

Commission for Environmental Cooperation

Using North American PRTR Data for Information and Priority-Setting for Industrial Releases of HPV Chemicals

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Characterizing Chemicals in Commerce:
Using Data on HPV Chemicals
Dec. 12-14, 2006
Austin, Texas



Overview

- Description of the CEC's PRTR program
 - Inclusion of HPV chemicals
- Tools used for PRTR data analyses
 - North American rankings, TEPs, sector analyses, chemical categories
- Gaps in knowledge that remain
- Potential for synergies with the HPV Challenge program

Role of CEC: Information for Decision-Making

- Integrate data and information from a regional perspective
- Catalyze action: engage policy-makers, industry, NGOs, the public...



CEC PRTR Project: Mission & Purpose

- Track and publish information on amounts, sources & management of toxics across N.A.
- Increase the public's right to know about how chemicals are managed in their communities
- Enhance comparability among national PRTRs
- Strengthen capacity in Mexico to implement its national PRTR program
- Enable **PRIORITY-SETTING** and **DECISION-MAKING** to stimulate **REDUCTIONS** in releases and transfers of toxic substances.

What is a PRTR?

A database on *Pollutant Releases* of chemical substances to air, water, land, and *Transfers* to disposal, treatment, energy recovery & recycling, compiled yearly into a *Register*.

PRTRs in North America:

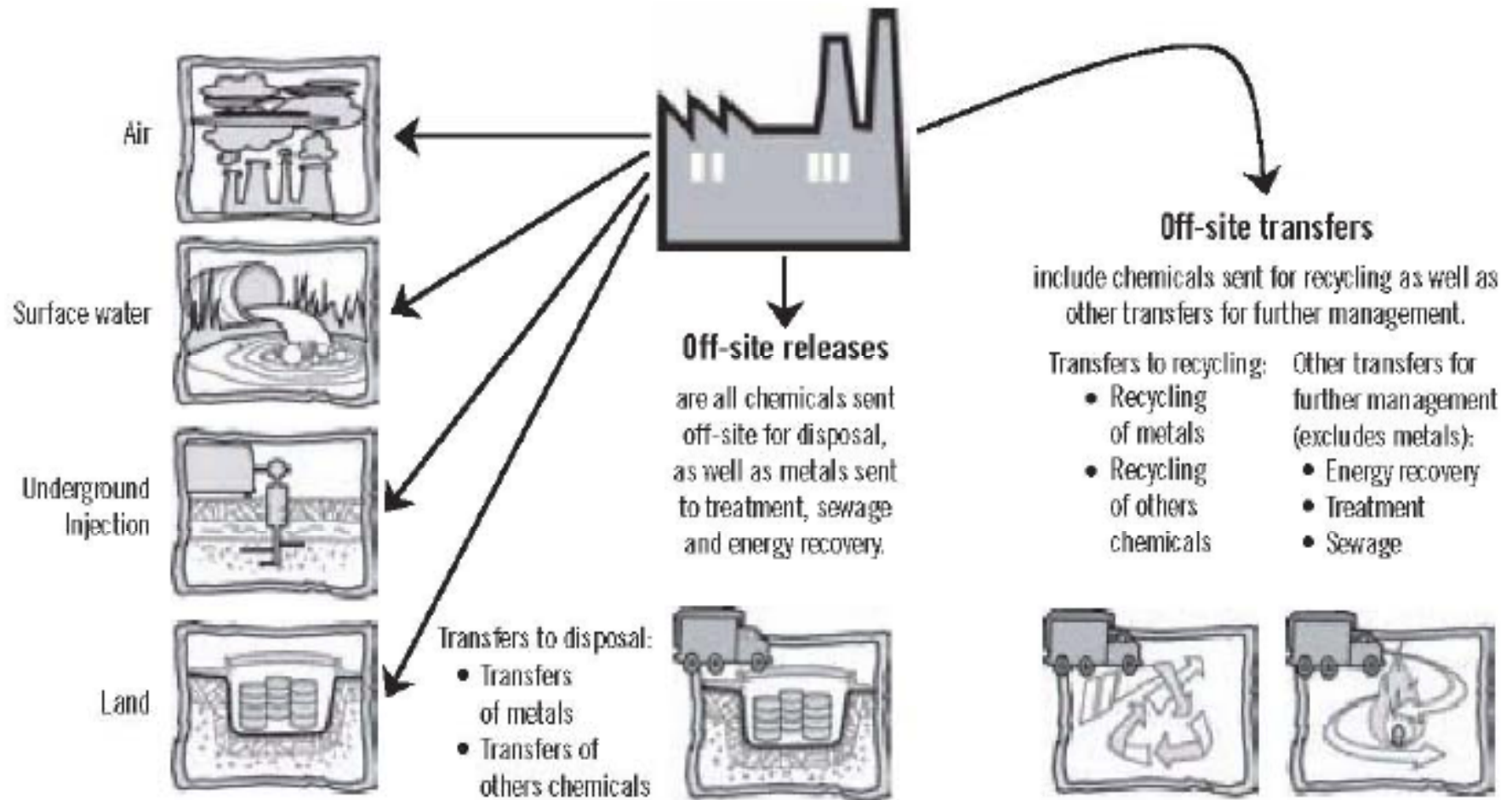
- U.S. Toxics Release Inventory (*TRI*): **600+ substances**
- Canadian National Pollutant Release Inventory (*NPRI*): **350+ substances**
- Mexican *Registro de Emisiones y Transferencia de Contaminantes (RETC)*: **104 substances**
- North American *Taking Stock* database (CEC): **204 matched substances (U.S. and Canada)**



Pollutant Release and Transfer Data

On-site releases
are chemicals released to air,
surface water, underground
injection or land at the facility.

A facility reports each year
on amounts of listed chemicals
released on- and off-site
and transferred off-site.

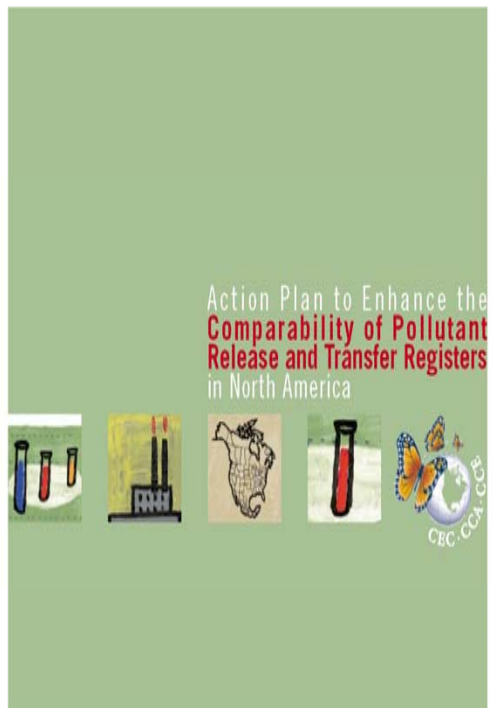


LIMITATIONS OF PRTR DATA

PRTR DATA DO **NOT** PROVIDE INFORMATION ON:

- chemicals released deliberately, such as pesticides
- all potentially harmful chemicals — just those on the lists of chemicals which must be reported;
- chemicals released from mobile sources, or from small sources (e.g., dry cleaners, gas stations)
- information on **risks** and **exposures** to humans & the environment from chemicals released or transferred.

Action Plan on PRTRs



- *Action Plan to Enhance Comparability Among PRTRs in North America* adopted by Council in 2002 (Res. 02-05)
- Developed through collaboration among the national programs
- Updated version released September 2005

What is needed for PRTR data to be comparable across borders?

- Matching data requires:
 - Comparable chemical lists
 - Comparable reporting thresholds
 - Comparable industry sectors
 - Comparable industry classification codes
 - Comparable parameters for reporting releases and transfers
- Data must also be reported on a mandatory basis, and must be publicly accessible



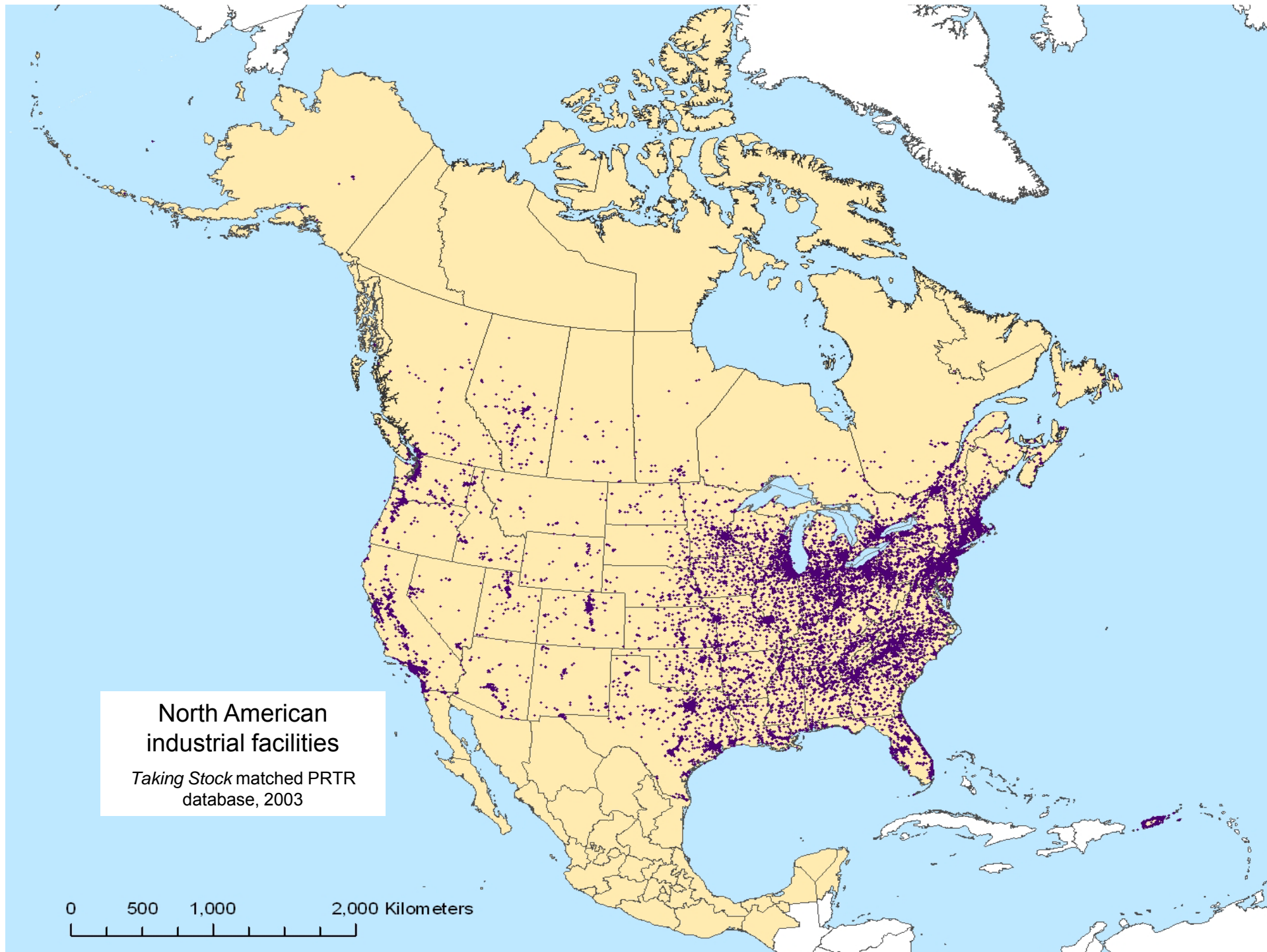
Lack of Comparability - Examples

- PCBs: Reported under U.S. TRI, but not Canadian NPRI
- Dioxins: U.S. and Canada use inconsistent reporting requirements
- Arsenic, cadmium: different thresholds, so not reported



CEC:

TOOLS USED WITH
MATCHED PRTR DATA

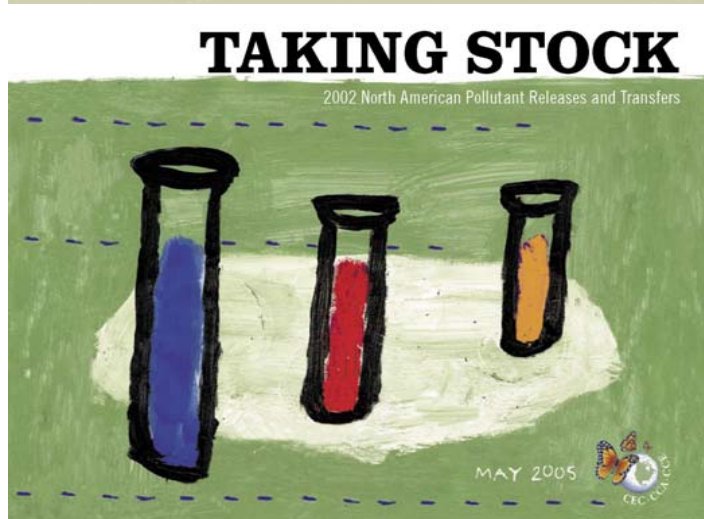


North American industrial facilities

Taking Stock matched PRTR database, 2003

0 500 1,000 2,000 Kilometers

Taking Stock (“En Balance”)

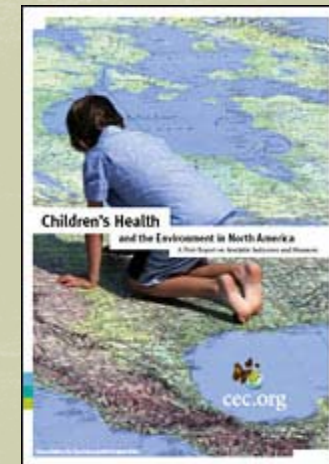


- Measures industrial releases and transfers in North America (Canada, U.S., Mexico)
- Based upon a “matched” data set
- Analyses by chemical, industry, jurisdiction and release & transfer categories
- Raises awareness of key health and environmental issues
- Enables increased dialogue and collaboration across borders & sectors

Uses of PRTR Data for Priority-Setting: Special CEC Reports

- Report on “*Children’s Environmental Health Indicators*”

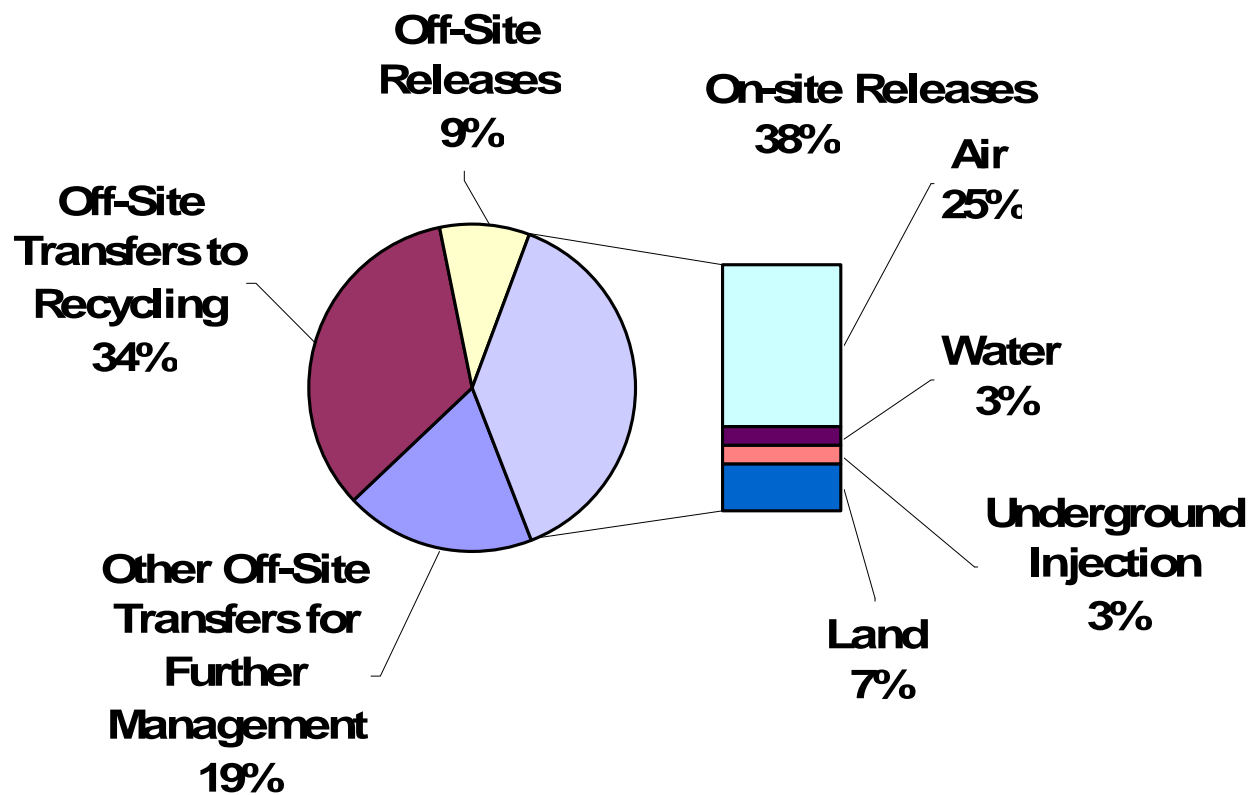
First regional report defining core set of indicators and identifying associations between chemical sources, exposure, and health effects on children



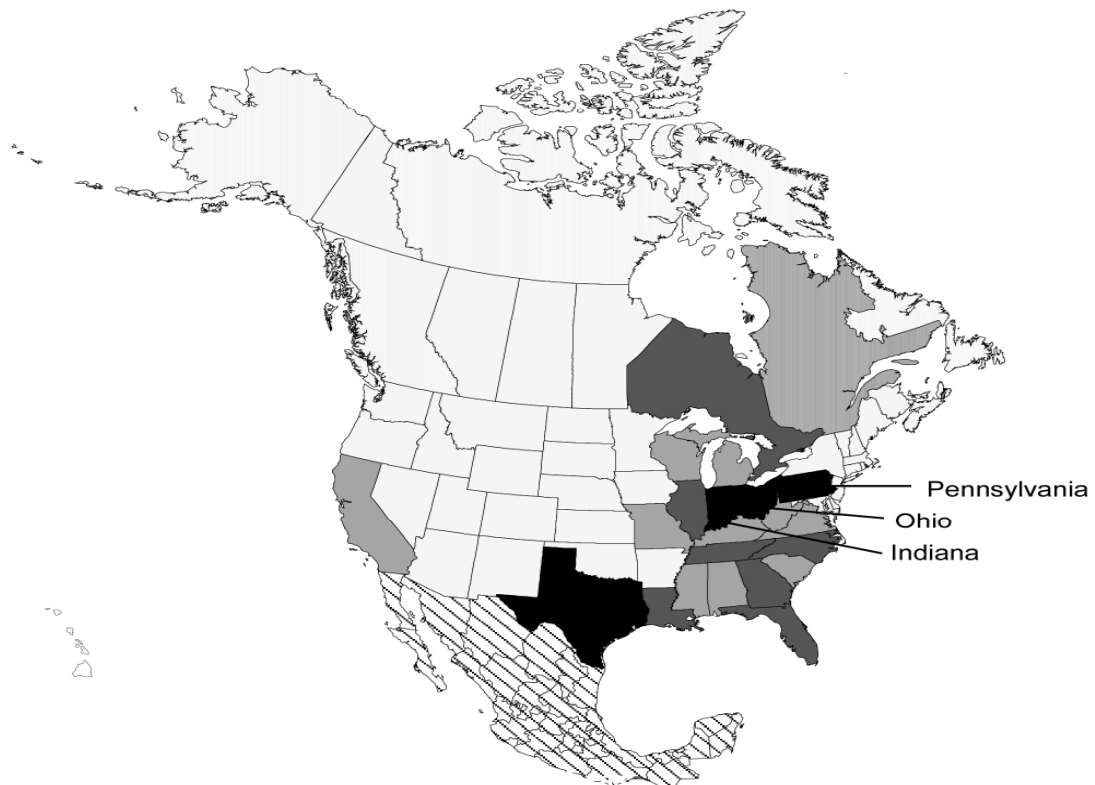
- \ “*children’s ealth and oxic hemicals*”

Total reported amounts - 2003

2.99 million tonnes

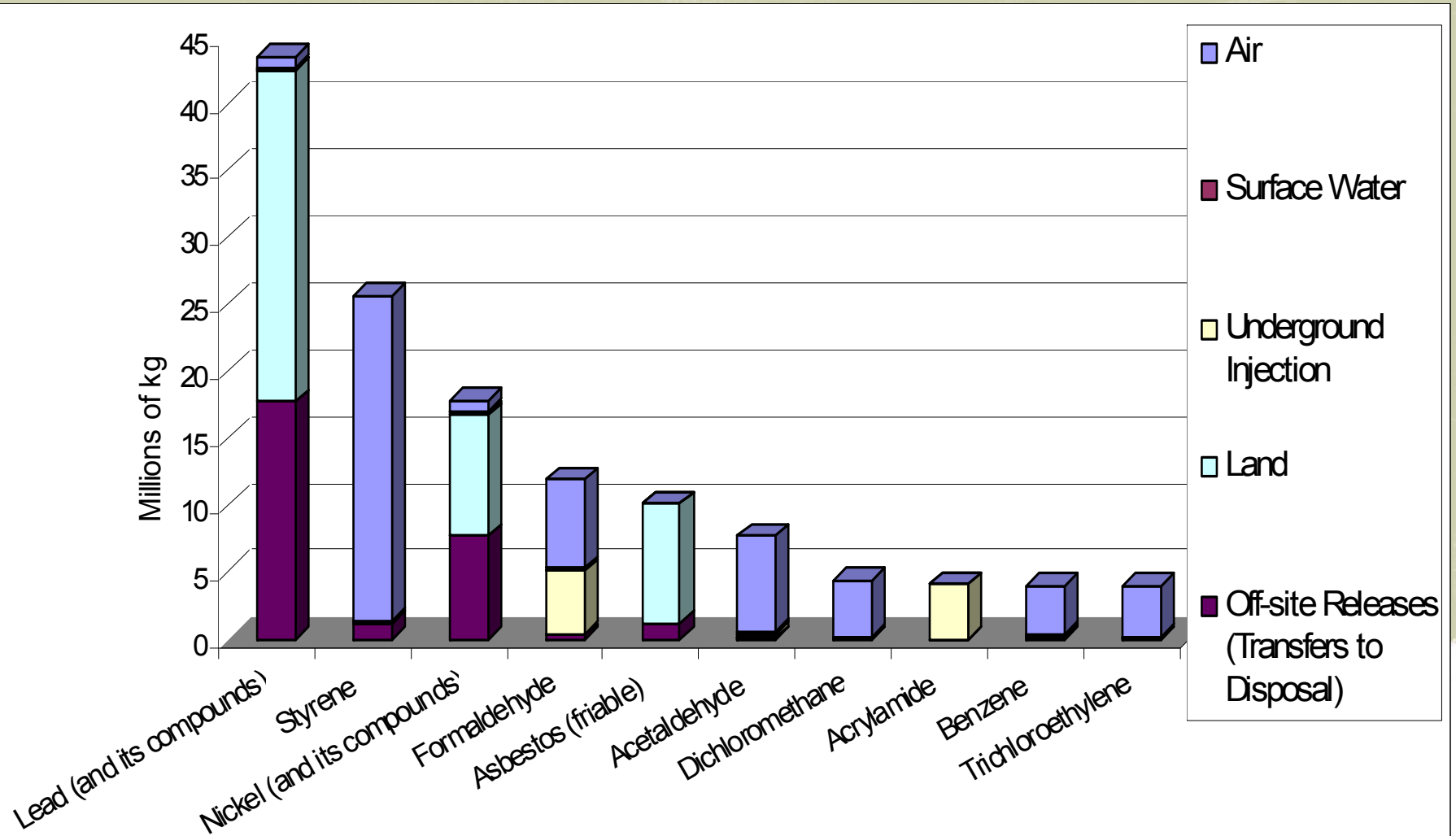


Largest Sources of Total Releases On- and Off-site, 2003



Each shade = one-quarter of total releases (adjusted)

Top 10 Releases of Known or Suspected Carcinogens, 2003



Carcinogen Releases in North America: 2003

- **Close to 150,000 tonnes in Canada and the U.S.**
 - 58,000 tonnes released into the air
- **Substances released in largest quantities:**
 - ◆ Lead and its compounds (39,000 tonnes)
 - ◆ Styrene (25,000 tonnes)
 - ◆ Nickel and its compounds (16,500 tonnes)
 - ◆ Formaldehyde (11,500 tonnes)

***BUT when ranked by toxicity (TEP),
Carbon Tetrachloride and Lead are #1 & 2***

Releases of Recognized Developmental & Reproductive Toxics, North America, 2003

- **110,000 tonnes in Canada and the U.S.**
 - 52,000 tonnes released into the air
- **Substances released in the largest quantities:**
 - ◆ Lead and its compounds (40,000 tonnes)
 - ◆ Toluene (31,000 tonnes)
 - ◆ Nickel and its compounds (16,500 tonnes)
 - ◆ Carbon disulfide (13,000 tonnes)
 - ◆ Benzene (3,900 tonnes)

***BUT when ranked by toxicity (TEP),
Mercury is #1 and Lead is #2***

North American States and Provinces with Largest Releases, 2003

Carcinogens

- ◆ Texas, 14,900 tonnes
- ◆ Louisiana, 9,300 tonnes
- ◆ Indiana, 9,000 tonnes
- ◆ California, 7,800 tonnes
- ◆ Ohio, 7,700 tonnes

Reproductive/develop'l

- ◆ Tennessee, 12,300 tonnes
- ◆ Indiana, 7,100 tonnes
- ◆ Texas, 6,800 tonnes
- ◆ Ontario, 6,300 tonnes
- ◆ Ohio, 5,600 tonnes

North American Industry Sectors

Largest releases of both Carcinogens and Reproductive/ Developmental Toxics, 2003

- ◆ Hazardous waste management/solvent recovery
- ◆ **Chemicals (includes chemical manufacturing and processing)**
- ◆ Primary metals (includes steel mills)

Top 25 Matched Releases & Transfers of Carcinogens Compared with **HPV Chemicals** (2002)

1. Lead & compds	2/1	14. Tetrachloroethylene	8/15
2. Nickel & compds	4/-	15. Acrylonitrile	6/16
3. Styrene	23/26	16. Asbestos (friable)	-/-
4. Dichloromethane	7/18	17. Acrylamide	10/20
5. Ethylbenzene	-/-	18. Vinyl Chloride	12/13
6. Formaldehyde	17/19	19. 1,2-Dichloroethane	13/7
7. Acetaldehyde	22/14	20. Diethyl sulfate	28/-
8. Vinyl Acetate	-/-	21. Chloroform	9/3
9. Benzene	3/5	22. Propylene Oxide	26/10
10. 1,3-Butadiene	14/9	23. 1,4-Dioxane	30/11
11. Trichloroethylene	15/22	24. Ethyl acrylate	29/30
12. Di(2-ethylhexyl) phtalate	24/25	25. Carbon tetrachloride	1/2
13. Cobalt & compds	-/-		

Top 20 Matched Releases & Transfers of Dev/Reprod Toxics Compared with HPV Chemicals (2002)

1. Lead & compds	2/2	11. Bromomethane	4/8
2. Toluene	6/10	12. 2-Methoxyethanol	13/5
3. Nickel & compds	3/3	13. Ethylene Oxide	10/7
4. Carbon disulfide	8/11	14. Lithium carbonate	-/-
5. Benzene	7/6	15. Epichlorohydrin	9/4
6. N-Methyl-2-pyrrolidone	-/-	16. 2-Ethoxyethanol	15/15
7. Chloromethane	5/9	17. Dinitrotoluene	-/-
8. 1,3-Butadiene	12/12	18. Ethylene thiourea	14/14
9. Di(2-ethylhexyl)phtalate	11/13	19. Tetracycline hydrochloride	-/-
10. Mercury & compds	1/1	20. 2,4-Dinitrotoluene	17/16

Common Challenges for the PRTR Program and the HPV Challenge Program:

- **Disseminating information:**
 - Reaching communities
- **Providing context:**
 - Health and environmental impacts information
 - Chemical risk and exposure information
- **Taking Action**

Potential Program Synergies?

- **HPV Challenge** as a potential source of H&E impact, risk & exposure information for *Taking Stock*
- ***Taking Stock* matched database** as an additional source of information on annual releases and transfers of HPV chemicals (e.g., from the chemicals manufacturing sector and others)
- **Both programs** can provide information supporting **priority-setting and decision-making on substances of concern**, not only in the U.S., but across North America

Get Involved

Annual CEC PRTR Consultative Group Meeting

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