

Canada's National Pollutant Release Inventory

Environment and Climate Change Canada





Objectives of the session

- Provide a brief overview of the National Pollutant Release Inventory (NPRI):
 - Listed substances;
 - Criteria for reporting; and
 - Information reported by facilities.
- Walk through of the NPRI's reporting cycle;
- Demonstrate Environment and Climate Change Canada's (ECCC) Single Window Information Manager (SWIM); and
- Provide an overview of data quality control activities and how to interpret NPRI data.

Outline

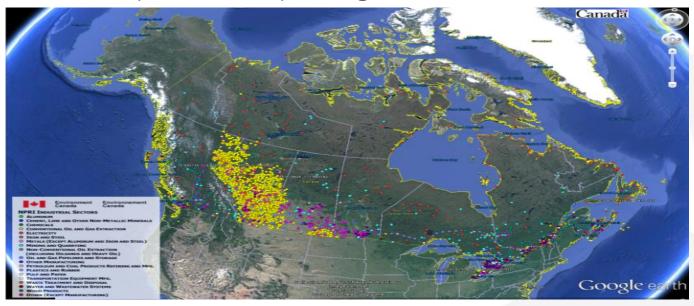
- What is the NPRI and who must report to it;
- What information is reported and who are the NPRI users;
- The annual NPRI reporting cycle; and
- Factors to consider when using and interpreting NPRI data.

Legal Framework

- The Canadian Environmental Protection Act, 1999 (CEPA, 1999):
 - Provides explicit authority for ECCC to require the reporting of information on pollutants from owners or operators of facilities that meet reporting requirements; and,
 - Obligates ECCC to:
 - Collect information for the purposes of maintaining a national inventory of pollutants;
 - Annually publish the NPRI; and
 - Inform or consult with stakeholders.
- Every two years a Notice is published in the Canada Gazette with detailed reporting requirements.

What is the NPRI?

- The Canadian public register of pollutants released to the atmosphere, water and land, disposed and transferred for recycling is accessible to the public and mandatory under CEPA, 1999.
- Established in 1993, it collects data from approximately 7,000 facilities on over 320 substances, based on mandatory annual reporting under CEPA, 1999.

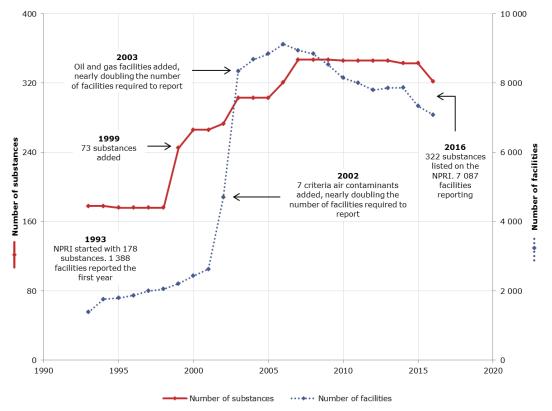


What is the NPRI? (2)

- The NPRI is a key resource for identifying and monitoring sources of pollution in Canada. It exists to:
 - Identify pollution prevention priorities;
 - Support assessment and risk management of chemicals and air quality modelling;
 - Encourage actions to reduce release of pollutants into the environment;
 - Improve public understanding; and
 - Support annual international reporting.
- Public "right-to-know" is a fundamental underlying principle of the NPRI.

What is the NPRI? (3)

- Since 1993, the first year of the NPRI, ECCC has:
 - Added over 150
 substances, including toxic substances and air pollutants; and
 - Reduced thresholds or established different reporting criteria for certain substances and activities.



 A list of changes to NPRI requirements over time is available at: https://www.canada.ca/en/environment-climate-change/services/national-pollutant-release-inventory/substances-list/history-reporting-requirements.html

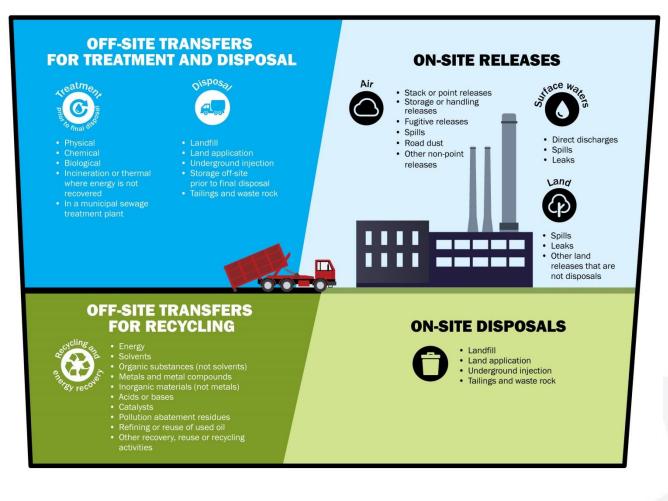
Who must report?

- NPRI reporting requirements are published in Canada Gazette,
 Part 1.
 - 1. Facilities are subject to the reporting requirements if:
 - Total number of hours worked at the facility exceeded the 20,000-hour employee threshold (i.e., approximately 10 full-time employees); or
 - They carry out certain specified activities:
 - Wood preservation, sewage sludge incineration, hazardous waste incineration, hospital waste incineration, operations at pits or quarries where production is ≥ 500,000 tonnes
 - Individual substances are declared if:
 - Thresholds are exceeded for:
 - Quantity manufactured, processed or otherwise used (MPO); or
 - Quantity released (for air pollutants).
 - Certain activities occur (e.g., dioxins/furans and hexachlorobenzene)

Who must report? (2)

- Some industrial sectors:
 - Oil and gas extraction, chemical pulp mills, petroleum refineries, mining, metal manufacturing, chemical manufacturing
- Treatment facilities:
 - Waste treatment and disposal, sewage treatment facilities
- Some services facilities:
 - Electric power generation, airports, cargo handling, research and development facilities, hospitals
- Government facilities:
 - Department of National Defence, Correctional Services
 Canada

What information is reported?



Facility information:

Location, industry type, contacts

Pollutant quantities

Type of use (of substance):

For sale, by-product, additive

Pollution Prevention activities

Reasons for changes compared to quantities reported from previous years

Comments

Shutdown periods

Destinations of off-site transfers

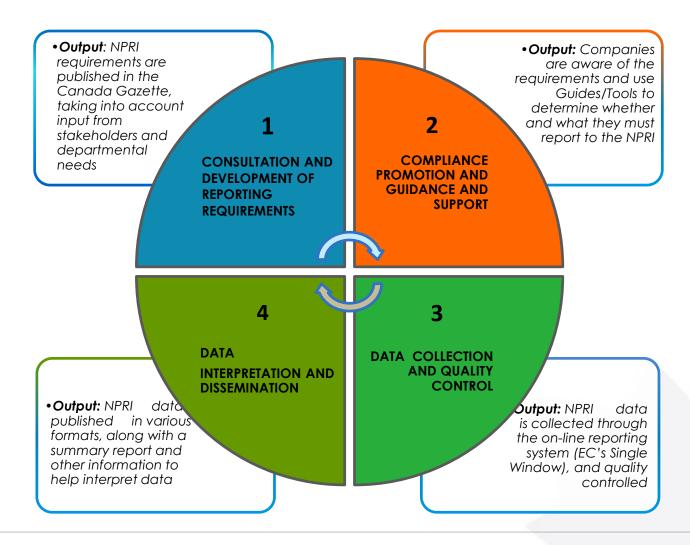
What substances are on the NPRI?

- Over 320 substances are listed on the NPRI, including toxic substances, air pollutants and other substances of concern.
- They are listed in different parts, each with its own reporting criteria:
 - Part 1A Core Substances [10 tonnes MPO, at >1% concentration except by-products];
 - Part 1B Alternate Threshold substances [MPO, with lower mass and/or concentration thresholds];
 - Part 2 Polycyclic Aromatic Hydrocarbons (PAHs) [50 kg released, disposed or transferred off-site for recycling, 5 kg for individual reporting];
 - Part 3 Dioxins, Furans & Hexachlorobenzene [specified activities];
 - Part 4 Criteria Air Contaminants (CACs) [released quantity]; and
 - Part 5 Individual Volatile Organic Compounds (VOCs) [1 tonne released to air if Part 4 criteria for Total VOCs is met].

NPRI Users

- NPRI data is published on the NPRI webpage, as well as on the Government of Canada's Open Data Portal and is used by a variety of users:
 - Governments and International Organizations:
 - ECCC's programs;
 - Other federal departments and provincial/territorial governments; and
 - International organizations and other countries' governments.
 - Industry associations and individual companies
 - Public:
 - Canadians;
 - Non-government organizations;
 - Community groups;
 - Educators and students; and
 - Media.
 - Universities
 - Financial Institutions

Annual NPRI Reporting Cycle



Annual NPRI Reporting Cycle (2)

Each reporting year

- June: Deadline for facilities to report releases for past reporting year (i.e., calendar year)
- July: Publication of preliminary (i.e., unreviewed) data on the NPRI website
- June to September: Quality control of submitted data and followup with facilities
- October to December: Preparation of data highlights
- December: Publication of the data highlights and reviewed data in various formats

Every two years

 Winter: Publish Notice with reporting requirements in the Canada Gazette for the two upcoming reporting years

Can the NPRI requirements be changed?



- Anyone can propose changes to the NPRI reporting requirements
 - Contact the NPRI to discuss options and timing.
 - Once a formal proposal has been prepared, consultation takes place through the NPRI Multi-Stakeholder Work Group, other identified stakeholders and the public.
- Addition or deletion of substances
 - Is the substance:
 - manufactured, processed or otherwise used in Canada?
 - of health and/or environmental concern?
 - Do facilities contribute significant releases of the substance?
 - Does inclusion of the substance support one or more of the objectives of the NPRI?
- Criteria to assess whether thresholds modifications are appropriate:
 - Science-based justification;
 - Capability of reporting facilities to provide the required information; and
 - The significance of the releases from reporting facilities.

Canada's Experience: Consultations

- A consultative process was used to design the NPRI and is used for the consideration of changes.
- Key components:
 - Established a standing multi-stakeholder group;
 - Clear expectations provided at the outset;
 - Criteria for evaluating changes; and
 - Final decision on changes remains with ECCC.



Compliance Promotion & Support to Reporting Facilities



- Reporting facilities receive assistance in meeting reporting requirements
 - General guidance to explain the requirements
 - NPRI toolbox with technical guidance
 - Estimation tools and calculators
 - Links to external resources
- Estimation methods allowed:
 - Surveillance or tests at the source
 - Mass balance
 - Emission factors
 - Engineering estimates
- Compliance promotion
 - E-mails to reporters at the launch of reporting and near the deadline.
 - Targeted sectorial compliance promotion activities, based on identified priorities, to inform potential non-reporting facilities of the requirements.



Ensuring NPRI Data Quality

- Reporting facilities submit their NPRI reports using ECCC's Single Window Manager (SWIM), which also allows them to report to a number of other programs.
 - SWIM has some built-in data quality control features such as the pre-population of data from last year's report and the submission of comments for variations in quantities greater than 10%.
- NPRI data quality control activities:
 - As soon as data is received, identification of outliers and followups with facilities take place. This process continues until the reviewed data is ready for publication.
- Participation by various experts in quality control efforts, such as risk managers, industry associations representatives, air quality researchers, etc.

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Single Window Information Manager

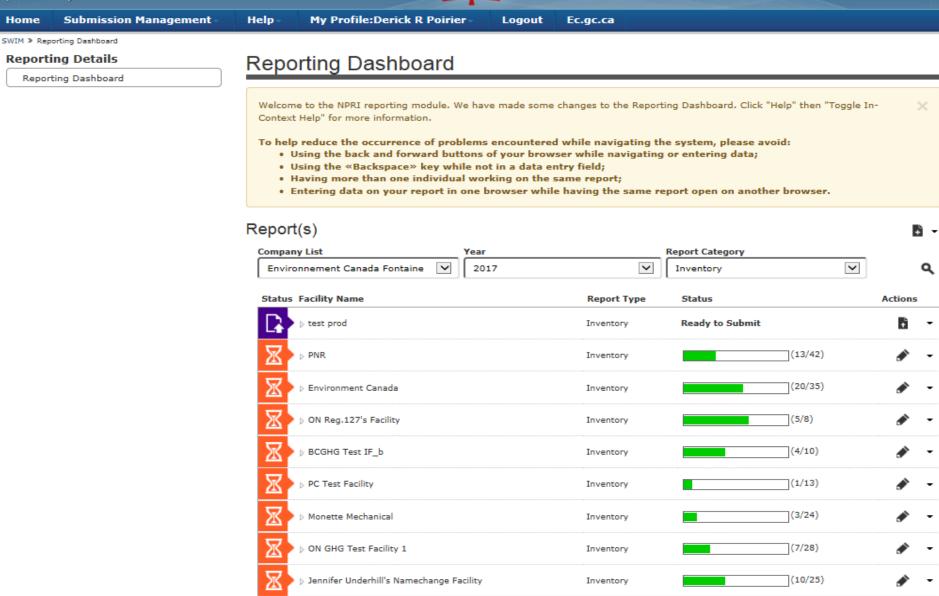




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Home Single V	Window Informa	tion Manager	Single Windov	v Informatio	n Manager
My Profi Redeem Request	ECCC Key	т		s) listed below are r	nd Climate Change Canada's Single Window. eporting programs that you currently have access to. If you require others please request ator.
Organiz Guidano Logout				Jointly del	Management Plan ivered by Environment Canada and Health Canada, the Chemicals Management Plan identifies sses environmental and health risks under various federal laws.
				e <u>PCB</u> This datab	ase allows regulatees to submit their PCB reports online as required by the PCB Regulations.
				This online and expor	d Import of Hazardous Waste and Hazardous Recyclable Material Regulations (EIHWHRMR) e system enables individuals and businesses to submit notices electronically for the import to of hazardous wastes or hazardous recyclable materials, as well as obtain official documents nits) online.
				NPRI, Ont Enhancem	ollutant Release Inventory (NPRI) and Partners ario Regulation 127/01, Ontario Toxics Reduction Act, Alberta Environmental Protection and ent Act, National Emissions Reduction Masterplan, and National Framework for Petroleum mission Reductions
					al Worker n to enable administrators to view and manage program information submitted through abled applications
				ECCC's on	revention Planning Notices line reporting tool for persons subject to a Pollution Prevention (P2) Planning Notice published ada Gazette under Part 4 of the Canadian Environmental Protection Act, 1999

National Pollutant Release Inventory (NPRI) and Partners





ON TRA's TEST Facility

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7(10/40)

Inventory

National Pollutant Release Inventory (NPRI) and Partners



Home Submission Managemen	t- Help-	My Profile:Derick R Poirier	Logout	Ec.gc.ca					
SWIM > 2017 > Environnement Canada Fontaine > test prod (Update 1) > Applicable Programs									
Reporting Details Reporting Dashboard	Appli	Applicable Programs							
Facility Report				Report Progress: 13/13 Page Status	: Complete				
Applicable Programs									
✓ Contacts	Please sele	ect all that apply.							
✓ Employees and Activities	- Env	- Environment and Climate Change Canada Programs							
General Facility Information	✓								
✓ Verify Facility Information									
Special Reports	- Part	- Partnering Programs							
Pollution Prevention		ON MOE TRA - Ontario Ministry of	the Environm	nent for the Toxic Reductions Act					
		ON MOE Reg. 127/01 - Ontario M Regulation	Ministry of the	Environment for the Airborne Contaminant Discharge Monitoring and	Reporting				
		NERM - Chemistry Industry Associ	ation of Canad	da for the National Emission Reduction Masterplan survey					
		NFPRER - National Framework for	Petroleum Ref	finery Emission Reductions					

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Save/Continue

Reporting Details

Reporting Dashboard

Facility Report

Applicable Programs

Contacts

Employees and Activities

General Facility Information

✓ Verify Facility Information

✓ Substance List

Special Reports

Pollution Prevention

Employees and Activities

☐ Non-hazardous solid waste incineration (>= 26 tonnes/year)

Report Progress: 13/13 Page Status: Complete

Employees

Number of Employees *

12

Activities

If your facility was engaged in any of the following activities, check the relevant box(es), otherwise click "None of the Above". For the second "Activities" list, if you select one of these activities then you must report dioxins, furans and hexachlorobenzene.

□ Biomedical or hospital waste incineration (>= 26 tonnes/year) ☐ Hazardous waste incineration Sewage sludge incineration ── Wood preservation ☐ Terminal operations Discharge of treated or untreated wastewater (>= 10,000 m3/day) Pits and quarries where annual production is >= 500,000 tonnes None of the above Activities Relevant to Reporting Dioxins, Furans and Hexacholorobenzene: (check all that apply) * Non-hazardous solid waste incineration (>= 26 tonnes/year) □ Biomedical or hospital waste incineration (>= 26 tonnes/year) ☐ Hazardous waste incineration Sewage sludge incineration □ Base metal smelting (including copper, lead, nickel, and zinc) Smelting of secondary lead ☐ Smelting of secondary aluminum Manufacturing of iron using a sintering process Operation of electric arc furnaces in steel manufacturing Operation of electric arc furnaces in steel foundries ☐ Production of magnesium Manufacturing of Portland cement Production of chlorinated organic solvents or chlorinated monomers Combustion of fossil fuel in a boiler unit to produce electricity (>= 25 megawatts) Combustion of salt-laden logs in forest products Combustion of fuel in kraft liquor boilers in forest products ── Wood preservation using pentachlorophenol ☐ Titanium dioxide pigment production using chloride process

Activities for Which the 20,000-Hour Employee Threshold Does Not Apply: (check all that apply) *

Activities Relevant to Reporting of Polycyclic Aromatic Hydrocarbons (PAHs)

Did the following activity take place at the facility?

Wood preservation using creosote: *

None of the above

No

Submission Management Help My Profile:Derick R Poirier Logout Ec.gc.ca

SWIM > 2017 > Environnement Canada Fontaine > test prod (Update 1) > General Facility Information

Home

Applicable Programs

Employees and Activities

General Facility Information Verify Facility Information

✓ Contacts

✓ Substance List Special Reports

✓ Pollution Prevention

* indicates a required field, ** indicates a conditionally required field

Report Progress: 13/13 Page Status: Complete

Reporting Details General Facility Information Reporting Dashboard Facility Report

Is

NPRI	
Is this the	first time the facility is reporting to the NPRI (under current or past ownership)?
Yes	lacksquare
Is the facil	ty controlled by another Canadian company or companies? *
No	lacksquare
Did the fac	ility report under other environmental regulations or permits? *
No	✓

Is	the	facility	require	d to	report	one o	r more	NPRI	Part 4	substances	(Criteria A	ir Contaminar	its)? *
	No		~										

If 'Yes' to reporting for one or more Part 4 substances: Was the facility shut down for more than one week during the year? ** Select an o

Operating Schedule - Days of the Week ** Mon Tue Thu Sat Sun

Operating Schedule - Hours **

Usual Daily Start Time (24h) Usual Number of Operating Hours per day (hh:mm)

To report a shutdown period, click the "+" sign to the right side of the screen. Empty

- General Comments for Facility

Shutdown Periods **

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Comments

National Pollutant Release Inventory (NPRI) and Partners





Home	Submission Management	Help-	My Profile:Derick R Poirier	Logout	Ec.gc.ca					
SWIM > 201	WIM > 2017 > Environnement Canada Fontaine > test prod (Update 1) > Substance List									
Reporting Details Reporting Dashboard		Substance List								
_	y Report Applicable Programs				Report Progress: 13/13	Page Status: Complete				
	Contacts Employees and Activities	To report for a substance that is already on your list below, click the "Edit" icon to the right of the substance name. If the list is empty, or you need to add another substance, click the "+" sign to go to the Substance Search screen.								
General Facility Information IMPORTANT: when you are finished reporting all of your substance data and special reports, clicking "Validate" at the Verify Facility Information this screen will run an error check on your substance report(s) and inform you of any errors that you need to correct										
	Substance List	submissio	n.							
· -	al Reports Pollution Prevention	Substa	nces			B				
		Program	5	Repor	t Status					
		All		∨ All	▼	٩				
		CAS RN	Substance Name	Applica	ble Programs Report Status	Actions				
		100-41-4	4 Ethylbenzene	NPRI	Completed (5/5)	<i>≱</i> -				

Back Add New

Validate Save/Continue

Reporting Details

Reporting Dashboard

Facility Report

- ✓ Applicable Programs
- Contacts
- Employees and Activities
- General Facility Information
- ✓ Verify Facility Information
- ✓ Substance List
 - Substance Reporting Status
 - General Information about the Substance
 - 🗸 On-site Releases
 - Disposals
 - Recycling

Special Reports

✓ Pollution Prevention

General Information about the Substance

Report Progress: 13/13 Page Status: Complete

- Releases and Transfers of the Substance

Releases and Transfers of the Substance

Was the substance released on-site? *

Yes

If the substance was released on-site and the total quantity released was less than one tonne, select the check-box below

The substance will be reported as the sum of releases to all media (total of 1 tonne or less).

Disposals and Off-site Transfers for Recycling

Was the substance disposed of (on-site or off-site), or transferred for treatment prior to final disposal? *



Is the facility required to report on disposals of tailings and waste rock for the selected reporting period? *



Was the substance transferred off-site for recycling? *



- Nature of Activities *

Indicate whether the substance was manufactured, processed, or otherwise used, by selecting the nature of such activities.

Manufacture the Substance

- For on-site use/processing
- For sale/distribution
- As a by-product
- As an impurity

Process the Substance

- As a reactant
- As a formulation component
- As an article component
- □ Repackaging only
- As a by-product

Otherwise Use of the Substance

- As a physical or chemical processing aid
- As a manufacturing aid
- ☐ Ancillary/other use
- As a by-product

Reporting Details

Reporting Dashboard

Facility Report

- Applicable Programs
- Contacts
- Employees and Activities
- General Facility Information
- Verify Facility Information
- Substance List
 - ✓ Substance Reporting Status
 ✓ General Information about the Substance
 - On-site Releases
 - 🚺 Disposals
 - Recycling

Special Reports

Pollution Prevention

On-site Releases

Report Progress: 9/13 Page Status: Incomplete

Click "Edit" to enter your reportable values.

In order to calculate totals, you must click the "Validate" button.

- Enter the values for releases to air for the substance

Releases to Air			
Category	Basis Of Estimate	Quantity (Tonnes)	Edit
Stack or Point Releases	NA - Not Applicable		Edit
Storage or Handling Releases	NA - Not Applicable		Edit
Fugitive Releases	NA - Not Applicable		Edit
Spills	NA - Not Applicable		Edit
Other Non-point Releases	NA - Not Applicable		Edit
Total - Releases to Air			

- Enter the values for releases to water bodies

Releases to Water Bodies

Category	Basis Of Estimate	Quantity (Tonnes)	Edit
Direct Discharges	NA - Not Applicable		Edit
Spills	NA - Not Applicable		Edit
Leaks	NA - Not Applicable		Edit
otal - Releases to Water Bodies			

- Enter the values for releases to land (surface and underground)

Releases to Land (the nature of "Other" releases must be specified in the Comments)

Warning: Please ensure that the quantities entered in the **On-Site Releases to Land - Other** category are releases and not for the purpose of disposal. NPRI substances sent to landfill, used for land application, disposed of by underground injection or transferred for treatment or storage are categorized as **Disposals**. Disposal quantities, including tailings and waste rock, should be reported under the disposal category only, and not under releases to land, to avoid double-reporting.

Ensuring NPRI Data Quality (2)

NPRI Data Quality Management Framework

Relevance	 Stakeholder and data user consultation, review of the NPRI substance list, analysis of web stats
Accuracy and reliability	 Annual QA/QC process, uncertainty analyses
Completeness	Sector coverage report, substance coverage report, compliance promotion
Understandability	Guide for using and interpreting NPRI data, FAQ
Accessibility	NPRI data available in a variety of formats
Timeliness	 Annual publication of NPRI data (preliminary and reviewed)



Interpretation of data

- When analyzing NPRI data, always use the latest reviewed data.
 Preliminary data may contain reporting errors and skew results.
- The <u>Guide for Using and Interpreting NPRI Data</u> is available on our website.
- Considerations when using NPRI data:
 - The NPRI does not cover all pollution sources and substances in Canada.
 - Pollutants have distinct properties and vary in toxicity.
 - Assessment of risks cannot be determined from NPRI data alone.
 - Calculation methods used by facilities for quantifying releases can vary.
 - Efforts to improve NPRI data quality are in place.
 - Reporting requirements have changed over time and can affect data interpretation.
 - The NPRI does not monitor reporting to other programs and regulations.



Analysis & Comparability

Type of analysis	Factors affecting data analysis & comparability		
Year to year	Changes to NPRI reporting requirements over time Changes at the facility level Changes in calculation methods Data updates Regulatory environment		
Substance to substance	Aggregating data for different substances Units of measurement		
Facility to facility	Specific facility processes Calculation methods		
Comparisons between pollutant release and transfer registers	US Toxics Release Inventory (TRI), Mexico Registro de Emisiones y Transferencia de Contaminantes (RETC), Commission for Environmental Cooperation's (CEC) Pollutant Release and Transfer Registers (NAPRTR), Australia National Pollutant Inventory (NPI), European Pollutant Release and Transfer Register (E-PRTR) etc.		
Releases vs transfers & disposals	Direct releases compared to controlled disposals of substances		
Unspecified media (>1 tonne all media releases)	Total releases compared to air, water, and land releases		
Tailings and waste rock	Inception in 2006 Negative values allowed Exclusions apply		



Double-counting

Substances	Found on NPRI Substance List as	Description
Total reduced sulphur (TRS)	Part 1A: TRS, COS, CS ₂ and H ₂ S	TRS consists of 6 substances, with 3 of them on NPRI, in addition of TRS
Particulate matter (PM)	Part 4: Total PM (TPM), PM_{10} and $PM_{2.5}$	Each PM has a different reporting release threshold: TPM (20 tonnes), PM_{10} (0.5 tonne) & $PM_{2.5}$ (0.3 tonne)
Polycyclic aromatic hydrocarbons (PAHs)	Part 2: 30 individual PAHs PAHs, total unspeciated	PAH species can be reported: - Individually - As "PAHs, total unspeciated" - Combination of both categories
Volatile organic compounds (VOCs)	Part 1A: ~100 individual substances Part 4: Total VOCs Part 5: 75 speciated VOCs 20 VOCs in parts 1A and 5	Calculation methods may differ between each category of VOCs
Transferred for disposals		Substances that were transferred off-site from a facility A can be found as on-site disposals for the receiving facility B: both facilities can report to the NPRI for different categories



Other relevant programs

Program	Overview	For more information
ECCC Greenhouse Gas Reporting Program (GHGRP)	 24 listed GHGs 50 kt CO2 eq. annual threshold (reduced to 10 kt starting with 2017 data) ~560 facilities reporting per year (596 in 2016) 	https://www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/facility-reporting.html
ECCC Air Pollutant Emission Inventory (APEI)	 17 listed substances and groups of substances NPRI data is used for various industrial sectors including ore and mineral industries, as well as manufacturing NPRI data is not used for sectors such as transportation and agriculture 	https://www.canada.ca/en/environment-climate-change/services/pollutants/air-emissions-inventory-overview.html See Table A2-1 of the APEI Report
Black Carbon Inventory	 Black carbon emitted in PM2.5 resulting from combustion APEI/NPRI data used for various sectors 	https://www.canada.ca/en/environment-climate-change/services/pollutants/black-carbon-emissions-inventory.html

Contact the NPRI

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