otherwise use” refers to any use of an NPRI substance at a facility that does not fall under the definitions of “manufacture” or “process.” This includes the use of the substance as a chemical processing aid, manufacturing aid or some other ancillary use, such as using trichloroethylene to degrease tools, using metal-cutting fluid that contains diethanolamine or using a heat-transfer fluid containing biphenyl. It does not include



janitorial or facility grounds maintenance. Nevertheless, substances used in the maintenance of equipment used for manufacturing and processing at the facility are considered “otherwise used,” e.g., solvents for cleaning machines.

The quantities of NPRI substances found in manufactured articles are not included in the amounts “processed or otherwise used” if there is no release of the NPRI substance during normal use or processing. For example, substances in an electrical transformer are not included, unless an NPRI substance has been added to the transformer during the year. If so, only the amount added would be included. If an article is soldered, an NPRI substance in the solder has to be included, but NPRI substances in the article being soldered would not be included. By contrast, if a substance is welded, NPRI substances in the article being welded have to be included because it is assumed that the welding process results in some release of these substances from the welded article.

“**Process**” means the preparation of an NPRI substance after its manufacture for distribution in commerce, or the use of an NPRI substance as part of a chemical or physical process. Processing includes preparation of a substance with or without changes in physical state or chemical form. The term also applies to the processing of materials, mixtures or formulations that contain an NPRI substance as one component. See definition of “otherwise used” for more detail.

“**Releases**” refers to pollutants that are discharged directly at the facility into the environment (air, water, underground injection or land). “**Releases to Air**” are the total of releases from stacks, vents, etc., plus releases to the air as a result of storing or handling the material, plus fugitive releases through leaking pipes, evaporation from surface

impoundments, etc., plus spills. “**Releases to Surface Water**” include releases to water through direct discharges, spills or leaks. They do not include discharges to a municipal sewage treatment system or other off-site waste-water treatment facilities. “**Releases to Land**” include on-site landfill, land treatment or farming (where the pollutants are incorporated into the soil), spills and leaks. “**Releases to Underground Injection**” are materials injected on-site into underground wells.

“**Recycling**” in the NPRI refers to all activities that keep a material from going to disposal. It includes energy recovery (including energy-from-waste incinerators), recovery of solvents, recovery of other organic substances, recovery of metals and metal compounds, recovery of other inorganic materials, recovery of acids or bases, recovery of catalysts, recovery of pollution abatement residues, and refining or re-use of used oil. In its first year (1993), the NPRI required reporting on materials transferred off-site for recycling. For the 1994 through 1997 reporting years, reporting of recycling activities was voluntary. In 1998, recycling reporting again became a required reporting item. Recycling activities that occur on-site are not reported under NPRI.

“**Toxic Equivalents (TEQ)**” refers to a mass or concentration which is a sum of the mass or concentration of individual dioxins and furans congeners multiplied by using weighting factors.

“**Transfers**” refer to the shipment of a pollutant from one facility to another facility, e.g., to a landfill, incinerator, sewage treatment plant, or **recycling** facility located somewhere else.

“**Transfers for Disposal**” refers to shipment of materials off-site for final disposal or storage and treatment prior to final disposal.





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