CDR/TRI Mapping

Amanda Roach, M.Sc.
Data Analysis and Dissemination Branch
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency (EPA)

TSCA Occupational Conditions of Use and Exposure Scenario Workshop

October 3-4, 2023

Presentation Overview

- ❑TRI and CDR overview and comparison
- ❑Mapping TRI-CDR
- ❑Example: Crosswalk for a Chemical

Releases to the Environment

- Releases of chemicals to the environment from conditions of use (**COU**) are a component of potential exposure.
- EPA's **CDR** database tracks production quantities and uses of chemicals
- EPA's **TRI** database tracks quantities of toxic chemicals released from facilities into the environment (i.e., to air, water, and disposed of to land), treated, burned for energy, recycled, or transferred off-site to other facilities for these purposes.

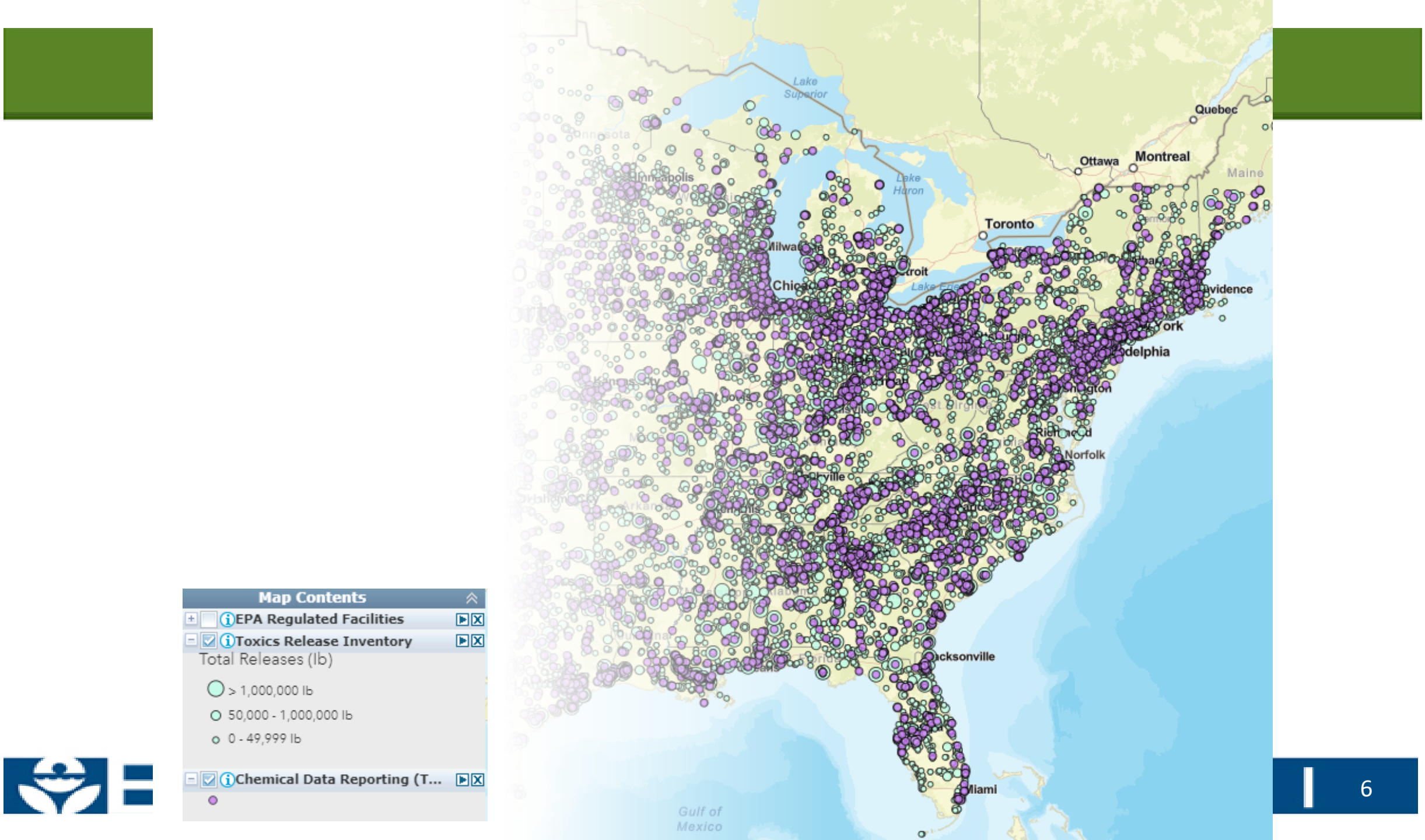
How does **CDR** differ from the Toxics Release Inventory (**TRI**)?

- The **TRI** was established by the Emergency Planning and Community Right-to-Know Act of 1986. The goal of the TRI is to provide the public, EPA, researchers, and many other stakeholders, including industry and covered facilities, with information about toxic chemical **releases**.
- The **CDR** was implemented under Section 8 of TSCA. The primary purpose of the CDR is to provide EPA with up-to-date information on the **production and use** of chemicals in commerce.

CDR & TRI Comparison:

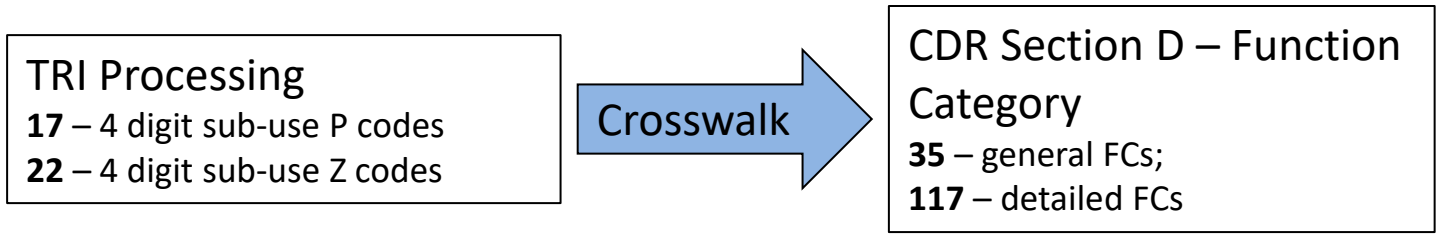
Differences in reporting and overlap areas

Chemical Data Reporting	Toxics Release Inventory	Overlap
Submitted every 4 years	Submitted annually	
Chemical is on the TSCA Inventory (34,000+ active chemicals)	Chemical is on the TRI list (850+ chemicals and chemical categories)	670+ chemicals on both TSCA Inventory and TRI list
Downstream use information		Chemical use type and function
Production data		
	Chemical waste management quantities	
Confidential Business Information (CBI)	>99% of data are public	
		Volume thresholds and reporting exemptions
		Site (name, location, NAICS, parent company)


Map Contents
EPA Regulated Facilities
Toxics Release Inventory
Total Releases (lb)
> 1,000,000 lb
50,000 - 1,000,000 lb
0 - 49,999 lb
Chemical Data Reporting (T...
Lake Superior
Lake Huron
Toronto
Ottawa
Montreal
Quebec
Maine
Chicago
Norfolk
Gulf of Mexico

Mapping Chemical Use Data

- ❑TRI-CDR Use Code Crosswalk
- ❑TRI Section 3.2 – Processing – P codes (17)
- ❑TRI Section 3.3 – Otherwise Use - Z codes (22)
- ❑Mapped to 2016 CDR U codes (35) and 2020 Industrial Function Category (IFC) codes (117)
  - ❑2021 TRI to 2020 CDR IFC Codes (7 1:1 relationships)



TRI-CDR Use Code Crosswalk

2021 TRI				2020 CDR	
TRI Section	Description	Sub-Use Code	Sub-Use Code Name	IFC Code	Category
3.2b	Processing: As a formulation component	P205	Solvent	F075	Solvent
3.2b	Processing: As a formulation component	P207	Emulsifiers	F077	Emulsifier
3.2b	Processing: As a formulation component	P208	Surfactants	F076	Surfactant (surface active agent)
3.2b	Processing: As a formulation component	P210	Flame Retardants	F029	Flame Retardant
3.3b	Otherwise Use: As a manufacturing aid	Z203	Coolants	F032	Heat transferring agent
3.3b	Otherwise Use: As a manufacturing aid	Z205	Hydraulic Fluids	F033	Hydraulic fluids
3.3c	Otherwise Use: Ancillary or other use	Z305	Flame Retardant	F029	Flame retardant

1:1 relationships across 2021 TRI use information and 2020 CDR

TRI-CDR Use Code Crosswalk

2021 TRI				2016 CDR		2020 CDR	
TRI Section	Description	Sub-Use Code	Sub-Use Code Name	Code	Category	IFC Code	Category
3.2b	Processing: As a formulation component	P205	Solvent	U030	Solvents	F075	Solvent
3.2b	Processing: As a formulation component	P210	Flame Retardants	U011	Flame Retardants	F029	Flame Retardant
3.3.b	Otherwise Use: As a manufacturing aid	Z203	Coolants	U013	Functional fluids (closed systems)	F032	Heat transferring agent
3.3.b	Otherwise Use: As a manufacturing aid	Z205	Hydraulic Fluids	U013	Functional fluids (closed systems)	F033	Hydraulic fluids

1:1 relationships across TRI use information and 2016 and 2020 CDR

TRI-CDR Use Code Crosswalk

2021 TRI				2016 CDR		2020 CDR	
TRI Section	Description	Sub-Use Code	Sub-Use Code Name	Code	Category	IFC Code	Category
3.2.a	Processing: As a reactant	P103	Intermediates	U015	Intermediates	F037	Intermediates
						F038	Monomers
3.2 b	Processing: As a formulation component	Z201	Process Lubricants	U017	Lubricants and lubricant additives	F040	Anti-slip agent
						F041	Lubricating agent
3.3 c	Otherwise Use: Ancillary or other use	Z304	Fuel	U012	Fuels and fuel additives	F030	Fuel agents
						F031	Fuel
3.3 a	Otherwise Use: As a chemical processing aid	Z199	Other	U006	Bleaching agents	F015	Bleaching agent
						F016	Brightener

Example 1:2 relationships across TRI use information and 2016 and 2020 CDR

Example - Using TRI and CDR Together: 1,2-Dichloroethane

- ❑ Designated by the EPA as a high-priority substance for risk evaluation in December 2019
- ❑ TRI-reportable substance under EPCRA
- ❑ 2020 CDR: 18 sites reported to CDR for 1,2-Dichloroethane
- ❑ 2021 TRI: 52 facilities reported to TRI for 1,2-Dichloroethane
- ❑ 11 matches of CDR sites to TRI facilities based on FRS ID
- ❑ What can these two data sources tell us?

What additional information can TRI provide?

- 41 Facilities reported on 1,2-Dichloroethane to 2021 TRI but did not report to 2020 CDR
  - Additional Use Information: Z101 Process Solvents, Z304 Fuel

2021 TRI				2020 CDR	
TRI Section	Description	Sub-Use Code	Sub-Use Code Name	IFC Code	Category
3.3.a	Otherwise Use: As a chemical processing aid	Z101	Process Solvents	F060	Processing aids, specific to petroleum production
				F065	Processing aids not otherwise specified
				F074	Diluent
				F075	Solvent
3.3c	Otherwise Use: Ancillary or other use	Z304	Fuel	F030	Fuel agents
				F031	Fuel

Manufacturing – 1,2-Dichloroethane

Data	Reporting Element	EPA Facility Registry ID*										
		A	B	C	D	E	F	G	H	I	J	K
2019 CDR	Domestic PV (lb)	CBI	53,035	927,456,774	3,589,162,392	CBI	CBI	CBI	CBI	CBI	6,131,870,601	CBI
	Import PV (lb)	CBI	0	0	0	CBI	CBI	CBI	0	CBI	0	CBI
2021 TRI	Releases (lb)	11,396	256	36,400	14,002	13,582	6,273	36,400	17,93	17,765	11,245	50,501
	Produce	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
	Import								✓			
	On-site use	✓		✓	✓	✓			✓	✓	✓	✓
	Sale/Distribution	✓			✓		✓	✓	✓			✓
	As a byproduct							✓	✓			
	As an impurity					✓			✓			
% PV Released to Environment **calculated*			<1%	<1%	<1%						<1%	

*11 CDR sites and TRI facilities matched using FRS ID

2019 CDR Nationally Aggregated PV: 30,000,000,000 – <40,000,000,000

Processing – 1,2-Dichloroethane

Data	Reporting Element	EPA Facility Registry ID										
		A	B	C	D	E	F	G	H	I	J	K
2020 CDR Section D	TPU Operation	PC	PF	PC	PC	PC	PC	PC	PC	PC	PF	PC
2021 TRI Section 3.2	As a reactant	P103	P102	P101	P101; P103	P101		P101	P199	P199	P101	P101
	As a formulation component								P299			
	As an article component				✓							
	Repackaging	✓			✓							
	As an impurity					✓			✓			
	Recycling											

CDR Section D - TPU Codes

PC – As a reactant
PF – Incorporation into formulation

TRI Section 3.2 P Codes

P101 – Feedstocks
P102– Raw Materials
P103 - Intermediates
P199 – Other
P299 - Other

Use – 1,2-Dichloroethane

Data	Reporting Element	EPA Facility Registry ID										
		A	B	C	D	E	F	G	H	I	J	K
2020 CDR Section D	**Industrial Function Category**	F037	F037	F037	F037	F037	F037	F037	F037	F037	F037	F037
2021 TRI Section 3.3	**As a chemical processing aid**				Z102; Z103							
	As a manufacturing aid											
	Ancillary or other use	Z306		Z399	Z399			Z399	Z399	Z399		Z399

CDR Section D – IFC codes
F037 - Intermediates

TRI Section 3.3 Z Codes
Z102 – Catalysts
Z103– Inhibitors
Z306 – Waste Treatment
Z399 – Other

Summary - Using CDR and TRI Data

- ❑Obtain annual TRI release data to complement CDR information collected every 4 years
- ❑Quality assure manufacturing information reported by common facilities in both CDR/TRI
- ❑Gather additional use information from TRI for facilities that process or otherwise use chemicals
- ❑Limited to higher volume facilities
- ❑Chemical overlap for most workplan chemicals (70%)