ECHO Clean Air Tracking Tool (ECATT)

Version 2

July 2019

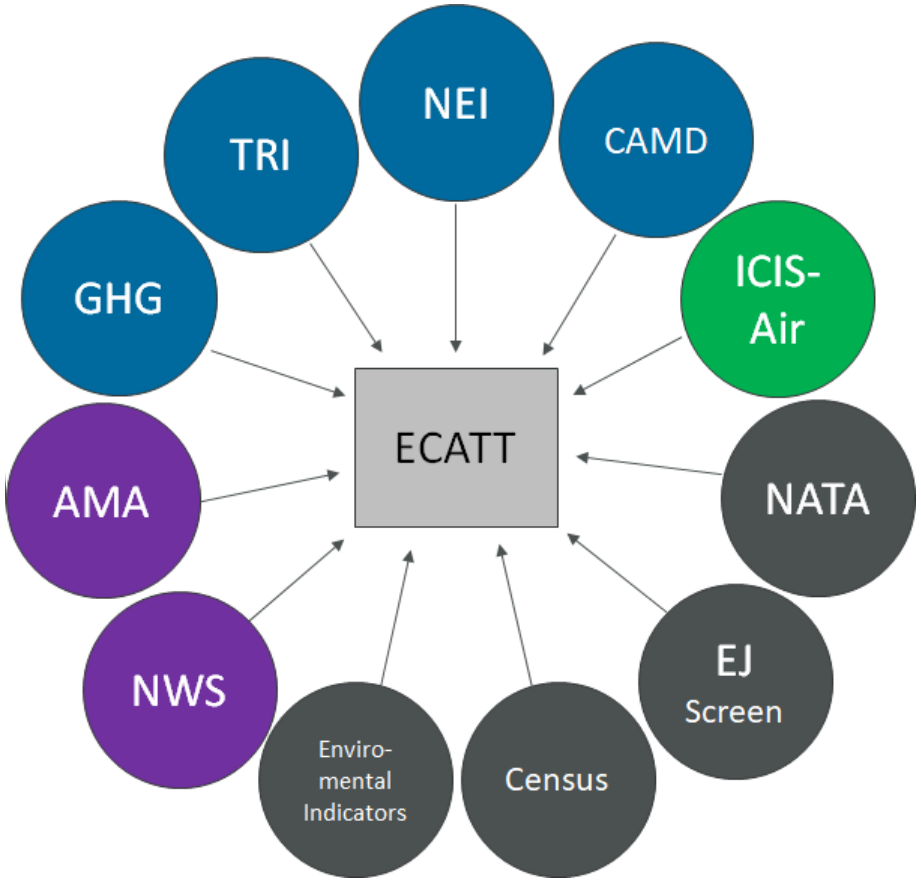
Why ECATT?

- ECATT fills a need to integrate info about regulated facilities, including their permitting status, reported emissions data, and evaluation and compliance data, with monitored ambient air quality data, risk calculations, and modeled air quality data.
- Leverages EPA's ECHO extensive and well-used integration platform to make it easy to find pollutant and cancer-risk hotspots and then map back to possible nearby contributors to monitored risk.
- EPA has used this approach to target under a National Enforcement Initiative. ECATT automates the methods developed within the NEI.

What is ECATT?

- Government-only tool that makes it easy to use air monitoring stations to find pollutant and cancer-risk hotspots and analyze related data to identify potential contributors.
  - Part of Open Gov plan to make parts of tool public in FY 2019.
- Includes emissions data from the Toxics Release Inventory (TRI), Greenhouse Gas Reporting Program (GHGRP), Emissions Inventory System (EIS), and Clean Air Markets Division (CAMD) programs, as well as enforcement and compliance data, facility classifications, air monitoring station data, and toxic risk data.
- Can help identify facilities that may be under-permitted (e.g. minor instead of major) based on reported emissions.

Data Flowing Into ECATT



Many stove-piped data sources with useful information have now been integrated in this tool.

Emissions Inventories

TRI – Toxic Release Inventory

NEI – National Emissions Inventory

CAMD – Clean Air Markets Division

GHG – Greenhouse Gas Reporting Program

Compliance Data

ICIS Air – Integrated Compliance Information System

Ambient Conditions -

NWS – National Weather Service

AMA – Ambient Monitoring Archive

Other Sources

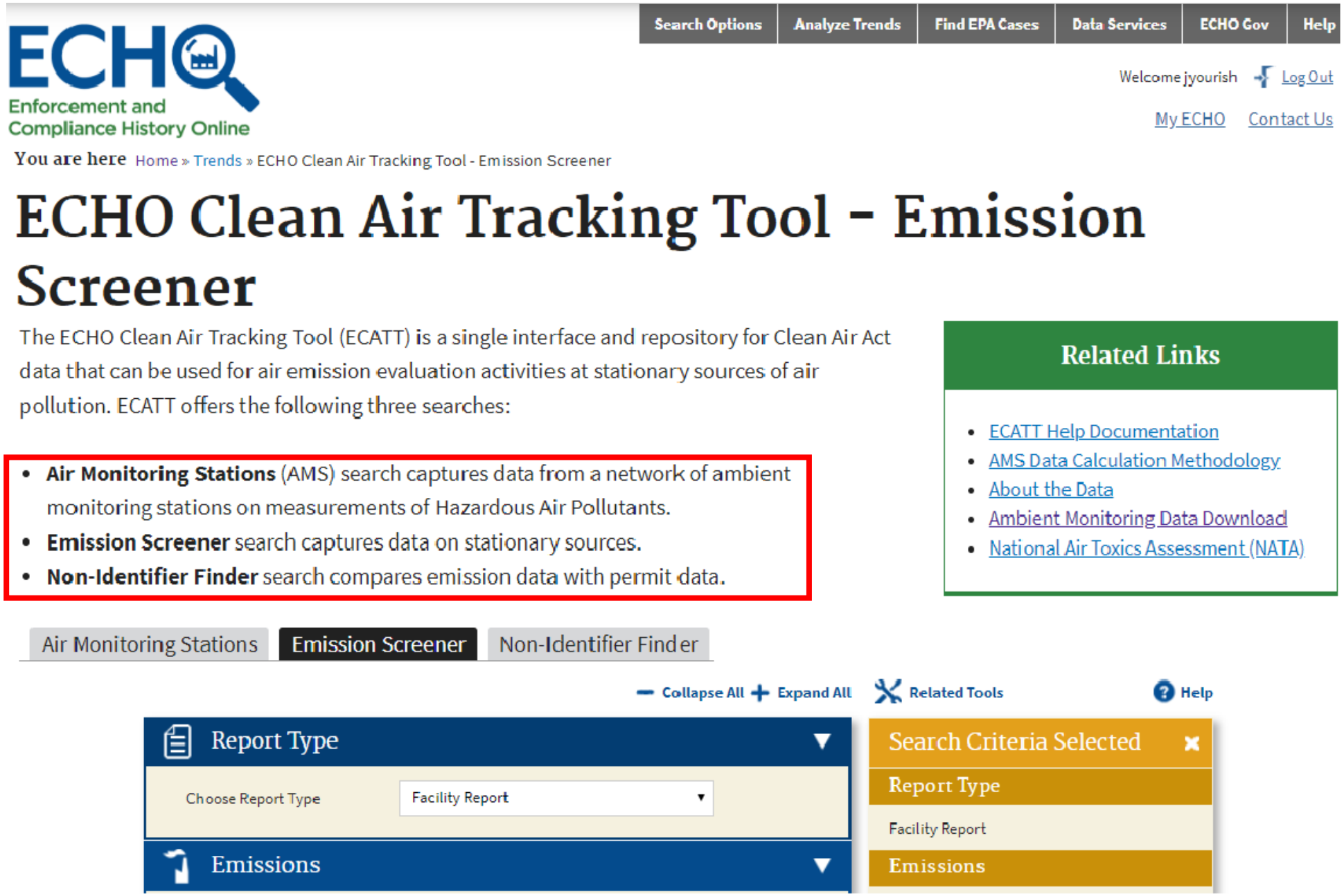
NATA – National Air Toxics Assessment

EJ Screen – Environmental Justice Screen

How Compliance and Enforcement is Using ECATT

- To see which pollutants are being released and where.
- To find Air Toxics Monitoring Stations.
- Working backwards from Air Toxics hotspots to find potential contributors.
- Comparing how well monitored pollutant readings align with reported emissions from nearby facilities.
- Finding which facilities fit the profile of high pollutant releases, but do not have a major permit status.
- To see what industries or pollutants are contributing to overall pollutant loadings and/or risk.

Three Search Tools in ECATT



1. Air Monitoring Station search

- Data from air monitoring stations.
  - Ranked by cancer risk, hazard risk, or individual pollutant readings.
  - Other map layers (such as non-attainment areas and EJ screen) are available to provide more context.
- Search options incorporate NATA data so user can compare modeled results to monitored results.
- Use cases -
  - Identifying pollution hotspots and potential nearby contributors.
  - Comparing monitored readings with reported emissions from nearby facilities to identify discrepancies.
  - Ranking cancer risk, hazard risk, or pollutant readings between different monitors.

2. Emission Screener Search

- Single query tool for emissions data sorted by facility, industry, and pollutant. Allows for definition of parameters such as location, data year, pollutant category, facility characteristics, compliance history, and more.
- Use Cases –
  - Finding major contributors of hotspot-creating pollutants which are not located near monitors.
  - Identifying discrepancies between NEI and TRI.
  - Determining which industries or pollutants are contributing to overall pollutant loadings and/or risk.

3. Non-Identifier Finder

- Compares emission data with permit data to find facilities with potentially incorrect permit type.
- 5 types of search, each with default settings to guide users.
  - For example, when using the Potential Major HAP Sources search, tool prepopulates emission threshold of 100 tons per year.
- Use Cases –
  - Finding facilities which should have major permits but do not.
  - Identifying data quality issues in NEI, TRI, and ICIS – Air.

Key Reports Available Within ECATT

- Air Pollutant Report
  - Only place which combines stationary source permit info and an integrated view of all releases (individual and aggregated) over the last 10 years with trend charts and other information.
    - Facility-level view
    - Allows trend view of Greenhouse Gas Data, Acid Rain Data, National Emissions Inventory and Toxics Release Inventory – air releases.
    - Public and available from ECHO Facility Search.
- Air Monitoring Station Report
  - Lists all pollutants recorded at a monitor with readings, trends, meteorological data, and information about nearby facilities.
    - Interactive report at monitoring station level.
    - Ranks and maps all stationary sources within 5 km, then allows users to choose pollutant of interest and analyze likely nearby sources based on monitored data, reported emissions and wind readings.

Air Pollutant Report

Facility Summary

PORT TOWNSEND PAPER MILL
100 MILL RD, PORT TOWNSEND, WA 98368

Facility Information (FRS)

FRS ID: 110000490326
EPA Region: 10
Latitude: 48.093793
Longitude: -122.796806
Locational Data Source: EIS
Industry: Paper (except Newsprint) Mills, Pulp Mills
ICIS-Air Source ID: WA0000005303100001
ICIS-Air Facility Status: Operating Major Emissions

Emission Inventories

- ☑ National Emissions Inventory (NEI): 4880511
- ☑ Greenhouse Gas Reporting Program (GHGRP): 1005732
- ☑ Toxics Release Inventory (TRI): 98368PRTTW100PA
- ☑ Clean Air Markets Division (CAMD): No Information

Search for Excess Emission Reports
Search for Spills

Emissions

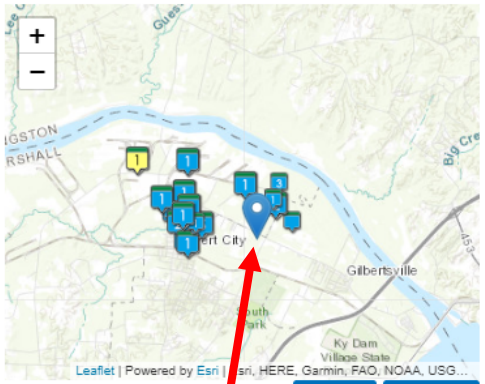
Total Aggregate Emissions Data

Program	Pollutant	Units	Trend	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
GHG	Total GHGs	MTCO2e				609,004.91	609,580.16	614,400.68	555,703.98	562,962.98	572,692.79	489,961.33	601,256.29
NEI	Total HAPs	Pounds		375,305.45			379,471.42			399,452.59			
NEI	Volatile Organic Compounds	Pounds		92,000.00			88,000.00			104,000.00			
TRI	TRI Air Toxics	Pounds		430,089.51	464,101.20	544,356.40	428,557.20	454,935.90	433,977.90	481,995.10	506,919.80	482,153.80	339,018.90
TRI	TRI Criteria Pollutants	Pounds		75,326.00	73,160.00	76,370.00	72,360.00	75,340.00	72,350.00	78,350.00	72,340.00	75,280.00	75,434.50

Air Monitoring Station Report

Monitor Summary | Ambient Conditions | Annual Statistics | Facility Emissions

Monitor Summary



Map Legend | Map Reset | Expand Map

Monitoring Station with > 100 in a million cancer risk

Load Facilities within 5km

Show Air Facilities

Monitor Information

AMA Site Code: 211570014

State: KY

Monitor Latitude: 37.04520035

Monitor Longitude: -88.33087158

Location Type: Not in Metropolitan/Micropolitan Area

Programs: UATMP

Weather Station Information

Nearest Weather Station: BARKLEY F (03816)

Station Location: KY

Station Latitude: 37.0563

Station Longitude: -88.7744

Pollutants Monitored (select one to view details)

Pollutant Name	Trend	Cancer Risk from Monitor Measurements (2017)
ETHYLENE DICHLORIDE		146
VINYL CHLORIDE		7.29
BENZENE		5.56
CARBON TETRACHLORIDE		4.82

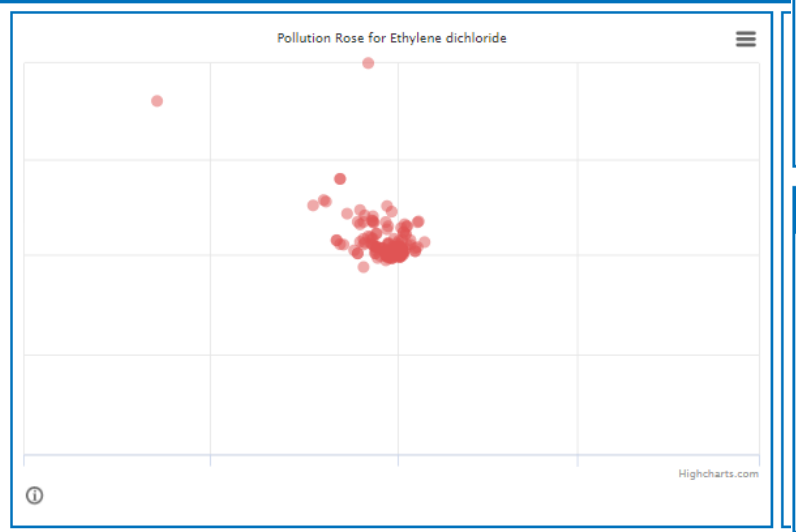
Annual Statistics

Annual Statistics Summary for ETHYLENE DICHLORIDE – (View Trends Plot)

Download Data

Year	Monitoring Program	Number of Daily Measurements Per Year	Average Concentration (µg/m³)	Maximum Concentration (µg/m³)	Median Concentration (µg/m³)	Variance (µg/m³)	Reference Concentration (µg/m³)	2014 NATA Modeled Concentration (µg/m³)	Percent of Daily Measurements over 2014 NATA Modeled Concentration
2013	UATMP	60	3.7	1.1e+2	0.21	2.1e+2	0.068	0.054	95
2014	UATMP	57	3.6	27	0.47	43	0.057	0.054	98.2456140
2015	UATMP	60	3.7	24	0.37	38	0.053	0.054	96.6666666
2016	UATMP	59	3.5	23	0.70	29	0.053	0.054	100
2017	UATMP	58	5.6	1.1e+2	0.35	2.7e+2	0.097	0.054	96.5517241

Ambient Conditions



Facility Emissions

Facility Name	Reports	Pollutant Name	2017 TRI Emissions (lb/yr)	2014 NEI Emissions (lb/yr)
WESTLAKE VINYLS INC	C A	1,2-Dichloroethane	87,836 pounds	14,659 pounds
ARKEMA INC	C A	1,2-Dichloroethane	1.00 pounds	0.93 pounds
POLYONE CORPORATION/GOODRICH CORPORATION	C A	1,2-Dichloroethane	0 pounds	3,322 pounds
NORTH AMERICAN PIPE CORP	C A	1,2-Dichloroethane	0 pounds	24.39 pounds

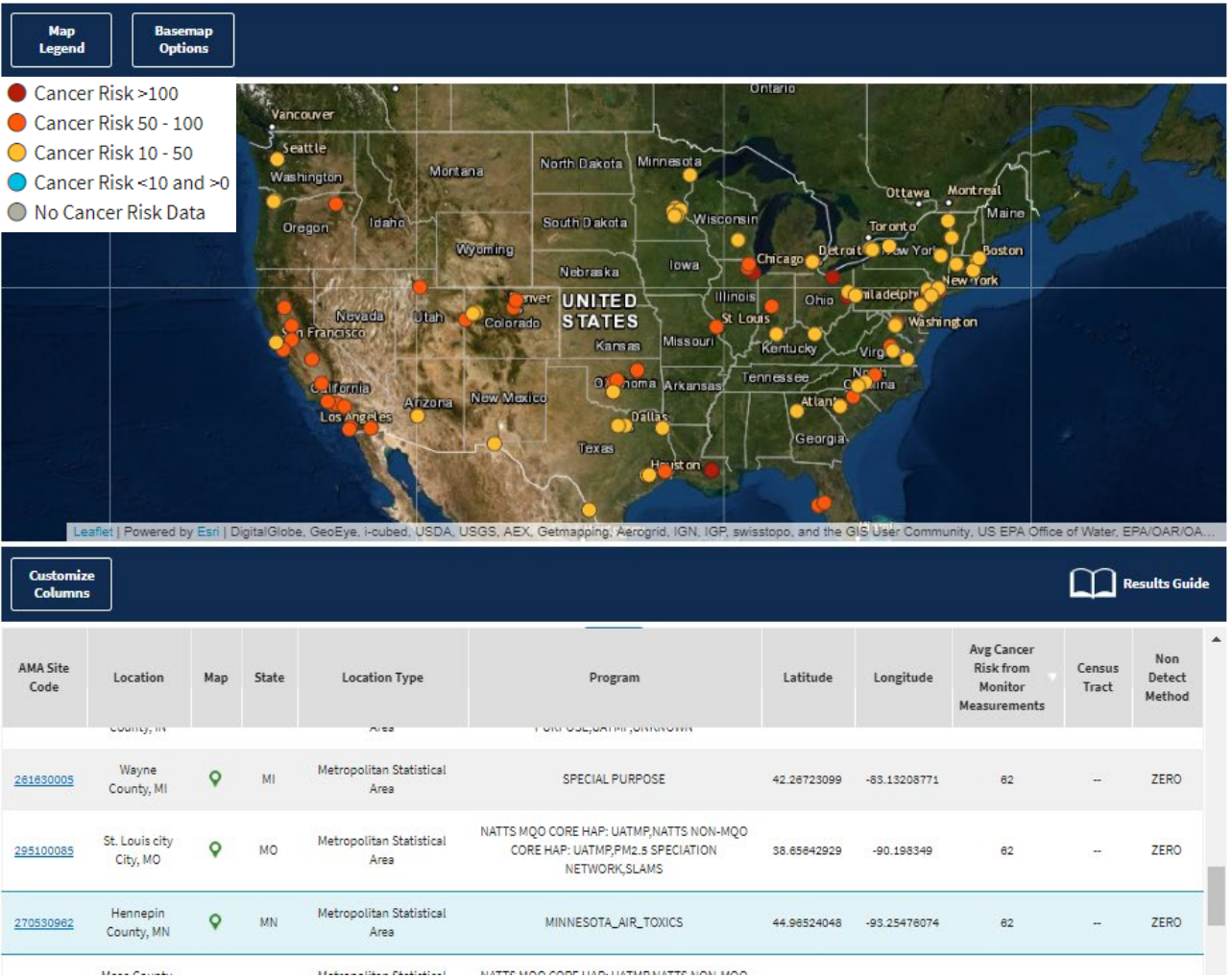
Caveats/Known Issues

- Age of data
  - ECATT includes the most recent data inventories available.
  - TRI – Currently 2017. Will be updated with 2018 when available.
  - NEI – Currently 2014. 2017 data is expected in Spring 2020.
  - AMA – Currently 2017. We are looking into the possibility of incorporating more real-time data.
- Data Linkages
  - ECATT relies on the Facility Registry System (FRS) to properly link all data systems together at the facility level. If linkages are missing, then a facility may appear to have very high releases of a pollutant in one program (e.g., TRI), but no releases in another program (e.g,. NEI). ECATT makes it easy to spot those problems and users can submit error reports.
- ICIS-Air
  - ECATT assumes ICIS-Air is the definitive source of facility permit status information, so any data quality problems will confound results.
  - ICIS-Air currently does not have complete violation data.

Development Cycle - ECATT

- Version 1 was released in June 2017.
- Version 2 is being released now.
  - Improved mapping component and data methodology (see next slides for details).
- Queue
  - Add Criteria Pollutant data.
  - Make sections of tool public (i.e. Air Monitoring Station and Emission Screener searches).
- Upcoming Outreach
  - Will conduct training and outreach with all interested states and Regions (Dates: TBA).
  - Improve integration with CAA targeting strategies and policies.
    - Expected “shake-out” period for data quality and linkage issues as use increases.
  - Please contact Jesse Yourish (Yourish.jesse@epa.gov) with any questions or comments.

Version 2 – New Features



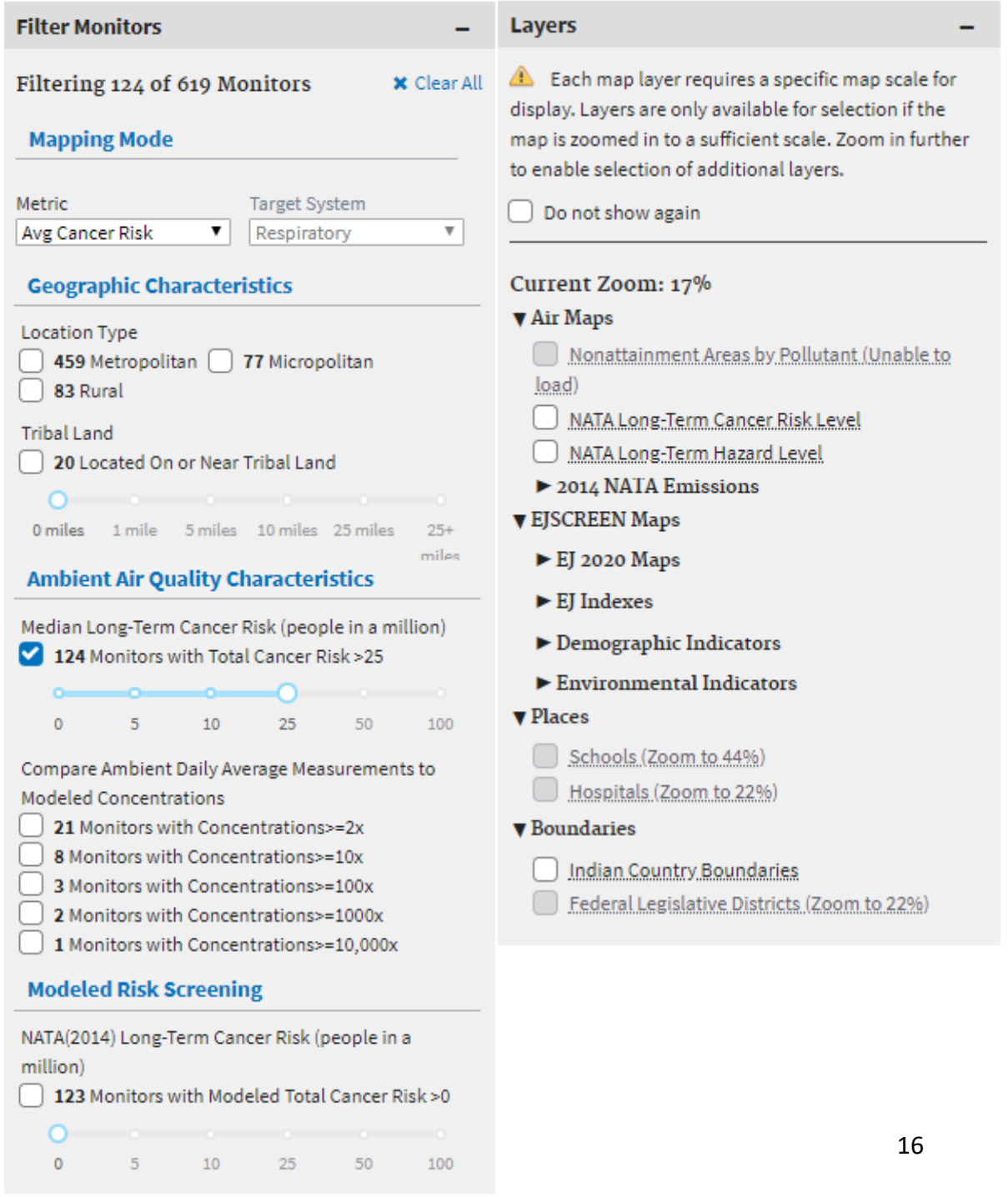
Map symbology improvements - users can rank Cancer Risk, Hazard Index, and pollutant readings using color-coded system for station pins.

- Map symbology dynamically updated based on metrics in the “current search” panel.
- Makes it much easier to find different kinds of pollutant hotspots.

Version 2 – New Features

- Ability to modify the search directly on the search results page.
  - Users can filter results using criteria related to:
    - Geographic Characteristics
    - Ambient Air Quality Characteristics
    - Modeled Risk Screening

- Ability to overlay map layers, including Air Maps, EJSCREEN, places, and boundaries.



Additional Version 2 Updates

- Added ability to search for monitors by ID. Multiple IDs are accepted.
- Annual Completeness Methodology for Ambient Air Quality Monitoring - cancer and hazard risks are calculated based on the assumption of continued, long-term exposure. A completeness criterion of 70% of expected days per quarter, for at least 3 quarters in a year, is available using the “Best Rolling 12-months of Data” option.
- Third non-detect option added - Regression on Order Statistics (ROS).
- Quick Map Access Icon - A button is available near the top of the AMS search page to take users directly to the results page with no filters selected.

How to Access ECATT

- Go to echo.epa.gov
  - Must login to ECHO Gov account.
  - EPA LAN users can access using single sign-on credentials, state users must register (through ECHO Gov login page).
  - https://echo.epa.gov/trends/emission-screener

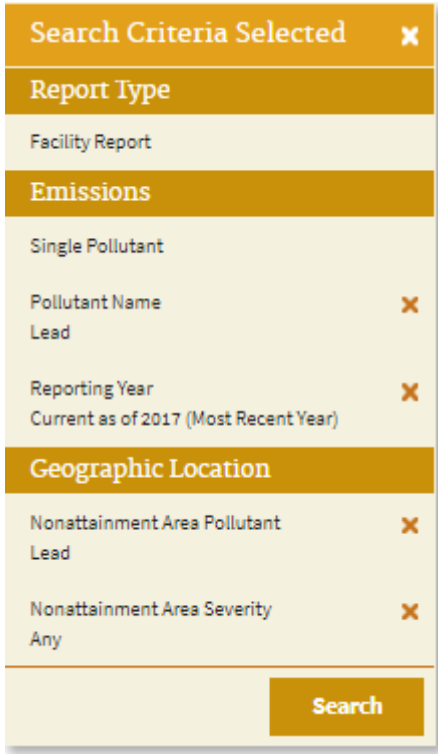
- Send comments to:
  - yourish.jesse@epa.gov

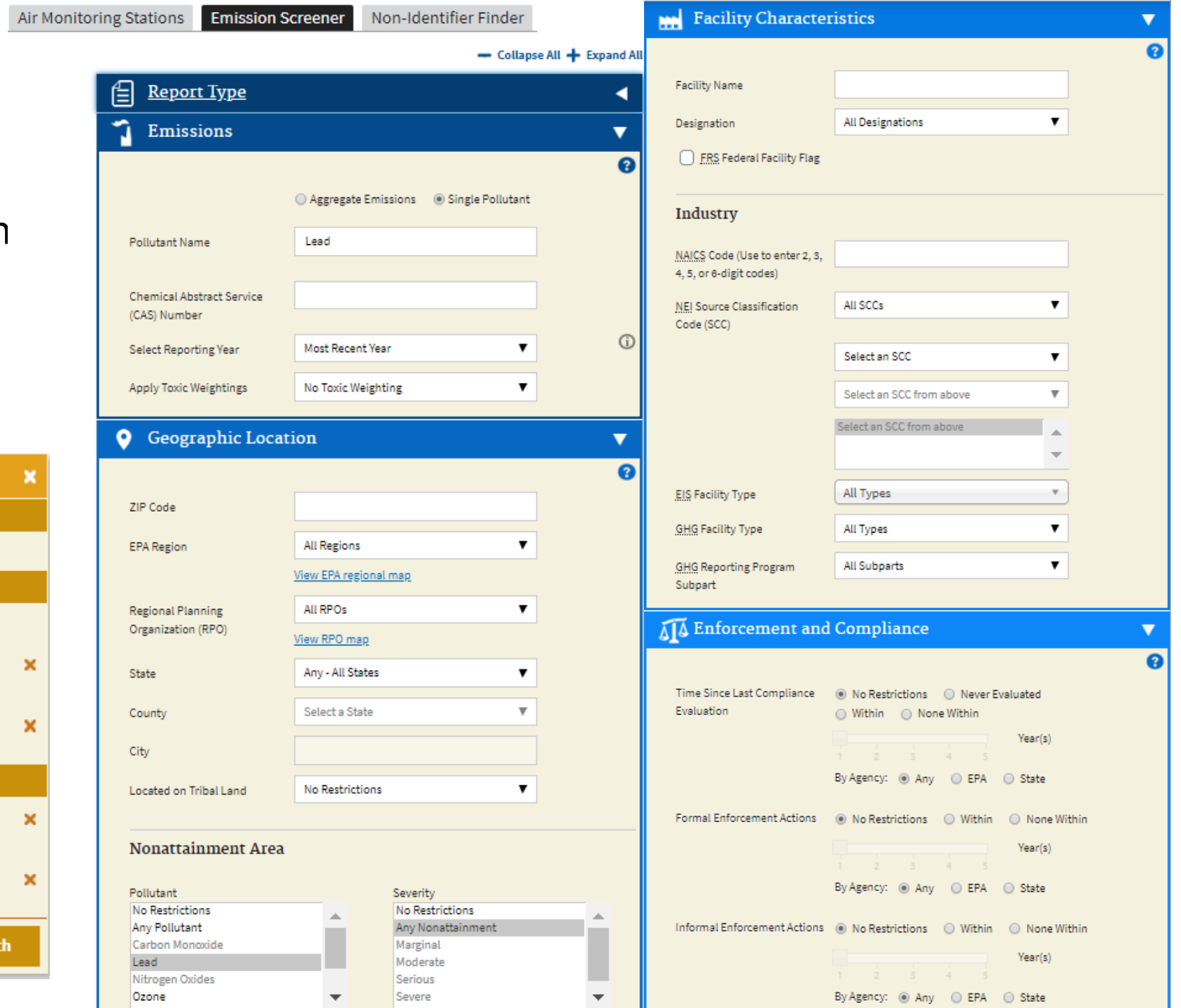
Demo/Screen Shots

Emission Screener Search Example

A basic, national search to ran all facilities that:

- Report Lead emissions.
- Are in Lead nonattainment areas.





The results of the previous Lead search.

ECHO Clean Air Tracking Tool – Emission Screener Results

View current | Edit current | Revisions

Some Clean Air Act data are frozen. Read More...

Hide Table | Hide Summary | Modify Search | Report Violation | Help

Customize Columns | Download Data | Results Guide

Facility Name	City	State	Zip	ICIS-Air Source Classification	Pollutant Name	2017 TRI AIR EMISSIONS (Pounds)	2014 NEI EMISSIONS (Pounds)
SANDERS LEAD COMPANY INCORPORATED	TROY	AL	36079	Major Emissions	Lead	922	1,584
KW PLASTICS INCORPORATED	TROY	AL	36079	--	Lead	27.50	29.30
BUNTING BEARINGS LLC	DELTA	OH	43515	Synthetic Minor Emissions	Lead	5.00	7.00
BARRY CONTROLS	BURBANK	CA	91505	--	Lead	3.12	0
COMMERCE REFUSE-TO-ENERGY FACILITY	COMMERCE	CA	90040	Major Emissions	Lead	2.82	1.00
DEMENNO/KERDOON	COMPTON	CA	90222	Major Emissions	Lead	1.19	1.20
SEMCO ENTERPRISES INC	CITY OF INDUSTRY	CA	91744	--	Lead	0.5500	0
LIGHT METALS INC	LA PUENTE	CA	91746	Major Emissions|Minor Emissions	Lead	0.4600	0.8643
OSI ELECTRONICS	HAWTHORNE	CA	90250	--	Lead	0.2900	0
HUGHES BROS. AIRCRAFTERS, INC	SOUTH GATE	CA	90280	--	Lead	0.2720	0
WESTERN TUBE & CONDUIT CORPORATION	LONG BEACH	CA	90810	Major Emissions	Lead	0.2140	0.0177

Search Statistics

Total Facility Count: 486

Majors: 111

Minors: 37

Synthetic Minors: 5

Search Criteria

Report Type: Facility
Emission Type: Single Pollutant
Pollutant Name(s): Lead
Include Results From: NEI, TRI
Reporting Year: 2017 (Most Recent Year)
Nonattainment Area Pollutant: Lead
Nonattainment Area Severity: Any

Modify Search

If the information you are looking for isn't visible, check the "Customize Columns" button to see what else is available.

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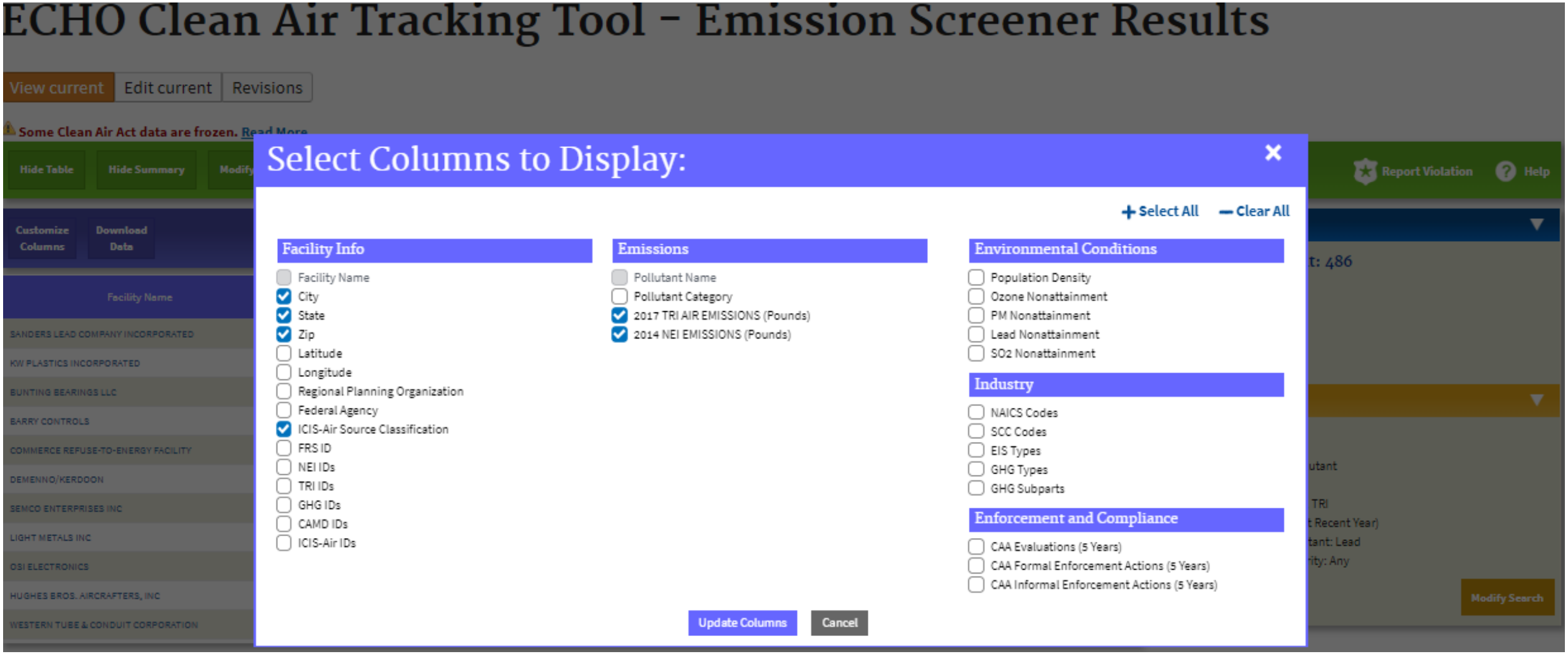
ECHO Clean Air Tracking Tool – Emission Screener Results
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Customize Columns
Download Data
Facility Name
SANDERS LEAD COMPANY INCORPORATED
KW PLASTICS INCORPORATED
BUNTING BEARINGS LLC
BARRY CONTROLS
COMMERCE REFUSE-TO-ENERGY FACILITY
DEMENNO/KERDOON
SEMCO ENTERPRISES INC
LIGHT METALS INC
OSI ELECTRONICS
HUGHES BROS. AIRCRAFTERS, INC
WESTERN TUBE & CONDUIT CORPORATION
Select Columns to Display:
+ Select All
– Clear All
Facility Info
Facility Name
City
State
Zip
Latitude
Longitude
Regional Planning Organization
Federal Agency
ICIS-Air Source Classification
FRS ID
NEI IDs
TRI IDs
GHG IDs
CAMD IDs
ICIS-Air IDs
Emissions
Pollutant Name
Pollutant Category
2017 TRI AIR EMISSIONS (Pounds)
2014 NEI EMISSIONS (Pounds)
Environmental Conditions
Population Density
Ozone Nonattainment
PM Nonattainment
Lead Nonattainment
SO2 Nonattainment
Industry
NAICS Codes
SCC Codes
EIS Types
GHG Types
GHG Subparts
Enforcement and Compliance
CAA Evaluations (5 Years)
CAA Formal Enforcement Actions (5 Years)
CAA Informal Enforcement Actions (5 Years)
Update Columns
Cancel
Modify Search

To view the Air Pollutant Report, select the hyperlink for any facility.

ECHO Clean Air Tracking Tool – Emission Screener Results

View current | Edit current | Revisions

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Hide Table | Hide Summary | Modify Search | Report Violation | Help

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Nonattainment Area Severity: Any

Modify Search

Air Pollutant Report

Facility Summary

SANDERS LEAD COMPANY INCORPORATED
100 SANDERS ROAD, TROY, AL 36079

Facility Information (FRS)

FRS ID: 110056964183
EPA Region: 04
Latitude: 31.788115
Longitude: -85.977613
Locational Data Source: EIS
Industry: Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)
ICIS-Air Source ID: AL0000000110900005
ICIS-Air Facility Status: Operating Major Emissions

Related Reports

Detailed Facility Report

Emission Inventories

- National Emissions Inventory (NEI): 985711
- Greenhouse Gas Reporting Program (GHGRP): 1003508
- Toxics Release Inventory (TRI): 36081SNDRSHENDE
- Clean Air Markets Division (CAMD): No Information

Search for Excess Emission Reports
Search for Spills

Emissions

Please read important information about emissions data sources and reported values

Showing unit(s): Pounds

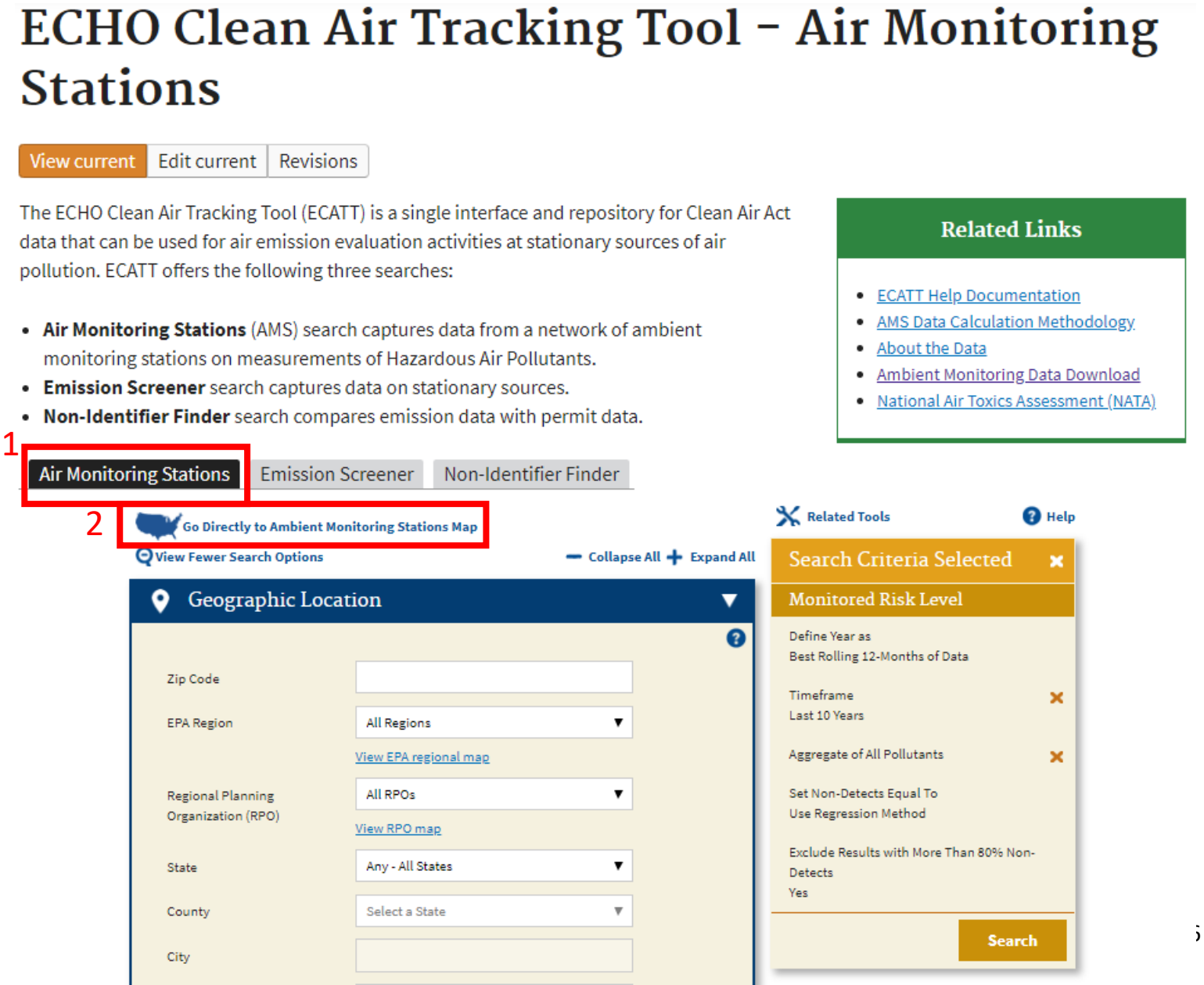
Total Aggregate Emissions Data

Program	Pollutant	Units	Trend	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
GHG	Total GHGs	MTCO2e				182,555.41	205,609.75	215,363.67	216,757.67	211,443.78	202,831.43	232,078.12	221,206.46
NEI	Total HAPs	Pounds		155,854.26			168,822.04			143,958.21			
NEI	Volatile Organic Compounds	Pounds		67,380.00			71,400.00			151,860.00			
TRI	TRI Air Toxics	Pounds		10,211.35	5,136.35	3,207.39	5,331.49	4,354.78	2,102.62	1,986.77	2,051.60	1,162.28	1,141.58
TRI	TRI Criteria Pollutants	Pounds		9,190.00	4,632.00	3,000.00	4,782.00	3,980.00	1,702.00	1,562.60	1,599.81	940.50	922.00
TRI	TRI HAPs	Pounds		789.00	377.00	126.00	468.20	374.40	400.24	423.98	451.60	221.60	219.40
TRI	TRI PBTs	Pounds		9,363.35	4,645.35	3,027.39	4,808.69	4,003.78	1,712.90	1,574.10	1,611.90	952.58	927.98

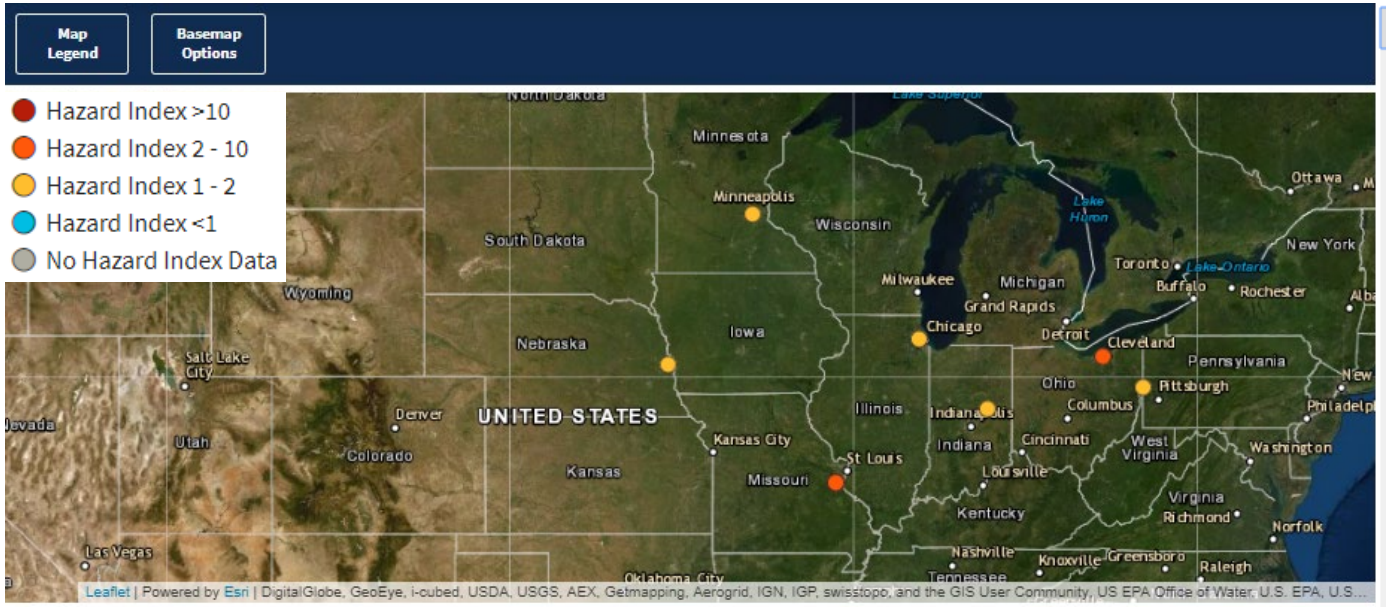
This report shows basic facility info and pollutant release trends.

Air Monitoring Station Search Options

1. Search from search form.
2. Search from interactive map.

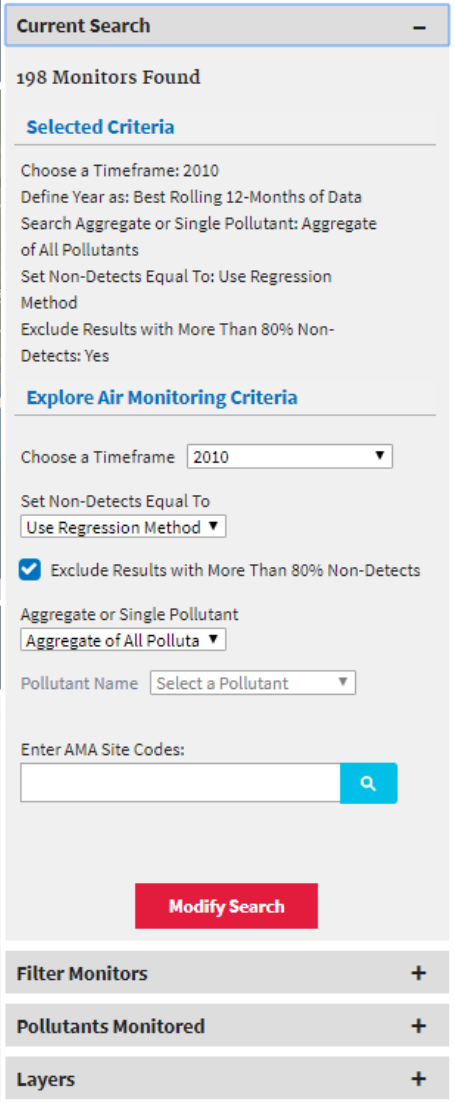


Air Monitoring Station Search Example



Customize Columns | Results Guide

AMA Site Code	Location	Map	State	Location Type	Program	Latitude	Longitude	Avg Cancer Risk from Monitor Measurements	Census Tract	Non Detect Method
170310110	Cook County, IL		IL	Metropolitan Statistical Area	LEAD NAAQS MONITORING,SLAMS	41.85577011	-87.65792847	41	--	ROS
180350009	Delaware County, IN		IN	Metropolitan Statistical Area	LEAD NAAQS MONITORING	40.15841675	-85.4150238	0	--	ROS
191550011	Pottawattamie County, IA		IA	Metropolitan Statistical Area	LEAD NAAQS MONITORING	41.25424957	-95.88725281	0	--	ROS
270370465	Dakota County, MN		MN	Metropolitan Statistical Area	MINNESOTA_AIR_TOXICS	44.83430862	-93.11621857	0	--	ROS
290990004	Jefferson County, MO		MO	Metropolitan Statistical Area	LEAD NAAQS MONITORING	38.26338959	-90.37882996	0	--	ROS



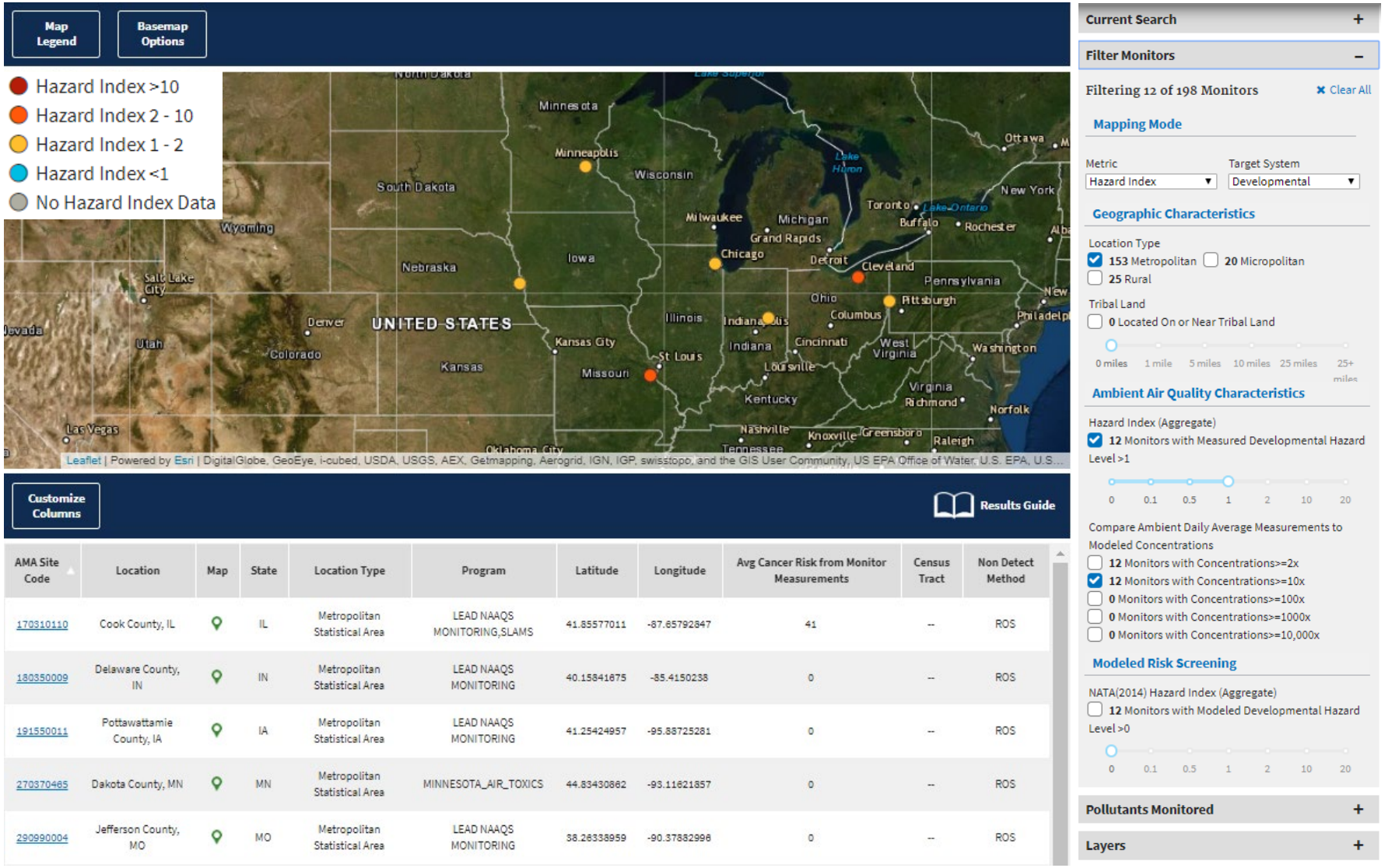
*Note - using 2010 example to show proof of concept but avoid highlighting any potentially ongoing issues.

This is an example of searching from the interactive map using the Go Directly to Ambient Monitoring Stations Map option.

Search Criteria:

- Year = 2010
- Non-Detects = ROS
- Developmental Hazard Index > 1
- Metropolitan area
- Measured readings >2x NATA modeled readings

Air Monitoring Station Search Example



Customize Columns | Results Guide

AMA Site Code	Location	Map	State	Location Type	Program	Latitude	Longitude	Avg Cancer Risk from Monitor Measurements	Census Tract	Non Detect Method
170310110	Cook County, IL		IL	Metropolitan Statistical Area	LEAD NAAQS MONITORING,SLAMS	41.85577011	-87.65792847	41	--	ROS
180350009	Delaware County, IN		IN	Metropolitan Statistical Area	LEAD NAAQS MONITORING	40.15841675	-85.4150238	0	--	ROS
191550011	Pottawattamie County, IA		IA	Metropolitan Statistical Area	LEAD NAAQS MONITORING	41.25424957	-95.88725281	0	--	ROS
270370465	Dakota County, MN		MN	Metropolitan Statistical Area	MINNESOTA_AIR_TOXICS	44.83430862	-93.11621857	0	--	ROS
290990004	Jefferson County, MO		MO	Metropolitan Statistical Area	LEAD NAAQS MONITORING	38.26338959	-90.37882996	0	--	ROS

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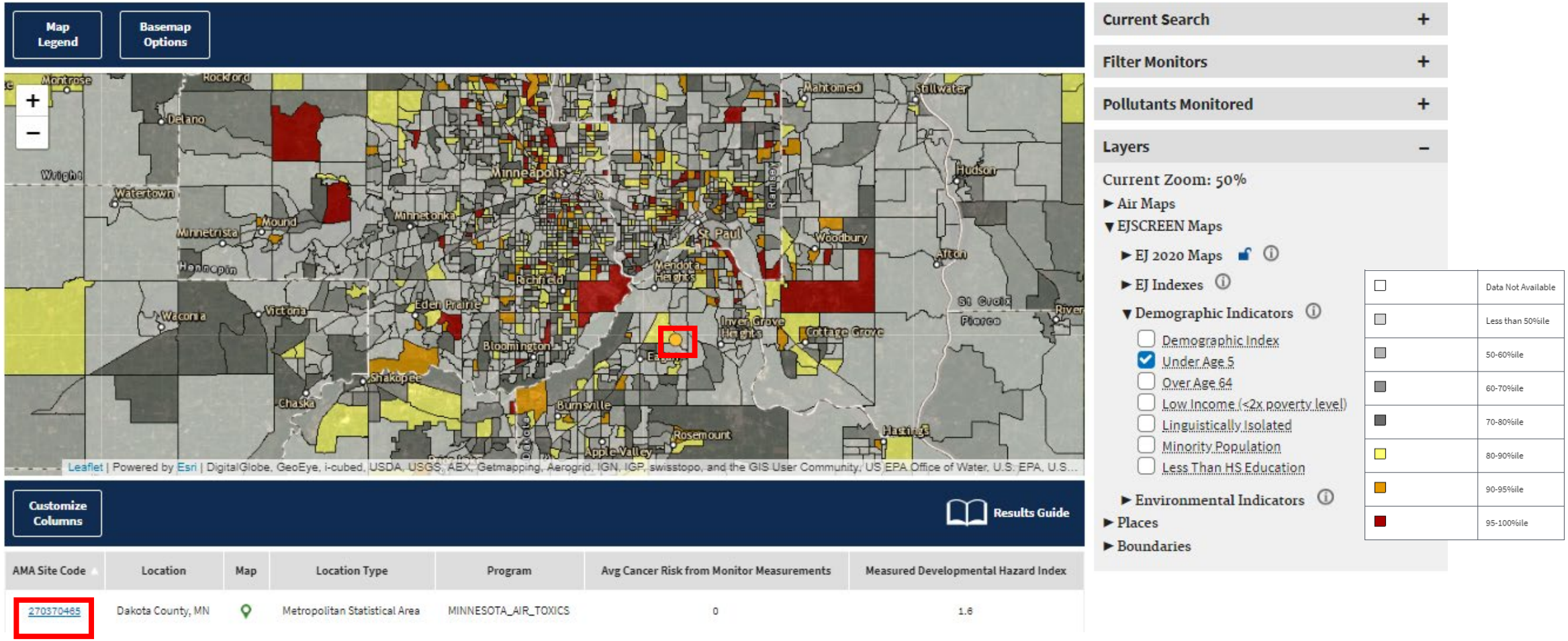
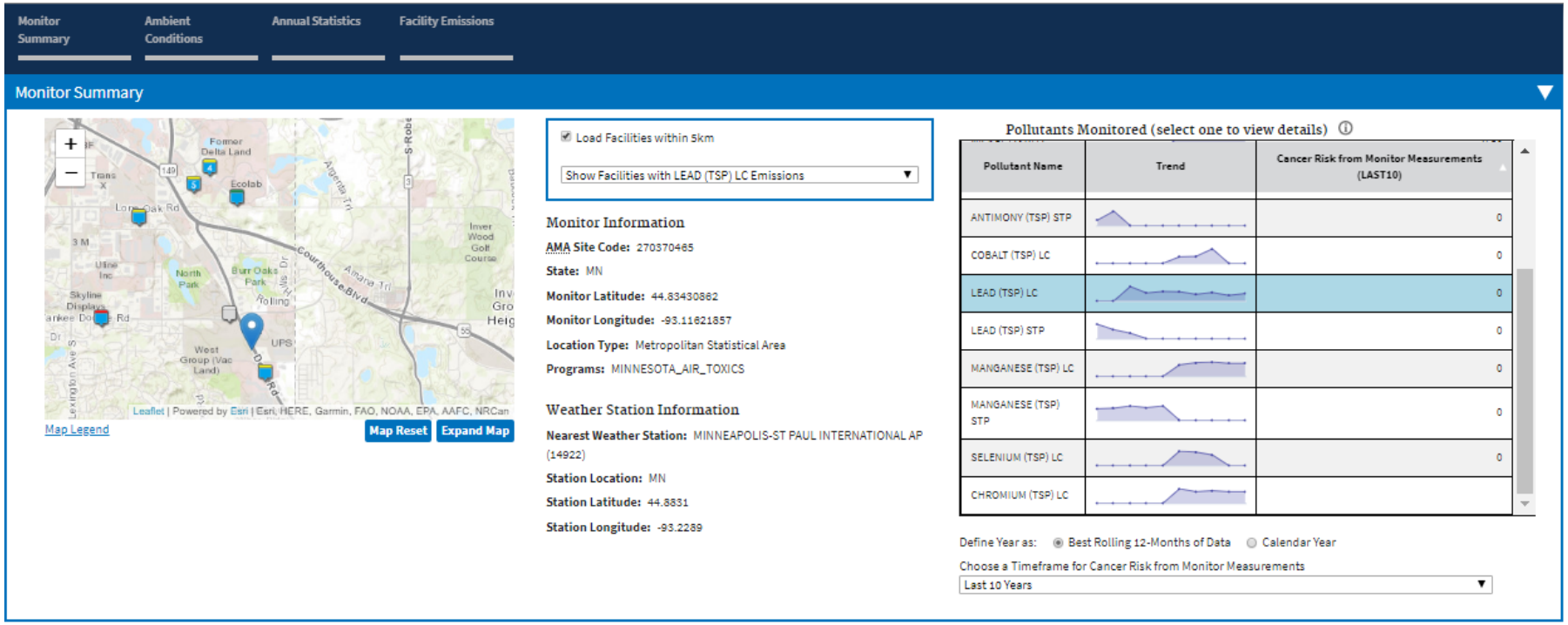
Air Monitoring Station Search Example



Once you select an area and zoom in, you can add different layers for more analysis. In this case, the monitor with high Measured Developmental Hazard Index is also in a census tract with a large percentage of its population under 5. You can select either the monitor itself or the link in the data table to view the Air Monitoring Station Report.

Air Monitoring Station Report Example

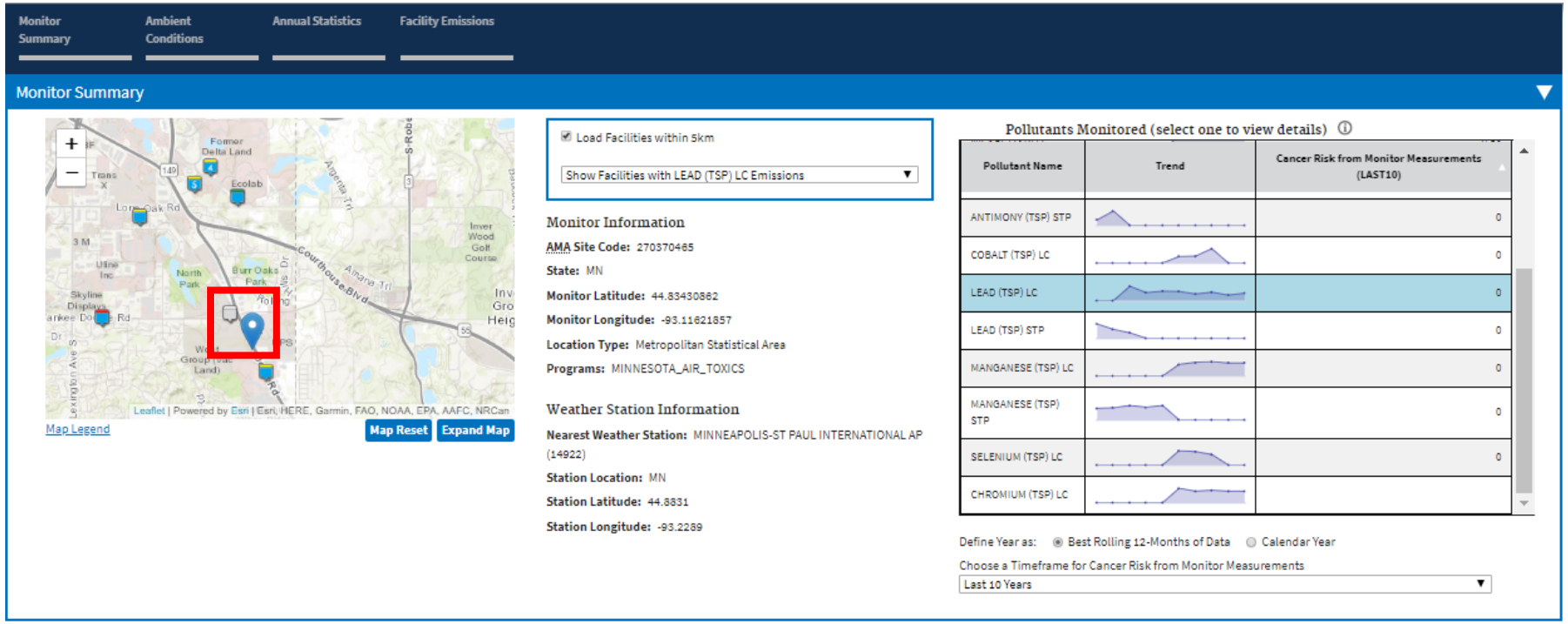


The Monitor Summary shows the location of the monitor and nearby facilities as well as information about the monitor. The monitor is represented by the blue tear drop icon. All other icons are facilities.

The Pollutants Monitored table gives trend lines and cancer risks for all monitored pollutants. Select any pollutant to see more details.

The Ambient Conditions section has a pollution rose and a wind rose. On the pollution rose, each point represents one monitored reading. Its direction in relation to the center represents the cardinal direction of the wind that day, and its distance from the center represents the magnitude of the reading.

Air Monitoring Station Report Example



The pollution rose shows that all of the worst readings come on days when the wind is blowing from the NW.
Note that there is one facility directly to the NW of the monitor.

Air Monitoring Station Report Continued

Annual Statistics

Annual Statistics Summary for LEAD (TSP) LC – (View Trends Plot)

Download Data

Year	Monitoring Program	Number of Daily Measurements Per Year	Average Concentration (µg/m³)	Maximum Concentration (µg/m³)	Median Concentration (µg/m³)	Variance (µg/m³)	Reference Concentration (µg/m³)	2014 NATA Modeled Concentration (µg/m³)	Percent of Daily Measurements over 2014 NATA Modeled Concentration	Selected Timeframe
2010	MINNESOTA_AIR_TOXICS	58	0.13	2.5	0.050	0.11	0.0048	0.0015	100	01-JAN-10 - 31-DEC-10
2011	MINNESOTA_AIR_TOXICS	54	0.072	0.83	0.050	0.014	0.0054	0.0015	100	01-JAN-11 - 31-DEC-11
2012	MINNESOTA_AIR_TOXICS	60	0.086	0.56	0.045	0.010	0.0064	0.0015	100	01-JAN-12 - 31-DEC-12
2013	MINNESOTA_AIR_TOXICS	57	0.083	0.78	0.040	0.015	0.0075	0.0015	100	01-JAN-13 - 31-DEC-13
2014	MINNESOTA_AIR_TOXICS	61	0.060	0.71	0.029	0.010	0.0075	0.0015	100	01-JAN-14 - 31-DEC-14
2015	MINNESOTA_AIR_TOXICS	60	0.076	1.2	0.028	0.026	0.0075	0.0015	100	01-JAN-15 - 31-DEC-15
2016	MINNESOTA_AIR_TOXICS	61	0.050	0.41	0.016	0.0054	0.0075	0.0015	100	01-JAN-16 - 31-DEC-16
2017	MINNESOTA_AIR_TOXICS	58	0.067	0.59	0.035	0.0078	0.0075	0.0015	100	01-JAN-17 - 31-DEC-17

Facility Emissions

Facility Name	Reports	Pollutant Name	2017 TRI Emissions (lb/yr)	2014 NEI Emissions (lb/yr)
GOPHER RESOURCE CORPORATION	C A	Lead compounds	213 pounds	0 pounds
GREAT LAKES COCA-COLA DISTRIBUTION LLC	C A	Lead	0 pounds	0.070 pounds
THOMSON LEGAL & REGULATORY EAGAN MFG	C A	Lead	0 pounds	0.032 pounds
ECOLAB - ALLEN L SCHUMAN CAMPUS	C A	Lead	0 pounds	0.019 pounds
ECOLAB - ENGINEERING CENTER	C A	Lead	0 pounds	0.012 pounds
3M MENDOTA HEIGHTS - BLDG 60	C A	Lead	0 pounds	0.010 pounds
DELTA AIR LINES INC - BLDG J	C A	Lead	0 pounds	0.0056 pounds
US POSTAL SERVICE MANAGEMENT SUPPORT SERVICE CTR	C A	Lead	0 pounds	0.0041 pounds
SKYLINE DISPLAYS, LLC - EAGAN FACILITY	C A	Lead	0 pounds	0.0034 pounds

Note that 100 percent of daily lead measurements are over the NATA Modeled Concentration and that the highest lead emitter within 5km is the same facility highlighted in the previous slide.