

2001 National Overview —

National Pollutant Release Inventory

Canadian Environmental Protection Act, 1999



Summary of 2001 Data

www.ec.gc.ca/npri

November 2003



NATIONAL AND REGIONAL NPRI OFFICES

National Office

National Pollutant Release Inventory
Environment Canada
9th Floor, Place Vincent Massey
351 St. Joseph Blvd.
Gatineau, QC
K1A 0H3
Tel.: (819) 953-1656
Fax: (819) 994-3266
E-mail: NPRI@ec.gc.ca
General Inquiries: 1 800 668-6767

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 / 426-4805 / 426-5037
Fax: (902) 490-0722
E-mail: NPRI_ATL@ec.gc.ca

Quebec

National Pollutant Release Inventory
Environment Canada
105 McGill Street, 4th Floor
Montréal, QC
H2Y 2E7
Tel.: (514) 283-7303 / 283-0248 / 496-1832
Fax: (514) 496-6982
E-mail: INRP_QC@ec.gc.ca

Ontario

National Pollutant Release Inventory
Environment Canada
4905 Dufferin Street, 2nd Floor
Downsview, ON
M3H 5T4
Tel.: (416) 739-5955
Fax: (416) 739-4326
E-mail: NPRI_ONTARIO@ec.gc.ca

NPRI/Ontario Regulation 127

Joint Technical Assistance Centre
Tel.: (416) 739-4707

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) 951-8989
Fax: (780) 951-8808 / 495-2615
E-mail: NPRI_PNR@ec.gc.ca

British Columbia and Yukon

National Pollutant Release Inventory
Environment Canada
#201-401 Burrard Street
Vancouver, BC
V6C 3S5
Tel.: (604) 666-3221 / 666-3890 / 666-9864
Fax: (604) 666-6800
E-mail: NPRI_PYR@ec.gc.ca

National Pollutant Release Inventory
Environment Canada
91782 Alaska Highway
Whitehorse, YT
Y1A 5B7
Tel.: (867) 667-3402
Fax: (867) 667-7962
E-mail: NPRI_YK@ec.gc.ca



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2001 Data**

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Prepared by:

National Pollutant Release Inventory (NPRI), National Office
Information Systems Division, Pollution Data Branch, Environment Canada

In collaboration with NPRI Regional Offices:

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I INTRODUCTION TO THE REPORT

This report is intended to provide a summary of pollutant information reported by facilities to the National Pollutant Release Inventory (NPRI) for the 2001 reporting year. The following elements will be covered in this document:

- overview of the NPRI — what the NPRI program entails, who is required to report on an annual basis, and what is new for the 2001 NPRI;
- summary of 2001 NPRI data;
- discussion on NPRI-listed CEPA-toxic substances;
- reporting of pollution prevention activities in 2001 as well as 2002; and
- summary of confidential information reported to the NPRI in 2001.

2 OVERVIEW OF THE NPRI

2.1 What Is the NPRI?

The National Pollutant Release Inventory (NPRI) is a legislated, nationwide, publicly accessible inventory of pollutants released to the environment. It was created in 1992 to provide Canadians with information on pollutant releases from facilities located in their communities, including the quantities discharged to air, water, land, and underground injection and the quantities sent to other facilities for disposal, treatment, or recycling and energy recovery. It also supports a number of environmental initiatives, by providing information that:

- helps governments and others to identify priorities for action;
- encourages industry to take proactive measures to reduce releases;
- allows for tracking of progress in reducing releases; and
- supports a number of regulatory initiatives.

The NPRI is a constantly evolving program. Public and stakeholder consultation is an integral part of the changes to the program. Since the NPRI's inception, substances have been added and deleted, the thresholds at which substances are reported have been adjusted, and the NPRI has expanded in scope to collect data on recycling and pollution prevention activities. Further refinements are planned for future years.

The NPRI program is delivered by Environment Canada under the authority of the *Canadian Environmental Protection Act (CEPA)*.¹ Owners or operators of facilities that manufacture, process, or otherwise use one or more of the NPRI-listed substances under prescribed conditions are required to submit an annual report to Environment Canada on the releases and transfers of those substances.²

For more information, refer to Environment Canada's NPRI Web site at www.ec.gc.ca/npri/, or contact your nearest NPRI office.

¹ The 1988 CEPA was in force for previous years of NPRI reporting. CEPA 1999 came into force in April 2000 and is the authority for the 2001 reporting year and beyond.

² The requirements for the 2001 NPRI were published in the *Canada Gazette*, Part I, on December 29, 2001.

2.2 What's New for the 2001 NPRI?

2.2.1 NPRI Substance List for 2001

The NPRI changed significantly for the 2000 reporting year with the introduction of alternate reporting thresholds. Certain substances are listed at alternate thresholds because they pose serious risks to human health or the environment in relatively low quantities, and very limited data, if any, would be reported to the NPRI for these substances at the original 10-tonne and 1% concentration reporting threshold. Substances with alternate reporting thresholds in the 2001 NPRI include mercury (and its compounds), 17 polycyclic aromatic hydrocarbons (PAHs), dioxins/furans, and hexachlorobenzene (HCB).

The following changes were made to the NPRI substance list for the 2001 reporting year:

- addition of N,N-dimethylformamide (CAS No. 68-12-2) to Schedule 1, Part I, of the 2001 *Canada Gazette* notice;
- amalgamation of the individual isomers of cresol (*m*-, *o*-, and *p*-cresol) under the “cresol (all isomers)” listing;
- changed qualifier for vanadium to “(except when in an alloy) and its compounds” from “fume or dust”; and
- de-listing of phosphoric acid (CAS No. 7664-38-2).

The list of NPRI substances for the 2001 reporting year is provided in a supplementary table found on the NPRI Web site at www.ec.gc.ca/npri/

2.2.2 2001 National Overview Series

The 2001 National Pollutant Release Inventory (NPRI) National Overview (referred to as the “2001 National Overview”) consists of the following series of documents:

- 2001 National Overview — Reporting Requirements, National Pollutant Release Inventory;
- 2001 National Overview — Summary of 2001 Data, National Pollutant Release Inventory;
- 2001 National Overview — Releases, National Pollutant Release Inventory;
- 2001 National Overview — Final Disposal and Off-site Transfers for Treatment Prior to Final Disposal, National Pollutant Release Inventory; and

- 2001 National Overview — Recycling and Energy Recovery, National Pollutant Release Inventory.

The 2001 National Overview was categorized in this manner to provide Canadians with more focused and concise summaries regarding the NPRI reporting requirements, on-site releases of pollutants, final disposal of pollutants and off-site transfer of pollutants for treatment prior to final disposal, and information on recycling and energy recovery in Canada for the 2001 reporting year. The 2001 National Overview series includes data as they appeared in the NPRI database on **November 8, 2002**.

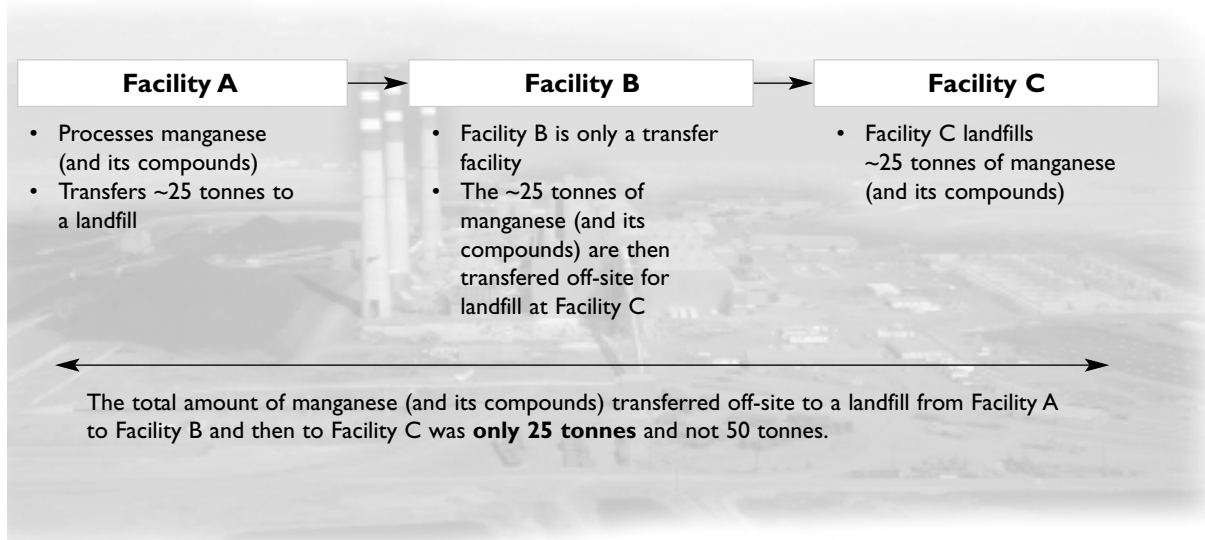
In addition to the 2001 National Overview series, Environment Canada has developed a new report entitled *Informing Canadians on Pollution 2003: Highlights of the 2001 National Pollutant Release Inventory (NPRI)*. This report provides a snapshot of pollution from industrial and commercial companies in Canada in 2001. In addition to marking progress on sector and pollutant releases and disposal and recycling trends, other highlights include special sections on toxic substances, pollution prevention, managing pollution in Canada, and tips on how communities and individuals can use the NPRI.

2.2.3 New Groupings for Releases and Transfers

Environment Canada engaged stakeholders during 2002 to review the “reporting in” and “reporting out” of NPRI information. This review was identified as a priority during the consultation process by the NPRI Multistakeholder Work Group on Substances. In previous reporting years, some stakeholders expressed concerns with the reporting of pollutants sent to a landfill on site as a release to the environment, whereas transfers off site of pollutants for final disposal to a landfill were reported as transfers. This difference in classification could lead to a different representation of the same activity, depending on whether it occurred on site or off site. There is also an issue of perception — sending substances to a landfill is perceived differently from releases to air and water.

Stakeholders have recommended that releases include only releases to air and water and those releases that disperse material on land. Substances sent to landfill or land farm or underground injection on site should be grouped together with transfers off site destined for a similar fate. Other options are possible, but the

Figure 2-1 Example of Double Counting



recommended option has a number of advantages, including the following:

- Similar activities are portrayed in a similar manner, whether they occur on site or off-site.
- It will be easier to track trends in disposal.
- It provides a more intuitive presentation of information.

Through this work with stakeholders, a new format was established for summarizing releases and transfers of NPRI pollutants. The following groupings were used to summarize information collected through the NPRI for the 2001 reporting year:

On-site pollutant releases:

- air
- water
- land — includes spills, leaks, and other

Final disposal:

- on-site disposal: landfill, land treatment, and underground injection
- off-site disposal: landfill, land treatment, underground injection, and storage

Off-site transfers for treatment prior to final disposal:

- physical treatment
- chemical treatment
- biological treatment

- incineration or thermal treatment where energy is not recovered
- treatment at a municipal sewage treatment plant (MSTP)

Off-site transfers for recycling and energy recovery:

- recycling
- energy recovery

Appendix A provides NPRI definitions for releases and transfers.

Double counting is an issue that needs to be considered when attempting to add releases and transfers together. It is important to understand that there is no double counting of releases and disposal on site, whereas transfers may be counted more than once. In Figure 2-1, for example, Facility A transfers approximately 25 tonnes of manganese (and its compounds) (deemed to be a waste material by Facility A) to Facility B (a transfer facility). Facility B then transfers the same 25 tonnes of manganese (and its compounds) to Facility C, which proceeds to landfill this material. In addition, Facility A, Facility B, and Facility C file reports to NPRI for the 2001 reporting year. In this example, it is important to note that **only 25 tonnes** (and not 50 tonnes) of manganese (and its compounds) in total are transferred off site from Facility A to Facility B and then to Facility C.

3 SUMMARY OF NPRI DATA FOR 2001

For the 2001 reporting year, 2618 facilities submitted a total of 11 810 substance reports for 202 of the 265 substances that were listed on the NPRI (see Table 3-1). Compared with information reported by facilities in 2000, this represented an increase of 182 (7.5%) in the number of reporting facilities, an increase of 765 (6.9%) in the number of reports, and an increase of 5 (2.5%) in the number of pollutants reported. These increases can primarily be attributed to an increase in compliance promotion activities from NPRI regional offices.

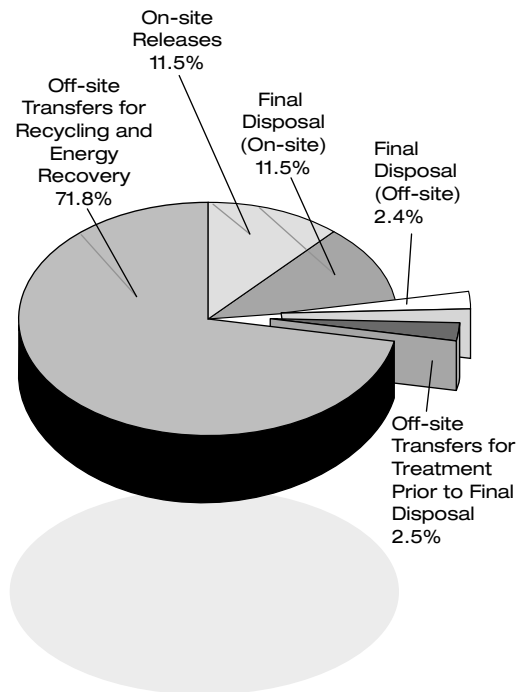
Based on the groupings shown in Section 2.2.3, the following national total estimates for 2001 were obtained (see Figure 3-1):

- 181 007 tonnes (11.5%) — on-site releases;
- 181 681 tonnes (11.6%) — final disposal (on site);
- 38 208 tonnes (2.4%) — final disposal (off site);
- 39 849 tonnes (2.5%) — off-site transfers for treatment prior to final disposal; and
- 1 126 461 tonnes (71.8%) — off-site transfers for recycling and energy recovery.

Table 3-1 provides more information on releases and transfers off site for the 2001 reporting year. Similar to previous NPRI summary reports, a comparison of 2000 and 2001 information is provided with this report. In summary:

- On-site releases decreased by an estimated 1923 tonnes (or -1.1%) from 2000.
- On-site final disposal activities decreased by an estimated 11 767 tonnes (or -6.1%) from 2000.
- Off-site final disposal activities decreased by an estimated 3346 tonnes (or -8.1%) from 2000.
- Off-site transfers for treatment prior to final disposal decreased by an estimated 419 tonnes (or -1.0%) from 2000.
- Off-site transfers for recycling and energy recovery decreased by an estimated 3911 tonnes (or -0.3%) from 2000.

Figure 3-1 National Summary of NPRI Information for 2001



For additional information on the facilities and companies that reported to the NPRI for the 2001 reporting year and a summary of individual pollutant(s) releases per medium (air, water, and land), refer to the supplementary tables found on the NPRI Web site at www.ec.gc.ca/npri/

Table 3-1 National Summary of NPRI Information (2000–2001)^A

	2000	2001	Change (2000–2001)	% change (2000–2001)
Total facilities	2 436	2 618	182.0	7.5
Total reports	11 045	11 810	765.0	6.9
Pollutants reported	197	202	5.0	2.5
1. On-site releases (tonnes):				
Air	130 410.4	124 016.5	-6 393.8	-4.9
Water	47 578.1	51 600.8	4 022.8	8.5
Land:				
Spills	60.8	33.7	-27.1	-44.5
Leaks	6.8	9.9	3.1	45.5
Other	4 874.2	5 346.1	471.9	9.7
Land subtotal	4 941.8	5 389.7	448.0	9.1
Total on-site releases	182 930.2	181 007.1	-1 923.1	-1.1
2. Final disposal (tonnes):				
On-site disposal:				
Landfill	29 349.3	26 697.1	-2 652.2	-9.0
Land treatment	509.3	879.9	370.6	72.8
Underground injection	163 589.3	154 104.3	-9 485.0	-5.8
Total	193 447.9	181 681.3	-11 766.7	-6.1
Off-site disposal:				
Landfill	29 677.6	24 279.7	-5 397.9	-18.2
Land treatment	1 645.4	2 472.3	826.9	50.3
Underground injection	8 119.2	9 078.4	959.3	11.8
Storage	2 111.5	2 377.7	266.1	12.6
Total	41 553.6	38 208.1	-3 345.5	-8.1
3. Off-site transfers for treatment prior to final disposal (tonnes):				
Physical treatment	2 890.2	1 819.1	-1 071.1	-37.1
Chemical treatment	11 459.3	12 187.0	727.7	6.4
Biological treatment	2 970.4	2 443.8	-526.6	-17.7
Incineration	10 551.9	9 443.9	-1 108.0	-10.5
Treatment at a MSTP	12 396.5	13 955.5	1 559.0	12.6
Total off-site treatment	40 268.3	39 849.3	-419.0	-1.0
4. Off-site transfers for recycling and energy recovery (tonnes):				
Recycling	1 114 031.4	1 117 863.1	3 831.7	0.3
Energy recovery	16 340.6	8 597.5	-7 743.1	-47.4
Total off-site transfers for recycling and energy recovery	1 130 372.0	1 126 460.6	-3 911.4	-0.3

^A Because of rounding of release and transfer quantities, the totals may not equal the sum of the individual values.

4 NPRI-LISTED CEPA-TOXIC SUBSTANCES IN CANADA

4.1 Introduction

Some substances listed in the NPRI are of particular interest because individually, or as a member of a class of substances, they have been scientifically assessed and determined to meet the definition of toxic under CEPA 1999. This section provides a general overview of the 74 substances currently listed in the NPRI that meet this definition as of November 8, 2002. This date is consistent with the 2001 NPRI database referred to in this report.

4.2 CEPA-toxic Substances

CEPA 1999 defines a substance as toxic if it is entering the environment in amounts that have, or may have, an immediate or long-term harmful effect on the environment or human health. In determining whether a substance should be declared toxic, factors such as releases of the substance to the environment, as well as the harm that the substance may cause to human health or ecosystems in Canada, are taken into account.

Environment Canada and Health Canada are working cooperatively to assess the risks posed by the 23 000 existing substances on the Domestic Substances List (DSL) as well as the 800–1000 new substances that are introduced into the Canadian marketplace every year. The DSL is an inventory of every substance manufactured in, imported into, or used in Canada on a commercial scale between 1984 and 1986. The Ministers of Environment and Health must categorize each substance listed on the DSL and, if it meets categorization criteria, conduct a screening-level risk assessment to determine if it is toxic or capable of becoming toxic. Similarly, before any new substance can be imported into or manufactured in Canada, it must be assessed for its toxicity. Canada is the only country in the world that is taking such a comprehensive approach to examining all substances in commerce.

CEPA 1999 requires that toxic substances be managed to prevent and minimize the risks they pose to the environment and human health. The most dangerous toxic substances (those that do not readily break down, accumulate in living tissues, and are in the environment primarily as a result of human activity) are targeted for virtual elimination. For substances

that have been determined to be toxic after an assessment under certain parts of the Act, the Minister of the Environment has two years to develop, and a further 18 months to finalize, “preventive or control” measures. These measures can include regulations, pollution prevention plans, economic instruments, or certain guidelines. For more information, refer to Environment Canada’s CEPA Environmental Registry at www.ec.gc.ca/CEPARegistry/default.cfm

4.3 NPRI-listed CEPA-toxic Substances in 2001

Seventy-four substances in the 2001 NPRI have been determined to be toxic under CEPA 1999 (Table 4-1). Chromium was not included in the list of CEPA-toxic substances because the NPRI groups all forms of chromium under the single listing of “chromium (and its compounds).” Only the hexavalent form of chromium (Cr⁶⁺ or Cr(VI)), which represents a very small portion of releases and transfers of chromium (and its compounds) reported to the NPRI, has been designated as CEPA toxic.

The following CEPA-toxic substances or classes of substances were added to the NPRI in 2000 and did not change for the 2001 reporting year:

- acrolein;
- hexachlorobenzene (HCB);
- polychlorinated dibenzo-*p*-dioxins and polychlorinated dibenzofurans (dioxins/furans);
- 17 individual PAHs; and
- mercury (and its compounds) — this substance was previously listed on the NPRI at a 10-tonne and 1% concentration reporting threshold; the reporting threshold was lowered to 5 kg and the 1% concentration threshold was removed for the 2000 reporting year.

Table 4-1 CEPA-toxic Substances Listed on the 2001 NPRI^A

Pollutant	CEPA-toxic ^B Substance Class
Acetaldehyde	
Acrolein	
Acrylonitrile	
Alkanes, C ₁₀₋₁₃ , chloro	Chlorinated paraffins - short chain
Alkanes, C ₆₋₁₈ , chloro	Chlorinated paraffins - short chain ^C
Ammonia	
Arsenic (and its compounds)	
Asbestos (friable form)	
Benzene	
Benzo(a)anthracene	Polycyclic aromatic hydrocarbons
Benzo(a)phenanthrene	Polycyclic aromatic hydrocarbons
Benzo(a)pyrene	Polycyclic aromatic hydrocarbons
Benzo(b)fluoranthene	Polycyclic aromatic hydrocarbons
Benzo(e)pyrene	Polycyclic aromatic hydrocarbons
Benzo(g,h,i)perylene	Polycyclic aromatic hydrocarbons
Benzo(j)fluoranthene	Polycyclic aromatic hydrocarbons
Benzo(k)fluoranthene	Polycyclic aromatic hydrocarbons
Bis(2-ethylhexyl) phthalate	
Bromomethane	
1,3-Butadiene	
Cadmium (and its compounds)	
Calcium fluoride	Inorganic fluorides
Carbon tetrachloride	
CFC-11	Chlorofluorocarbons
CFC-12	Chlorofluorocarbons
CFC-13	Chlorofluorocarbons
CFC-114	Chlorofluorocarbons
CFC-115	Chlorofluorocarbons
Dibenz(a,j)acridine	Polycyclic aromatic hydrocarbons
Dibenzo(a,h)anthracene	Polycyclic aromatic hydrocarbons
Dibenzo(a,i)pyrene	Polycyclic aromatic hydrocarbons
7H-Dibenzo(c,g)carbazole	Polycyclic aromatic hydrocarbons
3,3'-Dichlorobenzidine dihydrochloride	
1,2-Dichloroethane	
Dichloromethane	
Ethoxynonyl benzene	Nonylphenol and its ethoxylates
Ethylene oxide	
Fluoranthene	Polycyclic aromatic hydrocarbons
Formaldehyde	
(Halon 1211) Bromochlorodifluoromethane	
(Halon 1301) Bromotrifluoromethane	
HCFC-22	Hydrochlorofluorocarbons
HCFC-122 and all isomers	Hydrochlorofluorocarbons
HCFC-123 and all isomers	Hydrochlorofluorocarbons
HCFC-124 and all isomers	Hydrochlorofluorocarbons
HCFC-141b	Hydrochlorofluorocarbons
HCFC-142b	Hydrochlorofluorocarbons
Hexachlorobenzene	
Hydrogen fluoride	Inorganic fluorides
Indeno(1,2,3-c,d)pyrene	Polycyclic aromatic hydrocarbons
Lead (and its compounds)	
Mercury (and its compounds)	
Nickel (and its compounds)	
Nonylphenol	Nonylphenol and its ethoxylates

Table 4-1 CEPA-toxic Substances Listed on the 2001 NPRI^A (continued)

Pollutant	CEPA-toxic ^B Substance Class
Nonylphenol hepta(oxyethylene) ethanol	Nonylphenol and its ethoxylates
Nonylphenol, industrial	Nonylphenol and its ethoxylates
Nonylphenol nona(oxyethylene) ethanol	Nonylphenol and its ethoxylates
<i>n</i> -Nonylphenol	Nonylphenol and its ethoxylates
Nonylphenol polyethylene glycol ether	Nonylphenol and its ethoxylates
<i>p</i> -Nonylphenol polyethylene glycol ether	Nonylphenol and its ethoxylates
Nonylphenoxy ethanol	Nonylphenol and its ethoxylates
2-(<i>p</i> -Nonylphenoxy) ethanol	Nonylphenol and its ethoxylates
2-(2-(<i>p</i> -Nonylphenoxy)ethoxy) ethanol	Nonylphenol and its ethoxylates
2-(2-(2-(<i>p</i> -Nonylphenoxy)ethoxy)ethoxy)ethoxy) ethanol	Nonylphenol and its ethoxylates
Oxirane, methyl-, polymer with oxirane, mono(nonylphenol) ether	Nonylphenol and its ethoxylates
Perylene	Polycyclic aromatic hydrocarbons
Phenanthrene	Polycyclic aromatic hydrocarbons
Polychlorinated dibenzo- <i>p</i> -dioxins and polychlorinated dibenzofurans	
Pyrene	Polycyclic aromatic hydrocarbons
Sodium fluoride	Inorganic fluorides
Sulphur hexafluoride	Inorganic fluorides
Tetrachloroethylene	
Trichloroethylene	
Vinyl chloride	

^A As of November 8, 2002.

^B The substance or a member of a class of substances that have been determined by Environment Canada and Health Canada to meet the definition of "toxic" under section 64 of CEPA 1999.

^C Alkanes, C₆₋₁₈, chloro includes both short-chain chlorinated paraffins and medium-chain chlorinated paraffins. Only short-chain paraffins (i.e., ≤C₁₃) have been found to meet the definition of "toxic" under section 64 of CEPA 1999.

Other CEPA-toxic substances, added to the NPRI for the 1999 reporting year, include:

- ozone-depleting substances (such as CFCs, halons and HCFCs) — typically used as refrigerants in refrigeration equipment and air conditioning, as solvents, and in the manufacturing of foamed plastics;
- inorganic fluorides;
- 3,3'-dichlorobenzidine dihydrochloride — used to make pigments;
- 13 nonylphenols and their ethoxylates.

The substances identified as CEPA toxic on the NPRI are not always identical to those listed on the List of Toxic Substances in Schedule I of CEPA 1999. This is because the substance listing on the NPRI is used to facilitate reporting by facilities, and that listing often refers to commercial products or common names rather than the scientific name that is often used to describe toxic substances under CEPA 1999. In some cases, like CFCs, several individual substances listed on the NPRI correspond to a single class of substances on Schedule I. In other cases, the NPRI listing of CEPA-toxic substances is broader than that found in Schedule I. For example, nickel and its compounds is listed on the NPRI, but the CEPA-toxic substance listing found in Schedule I is for oxidic, sulphidic and soluble inorganic nickel compounds.

More information on releases for the CEPA-toxic substances shown in Table 4-1 can be found in a supplementary table found on the NPRI Web site at www.ec.gc.ca/npri/

5 POLLUTION PREVENTION

5.1 Introduction

Pollution prevention (P2) is defined in CEPA 1999 as “the use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste, and reduce the overall risk to the environment or human health.” As the cornerstone of CEPA 1999, pollution prevention is identified throughout the Act as the priority approach for the protection of the environment and human health.

Pollution prevention seeks to eliminate the causes of pollution rather than managing it after it has been created. Beginning in 1997, qualitative reporting of P2 activities, through the use of checklists, has been required for listed substances under the NPRI program. This reporting allows facilities to publicly report whether P2 activities are being undertaken throughout their operations. This type of qualitative reporting can be elaborated on by reporting facilities through appropriate comment fields. These fields can be used to indicate the extent to which P2 activities were implemented or the reductions resulting from implementation.

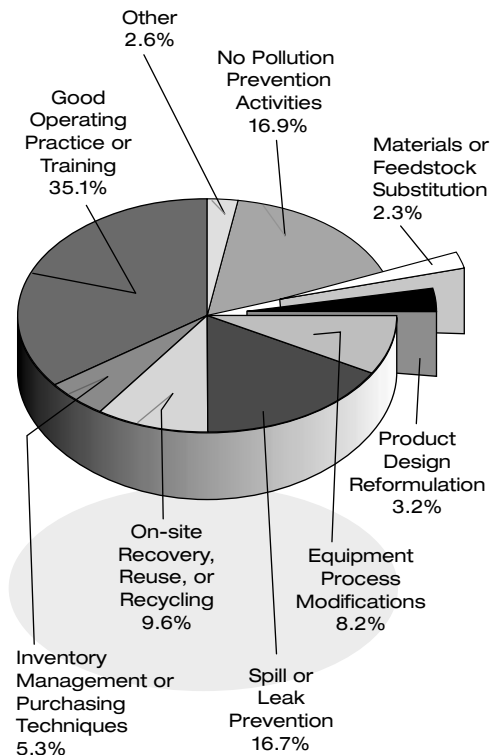
5.2 Pollution Prevention in 2001

P2 activities may include, but are not limited to, materials or feedstock substitution; product design or reformulation; equipment or process modification; spill and leak prevention; on-site reuse, recovery, or recycling; improved inventory management or purchasing techniques; and good operating practices and training.

In 2001, approximately 80% of facilities reported some P2 activity. The distribution of P2 activities undertaken by reporting facilities in 2001 is outlined in Figure 5-1. As in previous years, the majority of all P2 activity was reported in the form of “good operating practice or training” (approximately 35% of substance reports in 2001). This was followed by P2 activity in the area of “spill or leak prevention” (approximately 17% in 2001).

The opportunity to institute P2 measures can be identified in broad areas of an industrial operation, including material and resource feedstock, equipment and processes, operational practices, products and non-product outputs, and business management systems. Pollution prevention encourages the kinds of changes that are likely to lead to reductions in

Figure 5-1 Pollution Prevention (P2) Activities in 2001



emissions, waste, and possible usage. Throughout the 2001 NPRI reporting form, facilities are required to identify a reason for change in their on-site releases, off-site transfers, and off-site recycling relative to the previous year. One of the possible reasons for change in these values is the implementation of P2 measures.

Of the 11 810 substance reports submitted to the NPRI in 2001,

- 520 reports identified P2 activities as the reason for changes in on-site release or disposal values;
- 331 reports identified P2 activities as the reason for changes in off-site transfers for disposal; and
- 218 reports identified P2 activities as the reason for changes in off-site recycling and energy recovery.

5.3 Pollution Prevention in 2002

Beginning with the 2002 reporting year, the NPRI reporting form will include a further breakdown of each of the P2 reporting categories. This further subdivision of categories was added following consultations with stakeholders held in 2001. The new categories will assist reporting facilities in identifying activities within their facilities that can be reported as a P2 activity.

In addition, the 2002 NPRI reporting form will feature additional questions pertaining to the implementation of P2 plans. These questions will help to move towards a more complete picture of pollution prevention in Canada.

6 CONFIDENTIAL INFORMATION

With regards to information submitted to the NPRI, section 51 of CEPA 1999 allows any person to submit, with the information, a written request setting out the reason(s) referred to in section 52 (see below) that the information be treated as confidential.

Section 52 of CEPA 1999 provides that:

52. Despite Part 11, a request under section 51 may only be based on any of the following reasons:
- (a) the information constitutes a trade secret;
 - (b) the disclosure of the information would likely cause material financial loss to, or prejudice to the competitive position of, the person providing the information or on whose behalf it is provided; and
 - (c) the disclosure of the information would likely interfere with contractual or other negotiations being conducted by the person providing the information or on whose behalf it is provided.

At the time of publication of this report, 10 facilities were granted confidential status for information provided to the NPRI for 2001. The following data were reported by those facilities for the 2001 reporting year:

- number of pollutant reports submitted: 56;
- total on-site releases: 522 tonnes;
- total on-site final disposal: 0.5 tonnes;
- total off-site final disposal: 4354 tonnes;
- total off-site transfers for treatment prior to final disposal: 2935 tonnes; and
- total off-site transfers for recycling and energy recovery: 148 tonnes.

Data presented in this document and other reports in the 2001 National Overview series do not include the confidential information listed above.

7 BIBLIOGRAPHY

7.1 Government References

Environment Canada. *Guide for Reporting to the National Pollutant Release Inventory — 2000*. Minister of Public Works and Government Services Canada, Ottawa, 2000.

Environment Canada. *National Pollutant Release Inventory — National Overview 1999*. Minister of Public Works and Government Services Canada, Ottawa, 2000.

Environment Canada. *Notice with Respect to Substances in the National Pollutant Release Inventory for 2000*. Extract, *Canada Gazette*, Part I, December 25, 1999.

Environment Canada. *Notice with Respect to Substances in the National Pollutant Release Inventory for 2000 — Amendment*. Extract, *Canada Gazette*, Part I, December 23, 2000.

Environment Canada. *Supplementary Guide for Reporting to the National Pollutant Release Inventory — Alternate Thresholds — 2000*. Minister of Public Works and Government Services Canada, Ottawa, 2000.

Government of Canada. *Canadian Environmental Protection Act, 1999*. Statutes of Canada 1999. Chapter 33. Act assented to 14 September 1999.

Statistics Canada. *North American Industry Classification System (NAICS) Canada Manual — 1997*. Catalogue 12-501-XPE, Ottawa, 1998.

Statistics Canada. *Standard Industrial Classification — 1980*. Catalogue 12-501E, Standards Division, Ottawa, 1989.

7.2 Web Site References for Substance Information

A. Environment Canada

- The Green Lane:
www.ec.gc.ca/envhome.html
- National Pollutant Release Inventory On-line Data Search:
www.ec.gc.ca/npri/
- CEPA Environmental Registry:
www.ec.gc.ca/CEPARRegistry/
- New and Existing Substances:
www.ec.gc.ca/substances/
- List of Toxic Substances (Schedule I of CEPA 1999):
www.ec.gc.ca/CEPARRegistry/subs_list/Toxicupdate.cfm

B. Health Canada

- Existing Substances Division:
www.hc-sc.gc.ca/hecs-sesc/exsd/index.htm

C. International Links

- Agency for Toxic Substances and Disease Registry (ATSDR):
www.atsdr.cdc.gov/
- Chemfinder:
chemfinder.cambridgesoft.com/
- Environmental Defense Scorecard:
www.scorecard.org/
- International Agency for Research on Cancer (IARC):
www.iarc.fr/
- International Programme on Chemical Safety (IPCS):
www.inchem.org/
- National Toxicology Program (NTP):
ntp-server.niehs.nih.gov/
- Organisation for Economic Co-operation and Development (OECD):
www.oecd.org/home/
- United Nations Environment Programme (UNEP):
www.unep.org/
- World Health Organization:
www.who.int/dsa/cat97/zehc2.html

7.3 Additional Sources of Information

Agency for Toxic Substances and Disease Registry (ATSDR)

1600 Clifton Road (E29)
Atlanta, GA 30333
U.S.A.

Tel.: (404) 639-6300

Fax: (404) 639-6315

Web site: **www.atsdr.cdc.gov/**

*Canadian Centre for Occupational Health and Safety
Chemical Evaluation Search and Retrieval System (CESARS)*

250 Main Street East
Hamilton, ON

L8N 1H6

Tel.: (905) 570-8094

Fax: (905) 572-2206

Web site:

www.ccohs.ca/products/databases/cesars.html

Commission for Environmental Cooperation (CEC)

393 St. Jacques Street West

Suite 200

Montréal, QC

H2Y 1N9

Tel.: (514) 350-4300

Fax: (514) 350-4314

Web site: **www.cec.org**

Health Canada

Publishing Coordinator

Environmental Health Centre

Tunney's Pasture 0801B3

Ottawa, ON

K1A 0L2

Tel.: (613) 957-3143

Fax: (613) 941-8632

Web site: **www.hc-sc.gc.ca**

International Agency for Research on Cancer (IARC)

150 cours Albert Thomas

F-69372 Lyon cedex 08

France

Tel.: +33 (0)4 72 73 84 85

Fax: +33 (0)4 72 73 85 75

Web site: **www.iarc.fr/**

National Library of Medicine (TOXNET)

8600 Rockville Park, Bldg. 38A

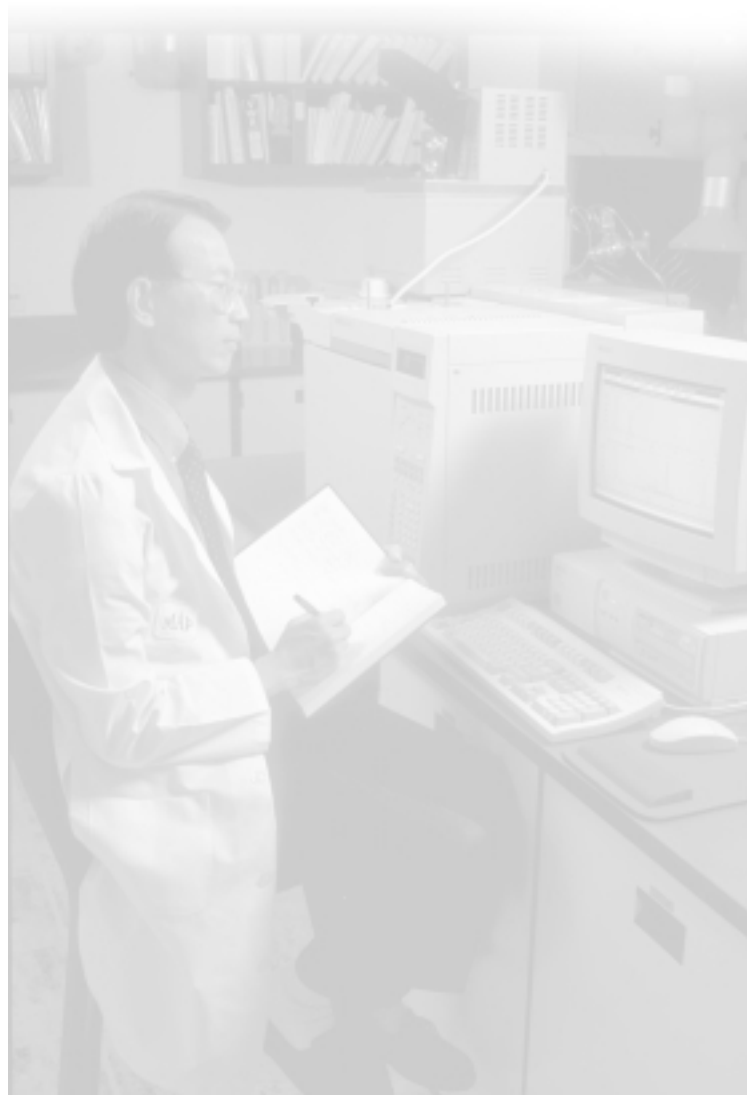
Bethesda, MD 20894

U.S.A.

Tel.: (301) 496-6531

Fax: (301) 480-3537

Web site: **www.nlm.nih.gov/hinfo.html**



APPENDIX A — RELEASES AND TRANSFERS DEFINED BY NPRI

On-site Releases:

An on-site release is a discharge of an NPRI-listed pollutant to the environment, within the physical boundaries of the facility. This includes:

- emissions to air — discharges through a stack, vent, or other point release, losses from storage and handling of materials, fugitive emissions, spills and accidental releases, and other non-point releases;
- releases to surface waters — discharges, spills, and leaks, but not including discharges to municipal wastewater treatment plants (which are reported under off-site transfers for treatment); and
- releases to land — spills, leaks, and other.

Final Disposal Activities — On Site and Off Site:

The following activities or operations are included in the category classified as “final disposal” — on site and off site:

- containment — two forms of containment are identified:
 - i) landfill; and
 - ii) other storage;
- underground injection;
- land treatment — for the purpose of land application or land farming; and
- off-site final disposal for storage.

Off-site Transfers for Treatment Prior to Final Disposal:

A shipment of an NPRI-listed substance may be transferred to an off-site location for treatment prior to final disposal. The treatment processes include:

- physical treatment (e.g., drying, evaporation, encapsulation, or vitrification);
- chemical treatment (e.g., precipitation, stabilization, or neutralization);
- biological treatment (e.g., bio-oxidation);
- incineration or thermal treatment where energy is not recovered; and
- treatment at a municipal sewage treatment plant.

Off-site Transfers for Recycling and Energy Recovery:

A shipment of an NPRI-listed substance may be transferred to an off-site location for recycling and energy recovery. “Recycling” refers to activities that keep a material or a component of the material from becoming a waste destined for final disposal. Nine types of recycling operations are identified:

- recovery of solvents;
- recovery of organic substances (other than solvents);
- recovery of metals and metal compounds;
- recovery of inorganic materials (other than metals);
- recovery of acids and bases;
- recovery of catalysts;
- recovery of pollution abatement residues;
- refining or reuse of used oil; and
- other recovery, reuse, or recycling activities.

An NPRI substance may be sent for energy recovery when the substance or the material containing it has sufficient energy content (BTU value) to allow its use as an alternative to fossil fuels or other forms of energy.

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National Pollutant Release Inventory

Canadian Environmental Protection Act, 1999