



2024 PM_{2.5} Initial Area Designations Informational Overview

EPA's Office of Air Quality Planning and Standards
December 2024

Outline

- Background
- Initial Area Designations Resources for Air Agencies
- PM_{2.5} Designations Memorandum
- Tribal Area Designations
- Anticipated Schedule
- PM_{2.5} Designations Mapping Tool
- Non-regulatory Docket

Background

PM2.5 NAAQS: Overview of the Final Rule

- On February 7, 2024, EPA strengthened the National Ambient Air Quality Standards for Particulate Matter (PM NAAQS) to protect millions of Americans from harmful and costly health impacts, such as heart attacks and premature death.
- Particle or soot pollution is one of the most dangerous forms of air pollution, and an extensive body of science links it to a range of serious and sometimes deadly illnesses.
- After taking into consideration the available scientific evidence, advice from the Clean Air Scientific Advisory Committee (CASAC), and nearly 700,000 public comments, EPA is strengthening the annual health-based standard for fine particles to 9.0 micrograms per cubic meter.
- On-the-books regulations and available control measures can reduce particle pollution, leading to large net public health net benefits of as much as \$46 billion (in 2032).
- Implementing national standards for clean air is a federal, state, and tribal partnership. EPA has worked successfully with states and Tribes to implement past rules strengthening the NAAQS and will continue to do our part to assist with implementation of the stronger standard for particle pollution.

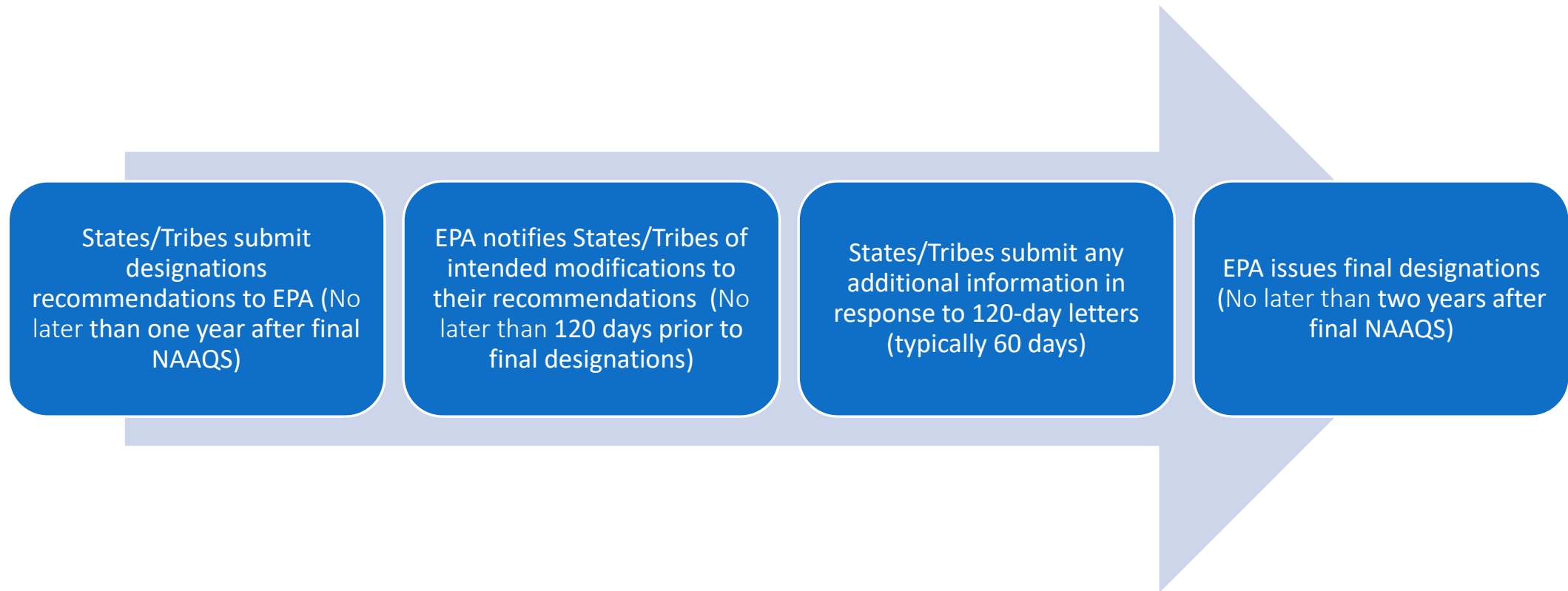
PM2.5 NAAQS : Implementation Timeline

- Section 107(d) of the Clean Air Act directs EPA and states to take the following actions to deliver public health benefits following promulgation of a new/ revised PM2.5 NAAQS:
 - **Stationary source permitting**, including Prevention of Significant Deterioration and Nonattainment New Source Review
 - **Within 2 years after a final NAAQS**: For areas with available information, EPA must "designate" areas as meeting (attainment areas) or not meeting (nonattainment areas) the final NAAQS considering the most recent air quality monitoring data and input from states and tribes. All PM2.5 nonattainment areas are initially designated as "Moderate."
 - **Within 3 years after a final NAAQS**: Clean Air Act section 110 requires all states to submit state implementation plan revisions to show they have the basic air quality management program components in place to implement the final NAAQS.
 - **Within 18 months after the effective date of designations**: Nonattainment area PM2.5 state implementation plans are due.
 - **End of the 6th calendar year after the effective date of designations**: "Moderate" area attainment date.

Designations Categories

- CAA Categories:
 - Nonattainment Area - An area that does not meet or that contributes to a nearby area that does not meet the NAAQS
 - For PM_{2.5}, the CAA provides that all initial areas are classified as “moderate.”
 - Attainment Area – An area that is meeting the NAAQS and is not contributing to a nearby area that does not meet the NAAQS
 - For initial area designations, the EPA uses “Attainment/Unclassifiable” for this category.
 - Unclassifiable Area – An area that cannot be designated based on available information as meeting or not meeting the NAAQS

Key Steps in the Designations Process



Anticipated Schedule

Anticipated PM_{2.5} Designations Schedule

Designations Action	Anticipated Date
EPA promulgates 2024 Revised Primary Annual Fine Particle NAAQS final rule	February 7, 2024
States certify 2023 PM _{2.5} data; EPA calculates design values	August 2024
States and Tribes submit their designations recommendations to EPA	No later than February 7, 2025
States certify 2024 PM _{2.5} data; EPA calculates design values	May 2025
EPA notifies states and Tribes concerning any intended modifications to their recommendations (120-day letters); 30- day public comment period begins	Mid-October 2025 (120 days prior to final designations)
End of 30-day public comment period	Mid-November 2025
States and Tribes submit additional information, if any, to respond to the EPA's modification of recommended designations	Mid-December 2025
Final designations decisions (without extension)	February 6, 2026

Designations Resources for Air Agencies

Key Designations Resources

Website: <https://www.epa.gov/particle-pollution-designations>

PM_{2.5} Designations Memorandum

PM_{2.5} Designations Mapping Tool

Relevant Datasets

Tribal Policy and Guidance

Additional Resources

Exceptional Events Website

<https://www.epa.gov/air-quality-analysis/treatment-air-quality-monitoring-data-influenced-exceptional-events>

AirKnowledge Designations Learning Module: PLAN201-SI

<https://airknowledge.gov/SI/PLAN201-SI.html>

Learning Management System: <https://epaapti.csod.com/ui/lms-learning-details/app/curriculum/33951135-f937-4181-8737-03c55ca454d2>

PM_{2.5} Initial Area Designations Memorandum

Identifying Nonattainment Areas and Boundary Determinations

- CAA directs the EPA to designate as nonattainment an area that is violating the NAAQS and nearby areas with emissions that contribute to the violation(s)
 - The analytical starting point for the 2024 PM_{2.5} designations is the entire metropolitan area where the violating monitor is located (Core Based Statistical Area and Combined Statistical Area)
- The EPA will consider the 3 most recent years of certified air quality monitoring data
 - States and Tribes will likely use 2021-2023 data for developing recommendations to EPA
 - States/Tribes are not required to develop complete exceptional events demonstrations for their recommendations but should address any data they believe were affected by exceptional events.
 - EPA will likely use 2022-2024 data for making final designations

Identifying Nonattainment Areas and Boundary Determinations

- Boundaries for each nonattainment area will be evaluated on a case-by-case basis. The EPA strives for national consistency in decisions.
 - Boundaries are determined by a weight of evidence approach based on consideration of five factors (air quality data, emissions and emissions-related data, meteorology, geography/topography, and jurisdictional boundaries)
- States and tribes are encouraged to consider federal lands and federal land boundaries in making recommendations. EPA will also evaluate the five factors as applied to federal lands.

Data Considerations

- The EPA will use the draft 2022 emissions modeling platform inventory (2022v1 draft EMP) for the initial mapping tool and that dataset has been posted on the website.
- Violations are identified using data from FRM and FEM monitors that are sited and operated in accordance with 40 CFR Part 58.

Five Factor Analysis

- For nonattainment areas, EPA recommends air agencies base boundary recommendations on an evaluation of 5 factors. These factors are included in the mapping tool:
 - Air quality data-design values, urban increment
 - Emissions and emissions-related data: 2022 emissions modeling platform, county and gridded emissions for all PM components
 - Meteorology - HYSPLIT
 - Geography/topography
 - Jurisdictional boundaries
- 2012 PM_{2.5} NAAQS Designations:
 - *<https://www.epa.gov/particle-pollution-designations/particle-pollution-designations-guidance-and-data>*

Exceptional Events

- Initial area designations are an action of regulatory significance described in the EPA's "Treatment of Data Influenced by Exceptional Events" Final Rule (81 FR 68216; October 3, 2016), in accordance with the delegation of authority under CAA section 319(b)(2).
- Air quality monitoring data affected by exceptional events may be excluded from use in area designations if the data meet the criteria for exclusion, as specified in CAA section 319(b) and the Exceptional Events Rule.
- The EPA is committed to ensuring a timely and efficient process for evaluating and making exceptional events determinations.
 - Tools and resources to assist air agencies developing PM-related exceptional events demonstrations and best practice materials can be found at the EPA's exceptional events website located at: <https://www.epa.gov/air-quality-analysis/exceptional-events-analysis-and-visualization-tools>.

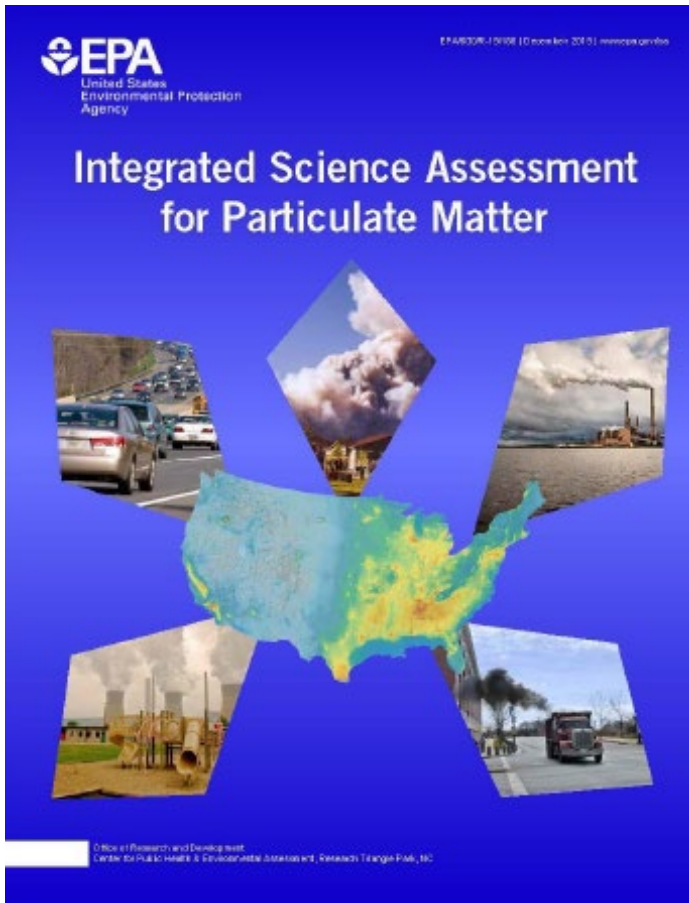
Anticipated Exceptional Events Schedule

Exceptional Events Action	Applicable Data Years*	Anticipated Date
Initial Notifications for Designations Recommendations	2021, 2022, 2023	No later than January 1, 2025
Exceptional Events Demonstration Submittal	2021, 2022, 2023	No later than February 7, 2025
Initial Notification and Exceptional Events Demonstration Submittal	2024	September 30, 2025
EPA Promulgates Final Area Designations	2022, 2023, 2024	February 6, 2026

*States and Tribes are not required to submit completed exceptional events demonstrations for data years that will not be relied upon for final area designations (e.g., data year 2021), but should address any data they believe was influenced by an exceptional event in their area designations recommendations to the EPA.

Considerations for Communities with Environmental Justice Concerns

Why is PM a Public Health Concern?



- Fine particles (PM_{2.5}) are of greatest health concern
 - PM_{2.5} can enter the respiratory tract and make its way into the lower parts of the lungs
 - Some particles can move out of the respiratory system and affect other organ systems
- EPA's 2019 Integrated Science Assessment (ISA) and ISA Supplement links exposure to PM_{2.5} to adverse health effects, including:
 - Premature death
 - Cardiovascular effects like irregular heartbeat and heart attacks
 - Respiratory effects like aggravated asthma, decreased lung function, coughing, and difficulty breathing
 - Cancer
 - Nervous system effects
- At-risk populations include children, older adults, people with pre-existing respiratory or cardiovascular disease, minority populations, and low socioeconomic status populations

<https://www.epa.gov/isa/integrated-science-assessment-isa-particulate-matter>

Health Benefits of the Stronger PM_{2.5} Standard

- EPA estimates health benefits of strengthening the primary (health-based) annual standard for fine particles to 9.0 micrograms per cubic meter could be as high as \$46 billion in 2032
- In 2032 alone, the health benefits include avoiding:
 - Up to 4,500 premature deaths
 - 2,000 emergency room visits
 - 5,700 cases of asthma onset
 - 800,000 cases of asthma symptoms
 - 290,000 lost workdays
 - 1,000 hospital admissions for Alzheimer's/Parkinson's diseases
 - 300 incidences of stroke/lung cancer
 - 38,000 hay fever symptoms

Considerations for Communities with Environmental Justice Concerns

- EPA's strategy for addressing EJ in the PM Designations process includes:
 - Issuing timely area designations
 - Incorporating a CEJST- and EJSCREEN-based service layer in the PM Designations Mapping Tool. The Mapping Tool is currently linked to the EPA's PM Designations web page.
 - Conducting outreach to interested parties
 - Non-regulatory docket
 - EPA's [Meaningful Engagement Policy](#) – August 2024

Tribal Area Designations

Tribal Designations

- CAA section 301(d) and the December 2011 guidance titled, “Policy for Establishing Separate Air Quality Designations for Areas of Indian Country,” outline the Tribal designations recommendations process.
 - Tribes may recommend that the EPA designate areas of Indian country separately from the adjacent state areas.
- EPA intends to designate Tribal areas on the same schedule as state designations.
 - Recommendations from Tribes should be submitted to the EPA no later than **February 7, 2025**.
 - Guidance provides a nationally consistent approach for evaluating these recommendations from Tribes.
 - Policy designed to recognize Tribal sovereignty in air quality management matters affecting Indian country.

Designations Resources for Areas of Indian Country

- To ensure national consistency and recognize Tribal sovereignty in the designations process, the EPA has issued three documents:
 - [Guidance to Regions Working with Tribes During the National Ambient Air Quality Standards \(NAAQS\) Designation Process.](#)
 - [Policy for Establishing Separate Air Quality Designations for Areas of Indian Country](#)
 - [Developing Designation Recommendations for Areas of Indian Country](#)
 - These resources can be found on EPA's [Particle Pollution Designations](#) web page.

PM_{2.5} Designations Mapping Tool

PM_{2.5} Designations Mapping Tool

- The PM_{2.5} mapping tool gives air agencies and Tribes access to air quality data, emissions data, and jurisdictional boundaries to assist in designations for the 2024 revised annual fine particle NAAQS
- Visualize data and group similar datasets using the five-factor analysis
- Tool will be updated throughout the designations process as newer datasets become available (i.e., Design Values, HYSPLIT, NEI, etc)

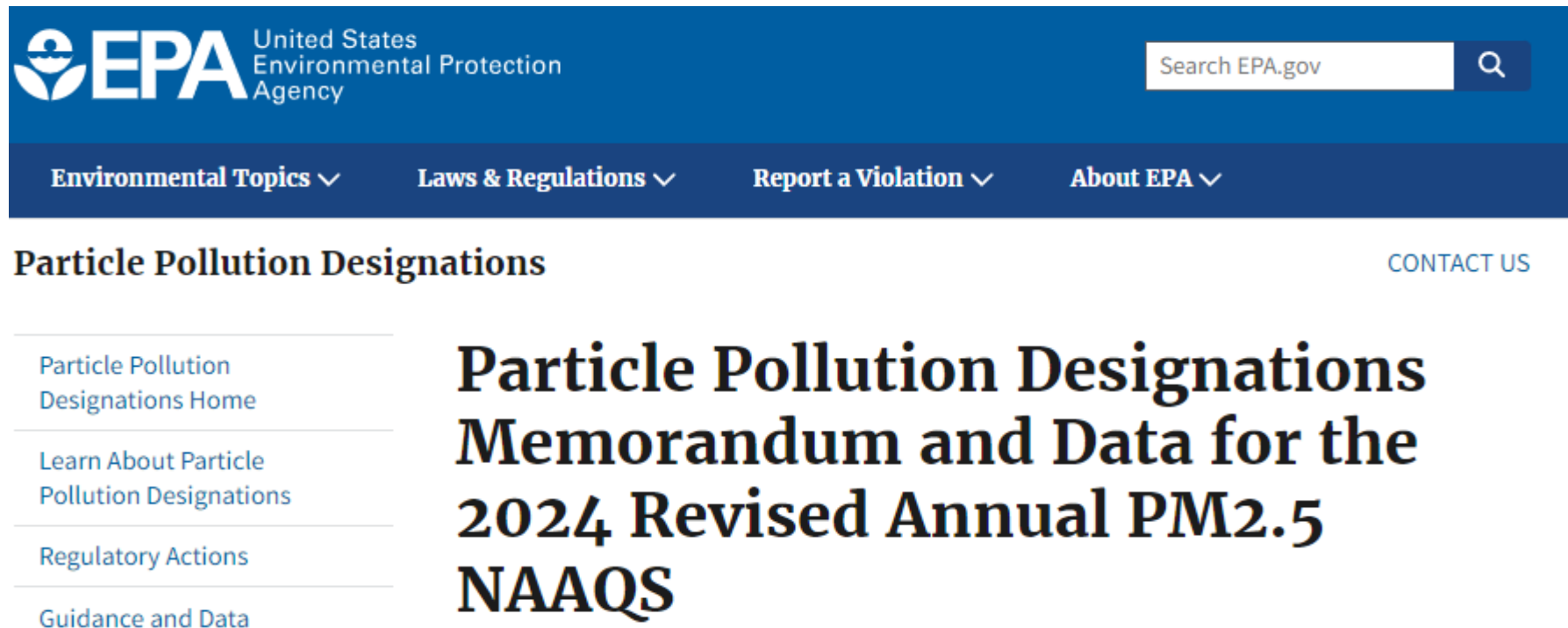
PM_{2.5} Designations Mapping Tool

- New data layers added for communication and outreach
 - CEJST Disadvantaged Communities mapped data included
 - Additional datasets provided by Office of Mission Support depicting information for federally recognized Tribes
 - To be used for consultation and outreach purposes

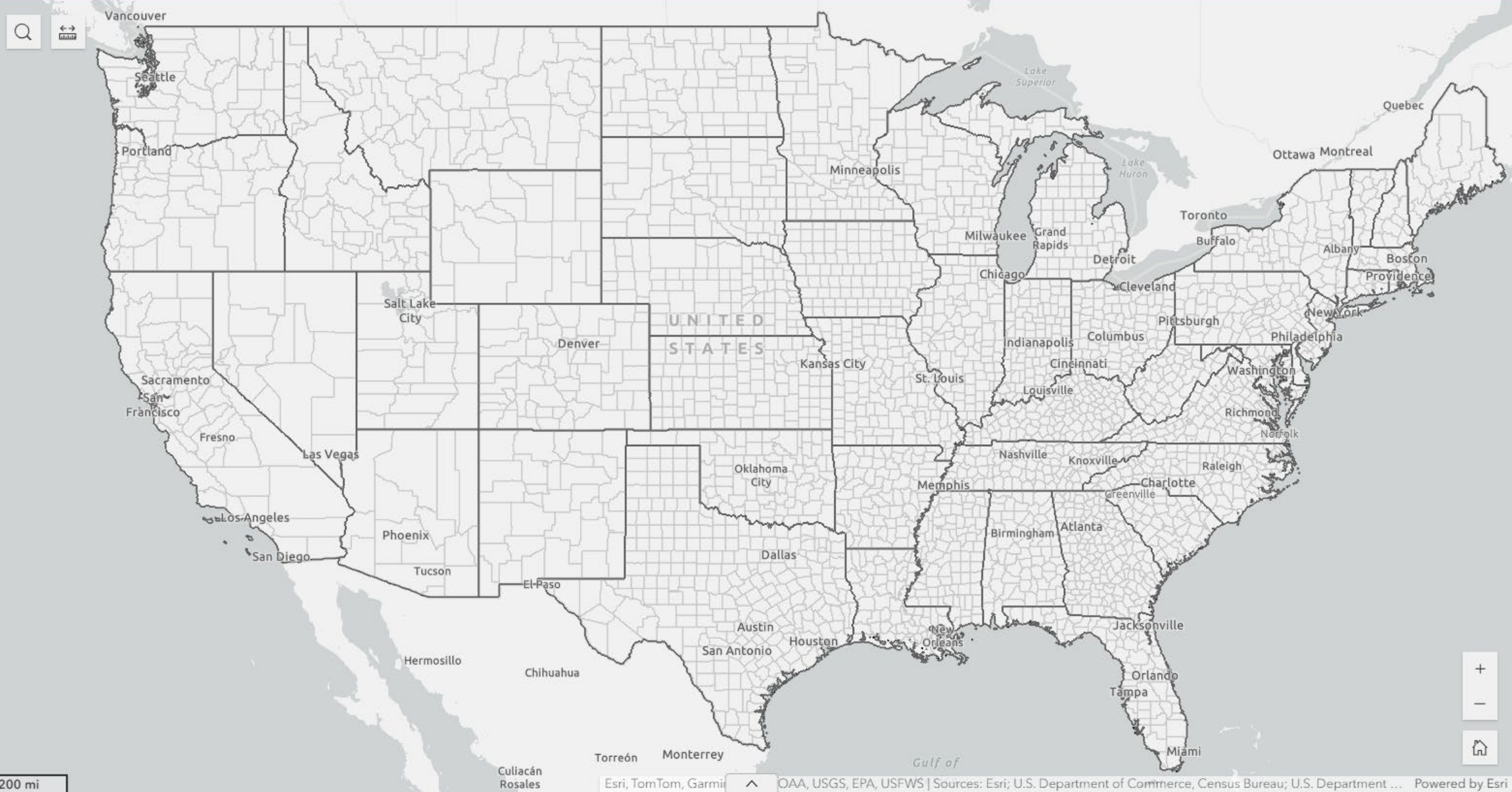
PM_{2.5} Designations Mapping Tool Demonstration

PM_{2.5} Designations Mapping Tool

- URL: <https://experience.arcgis.com/experience/a2ca272ce9fc4019a88ce35b863e2cab>
- Access the Designations Mapping Tool on the **Particle Pollution Designations Memorandum and Data for the 2024 Revised Annual PM_{2.5} NAAQS**. (Item C on the web page.)



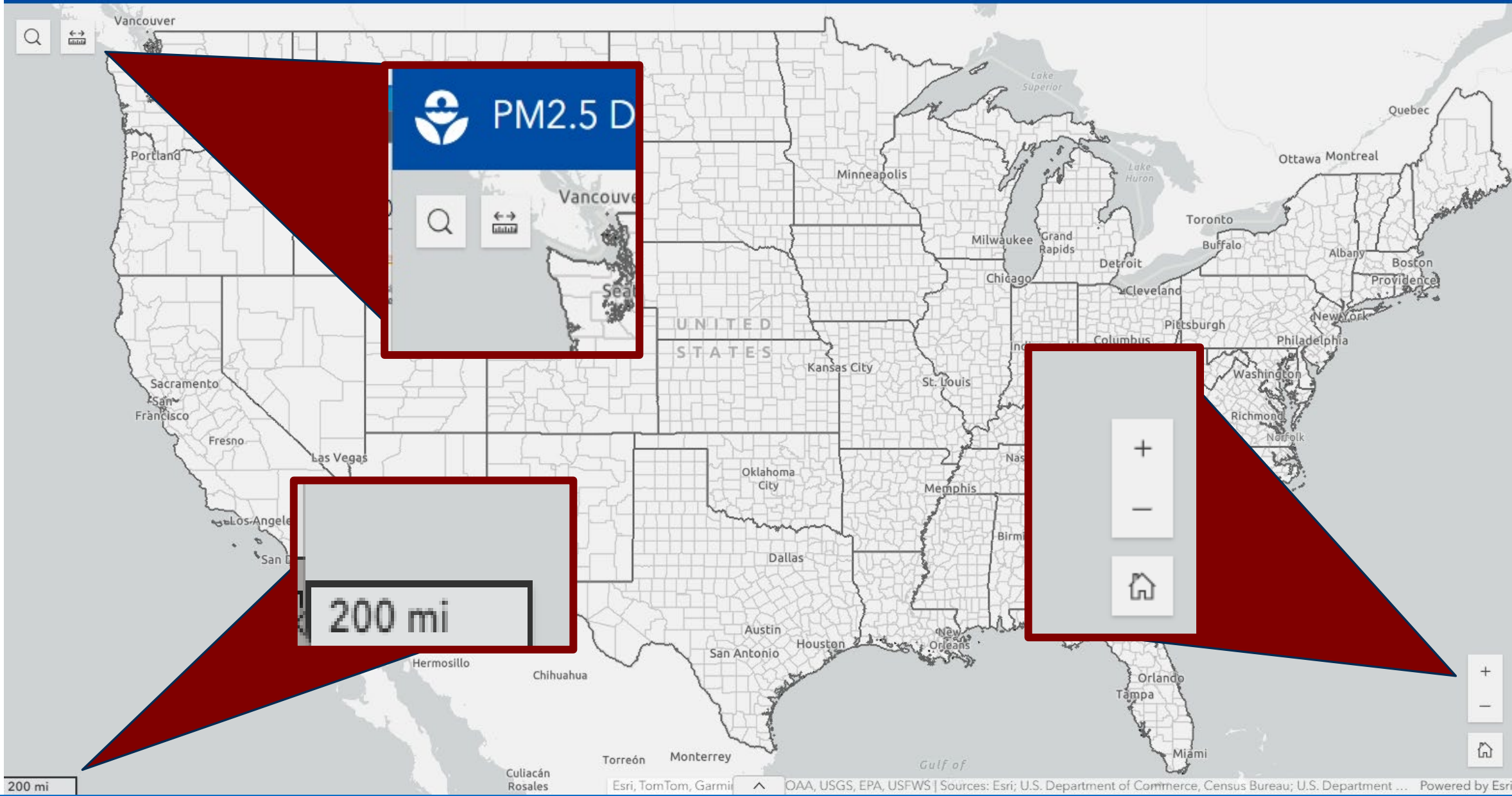
The screenshot shows the EPA website header with the logo and search bar. Below the header is a navigation bar with links for Environmental Topics, Laws & Regulations, Report a Violation, and About EPA. The main content area features the title "Particle Pollution Designations" and a "CONTACT US" link. A sidebar on the left contains links for "Particle Pollution Designations Home", "Learn About Particle Pollution Designations", "Regulatory Actions", and "Guidance and Data". The main heading reads "Particle Pollution Designations Memorandum and Data for the 2024 Revised Annual PM_{2.5} NAAQS".



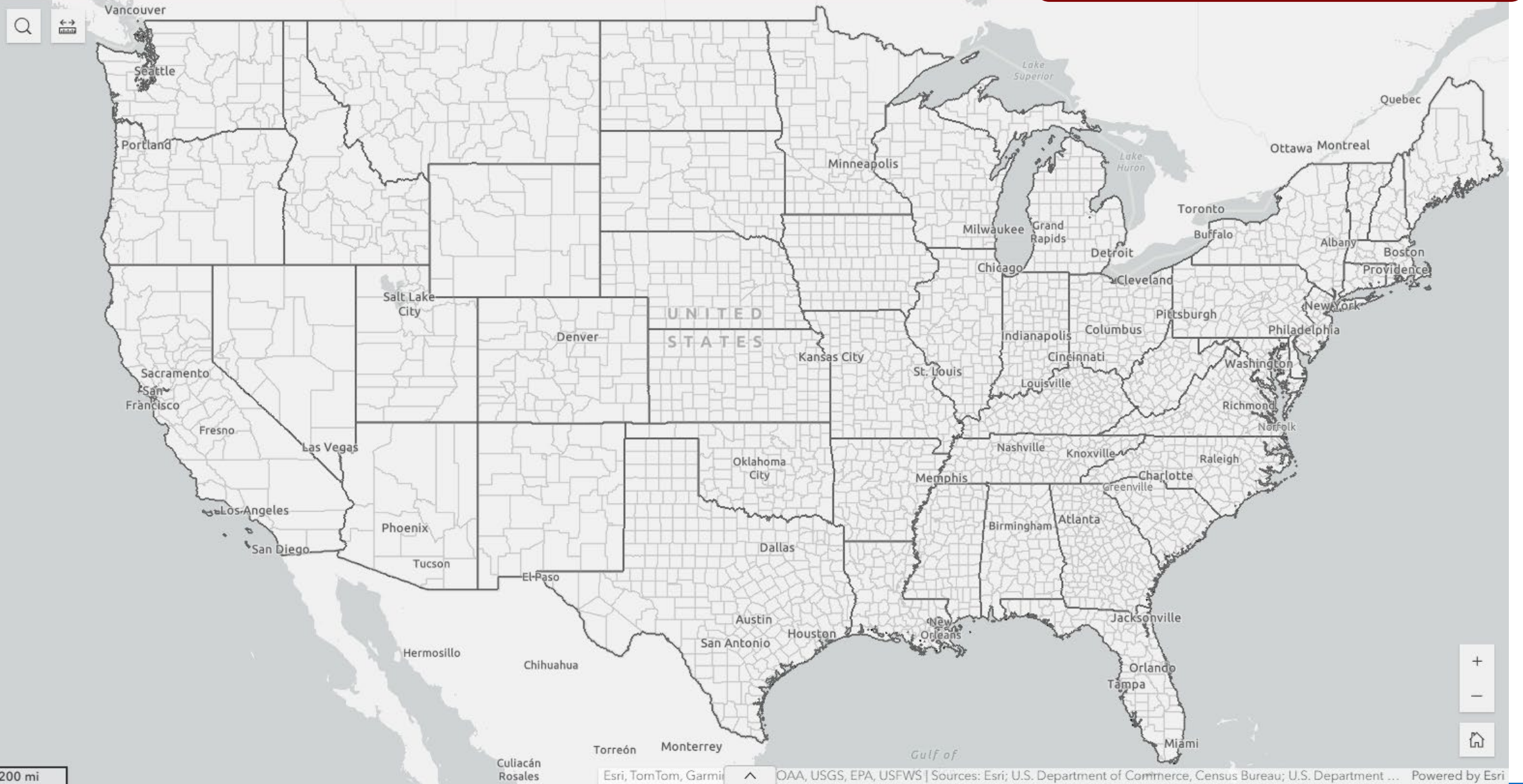
200 mi

Culiacán Rosales

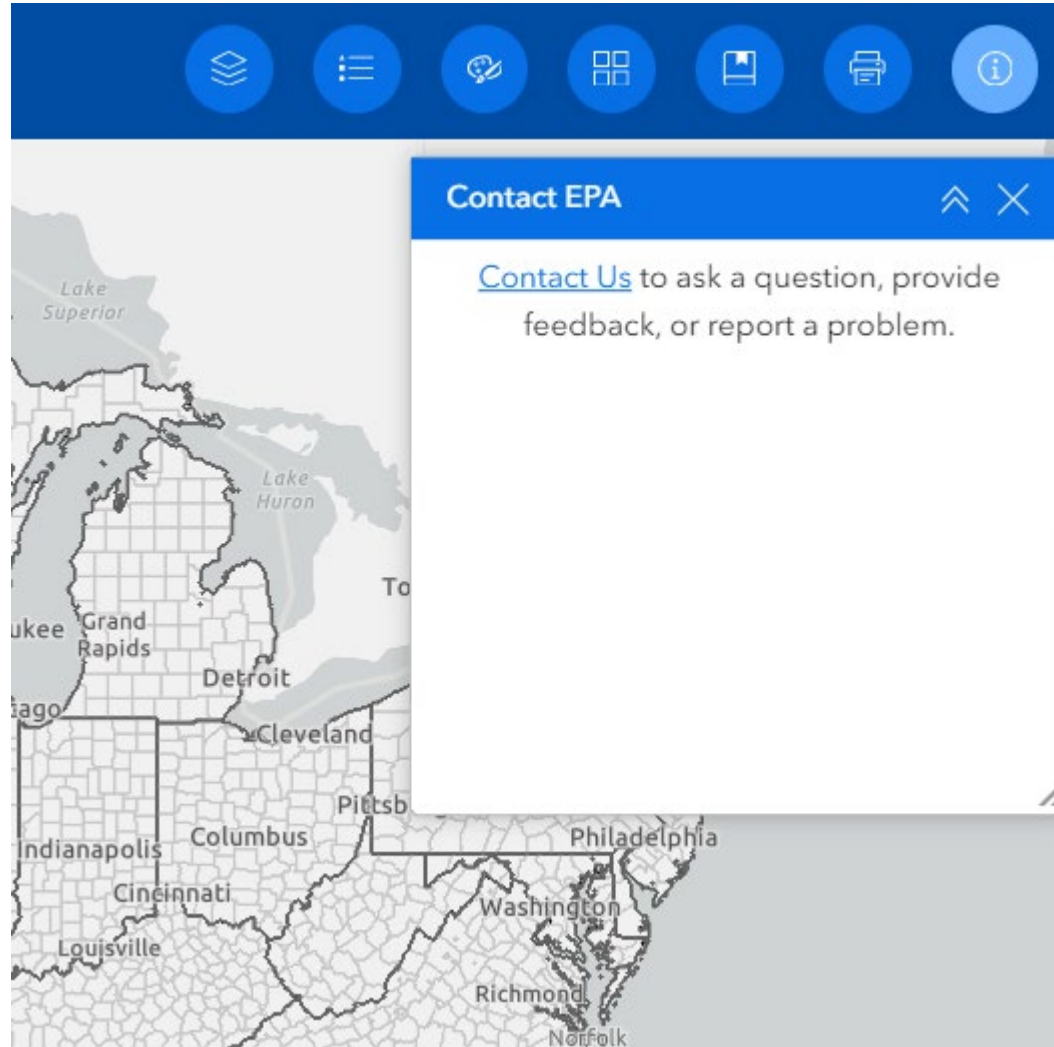
Torreón Monterrey



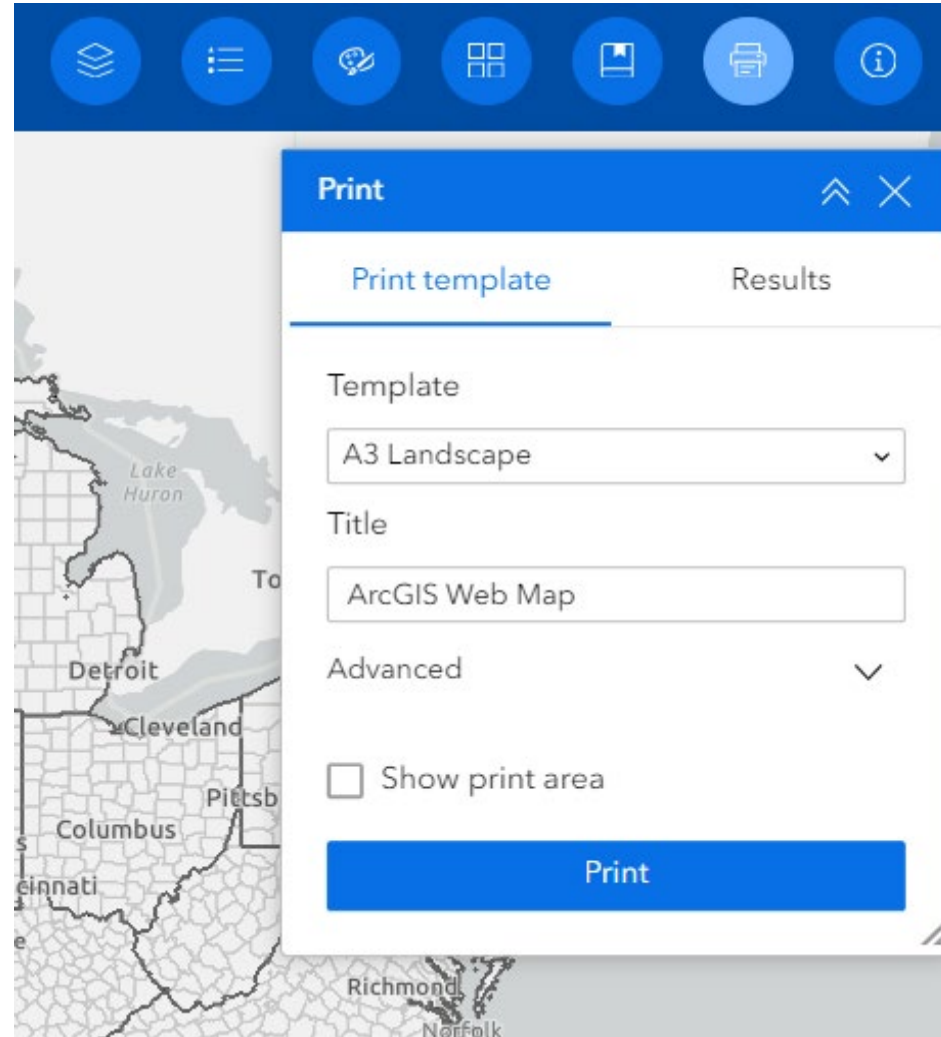
200 mi



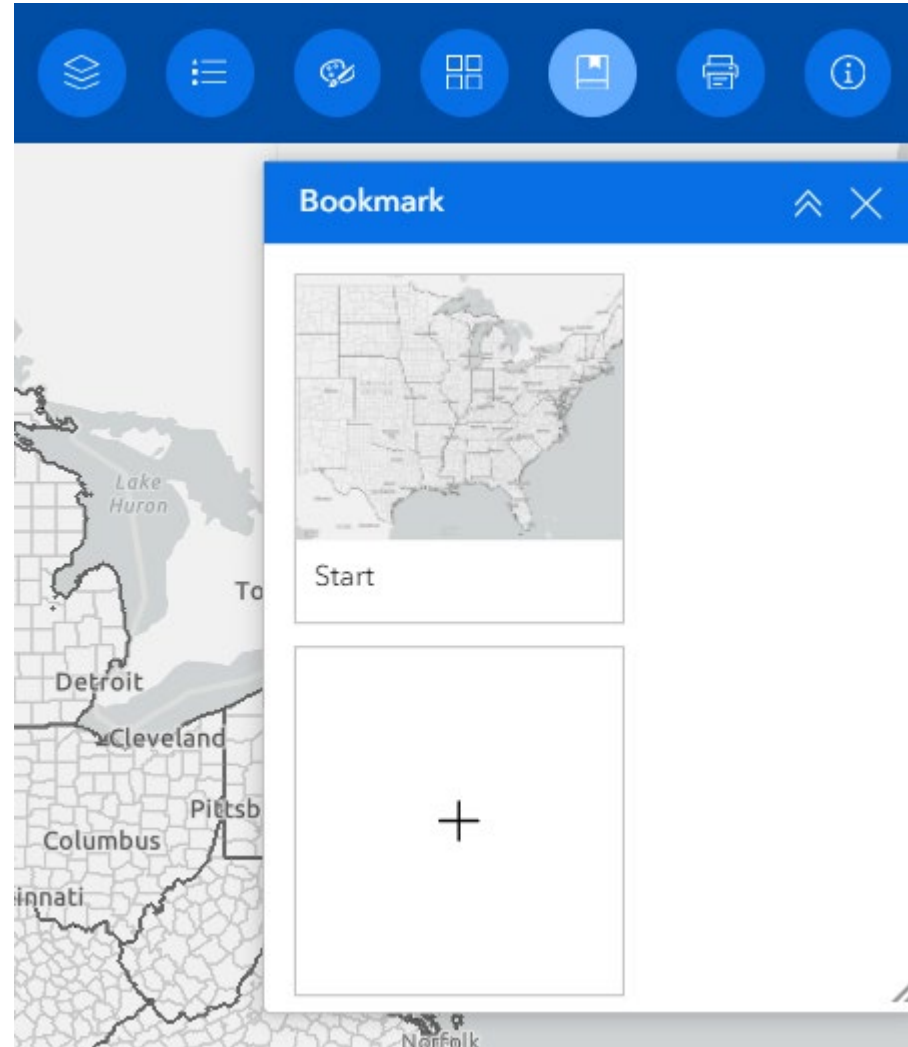
Tool Bar: Info Button



Tool Bar: Print Button



Tool Bar: Bookmark Button



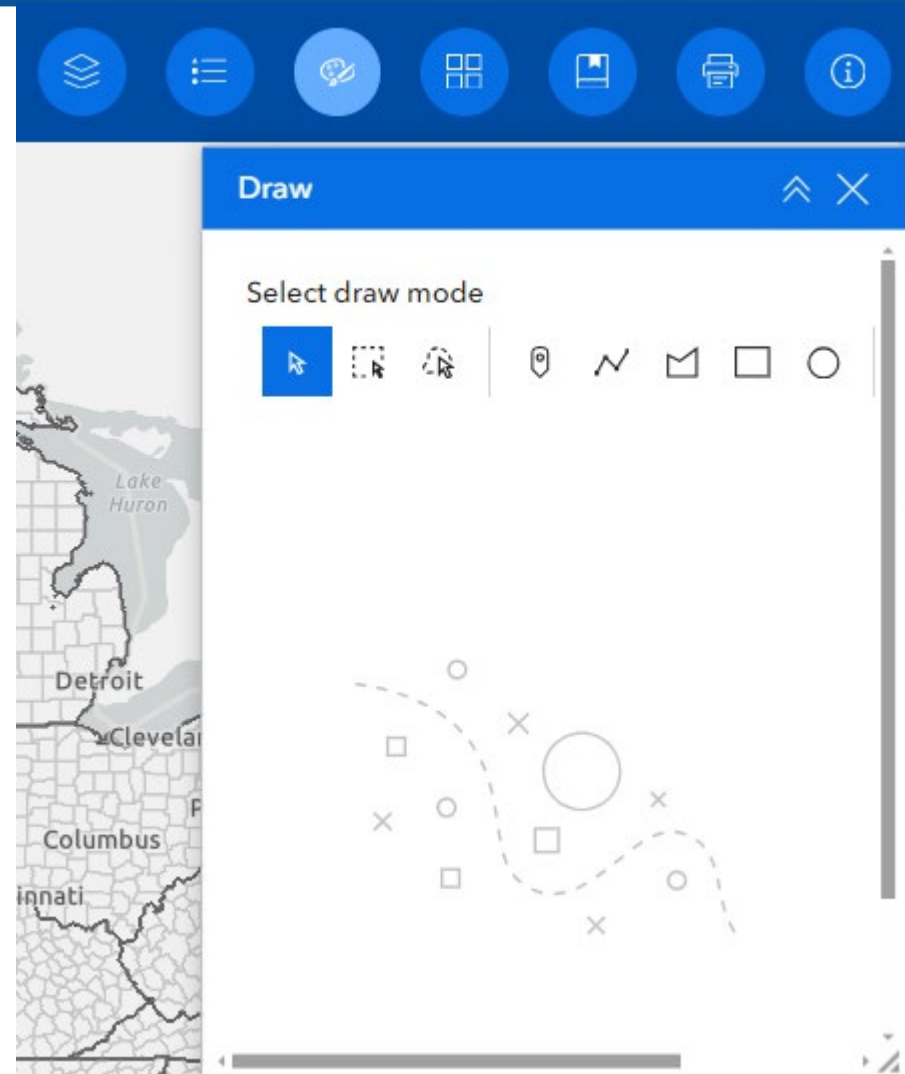
Tool Bar: Basemap Gallery Button

The screenshot displays the 'PM2.5 Designations Mapping Tool' interface. At the top, a blue header bar contains the tool's name and a series of icons for navigation and settings. The main area is a map of the United States with state boundaries and major cities labeled. A 'Basemap Gallery' panel is open on the right side, showing a list of map styles: Light Gray Canvas, Imagery, Imagery with Labels, Imagery Hybrid, Bing Maps Aerial, Bing Maps Hybrid, and Dark Gray Canvas. The 'Light Gray Canvas' style is currently selected. The map shows a grid of PM2.5 designations over the United States. A search bar is visible in the top left corner, and a scale bar (200 mi) is in the bottom left. The footer contains attribution text: 'Esri, TomTom, Garmin | OAA, USGS, EPA, USFWS | Sources: Esri; U.S. Department of Commerce, Census Bureau; U.S. Department ... Powered by Esri'.

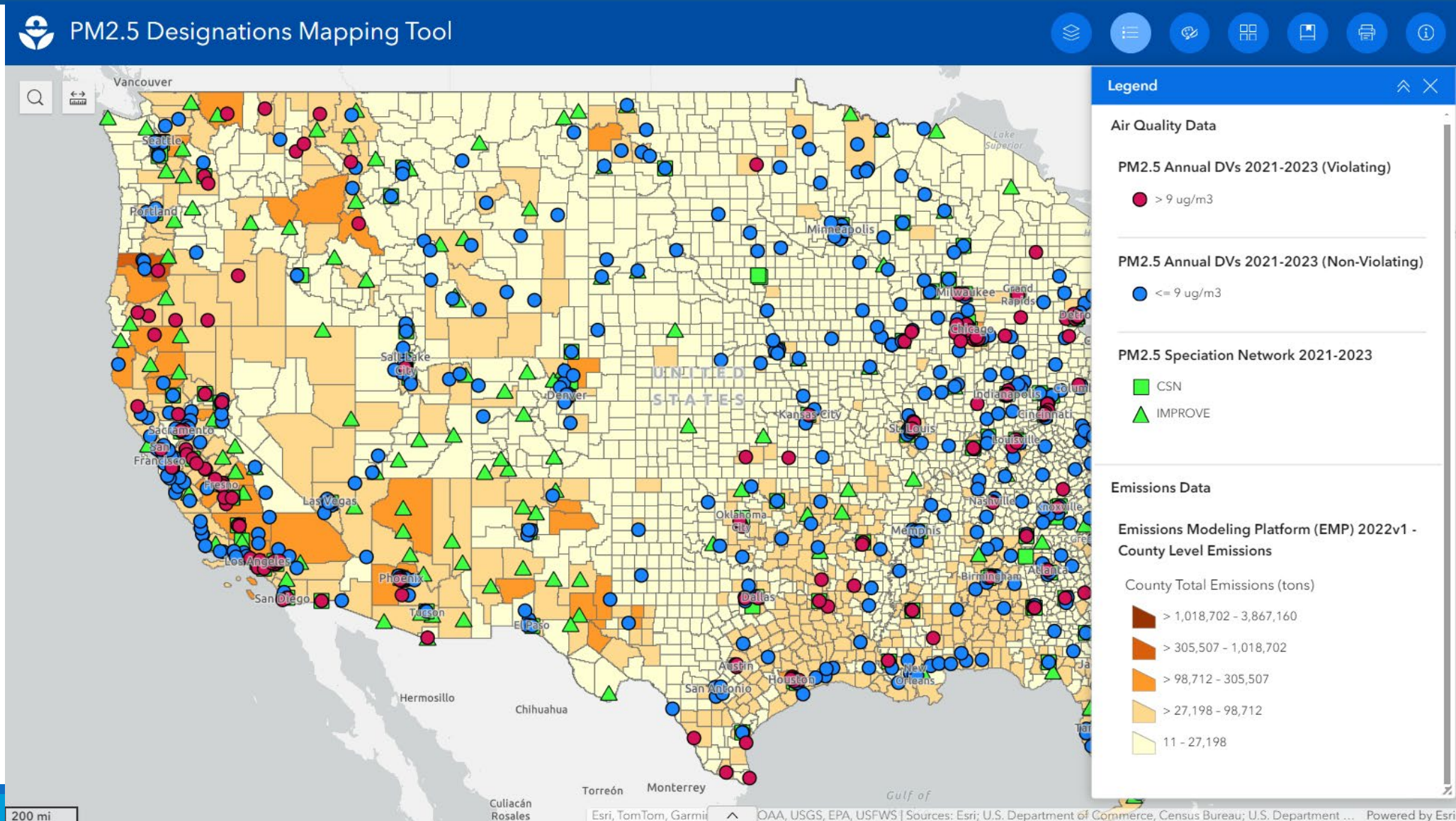
Tool Bar: Basemap Gallery Button

The screenshot displays the 'PM2.5 Designations Mapping Tool' interface. At the top, a blue header bar contains the tool's name and a series of navigation icons. The main map area shows a satellite-style view of the United States with a grid overlay. A 'Basemap Gallery' panel is open on the right side, listing several map styles: 'Light Gray Canvas', 'Imagery', 'Imagery with Labels' (which is currently selected and highlighted), 'Imagery Hybrid', 'Bing Maps Aerial', 'Bing Maps Hybrid', and 'Dark Gray Canvas'. The bottom of the interface includes a scale bar (200 miles), a copyright notice for Earthstar Geographics, and a note that the tool is powered by Esri.

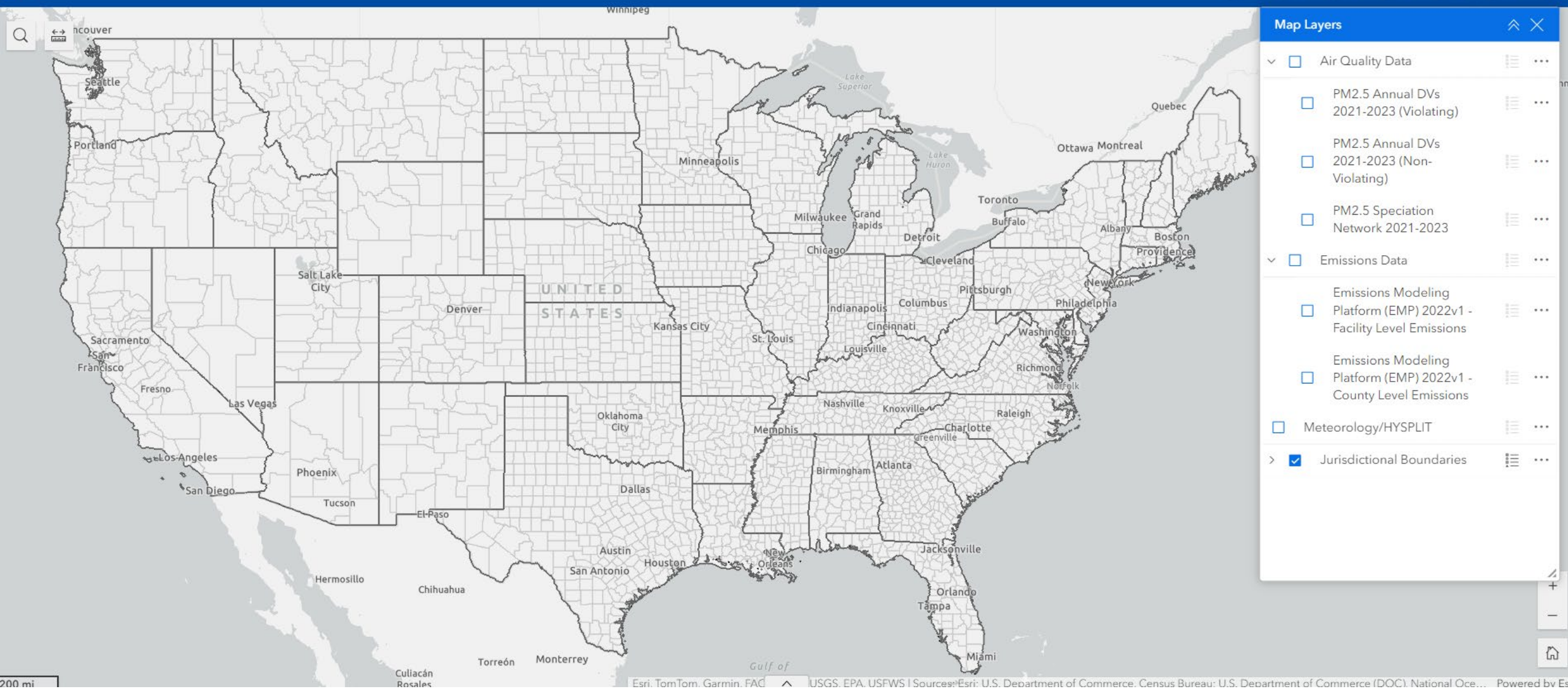
Tool Bar: Drawing Tool Button



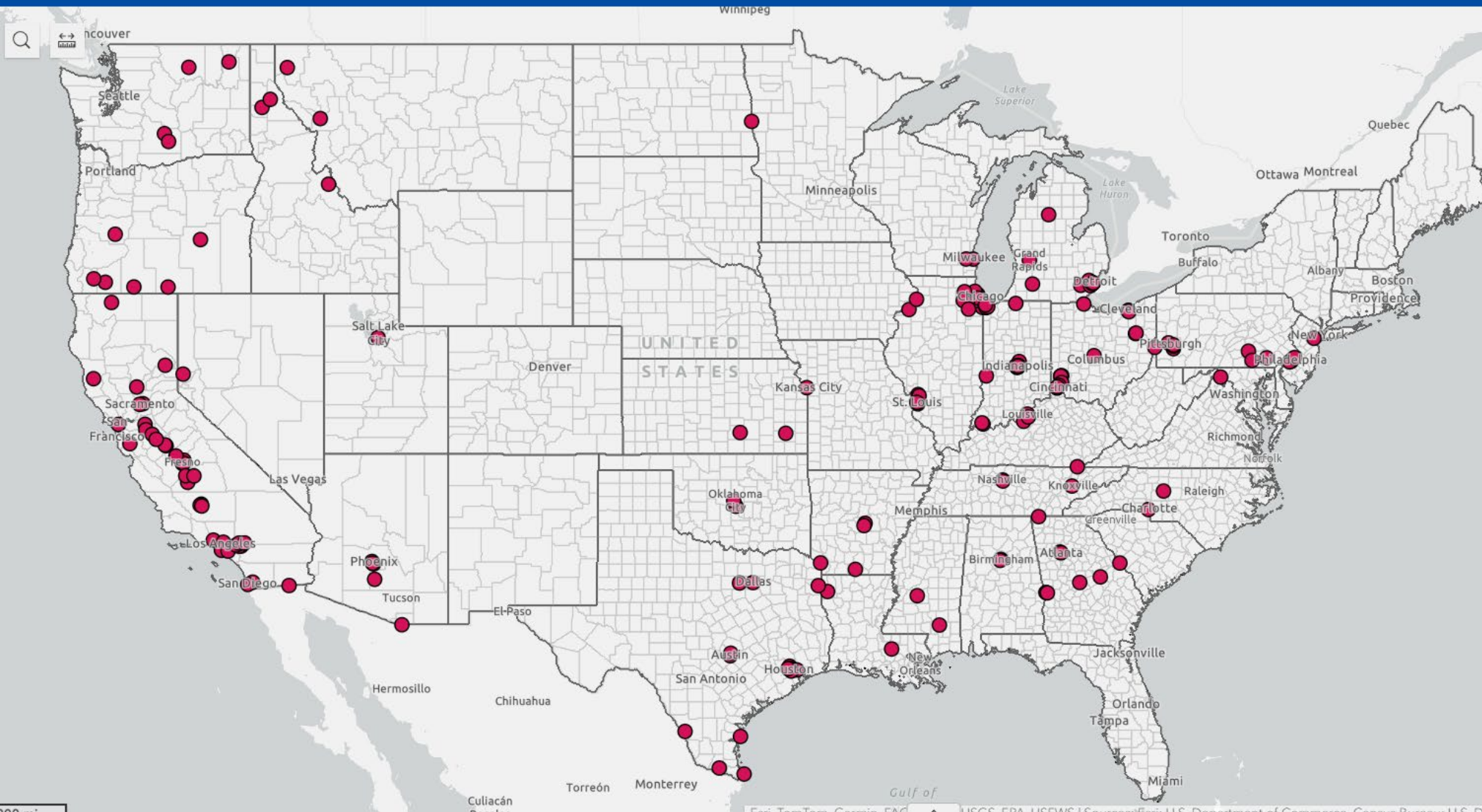
Tool Bar: Legend Button



Map Layers



Map Layers

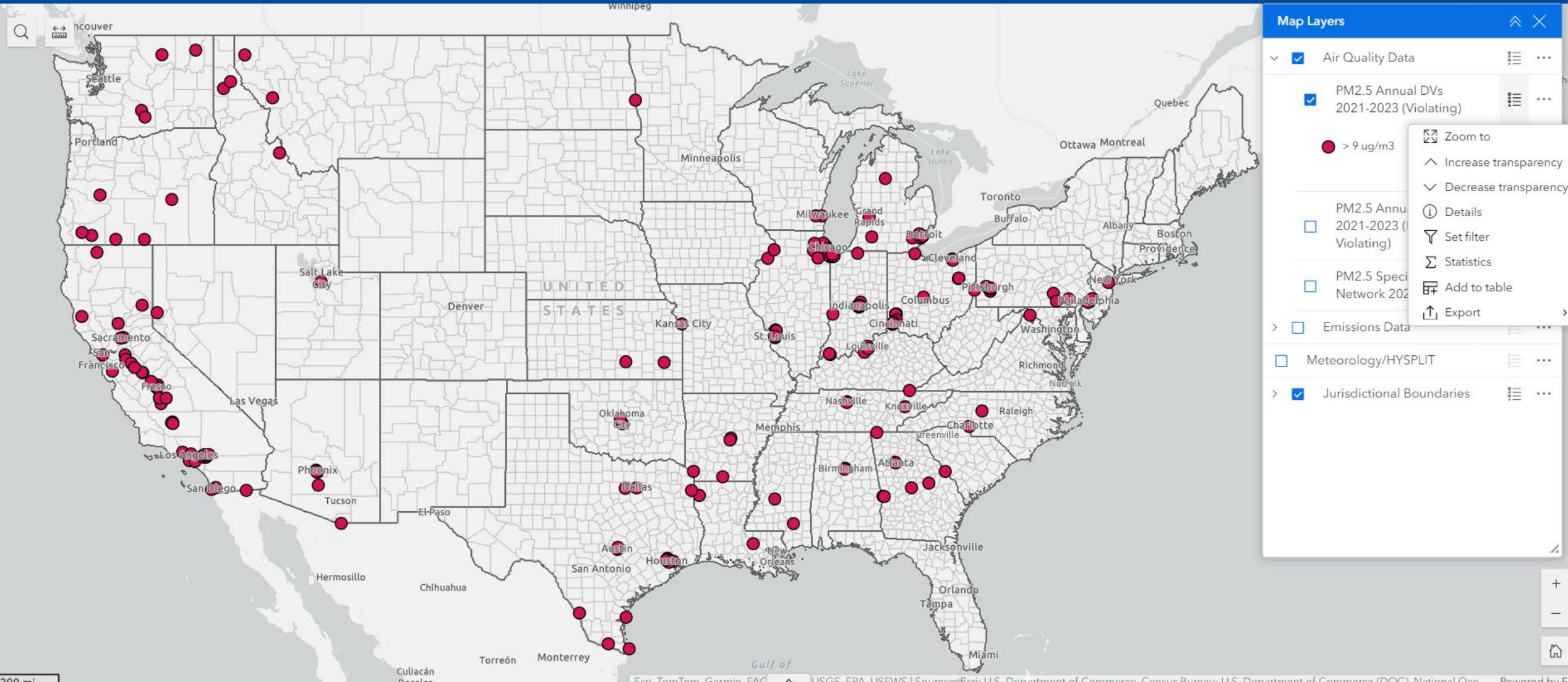


Map Layers

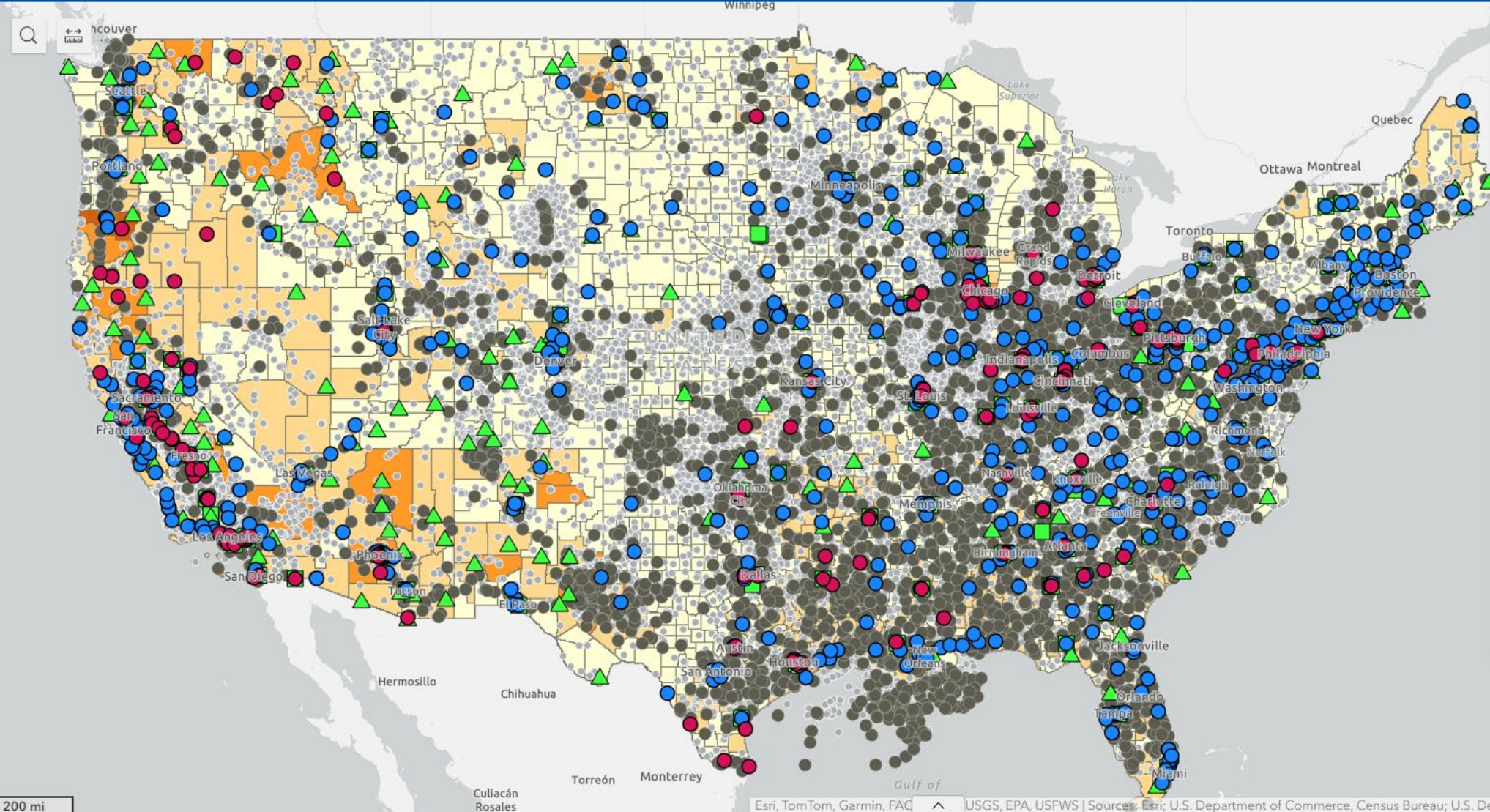
- Air Quality Data
 - PM2.5 Annual DVs 2021-2023 (Violating)
 - > 9 ug/m3
 - PM2.5 Annual DVs 2021-2023 (Non-Violating)
 - PM2.5 Speciation Network 2021-2023
- Emissions Data
- Meteorology/HYSPLIT
- Jurisdictional Boundaries



Map Layers



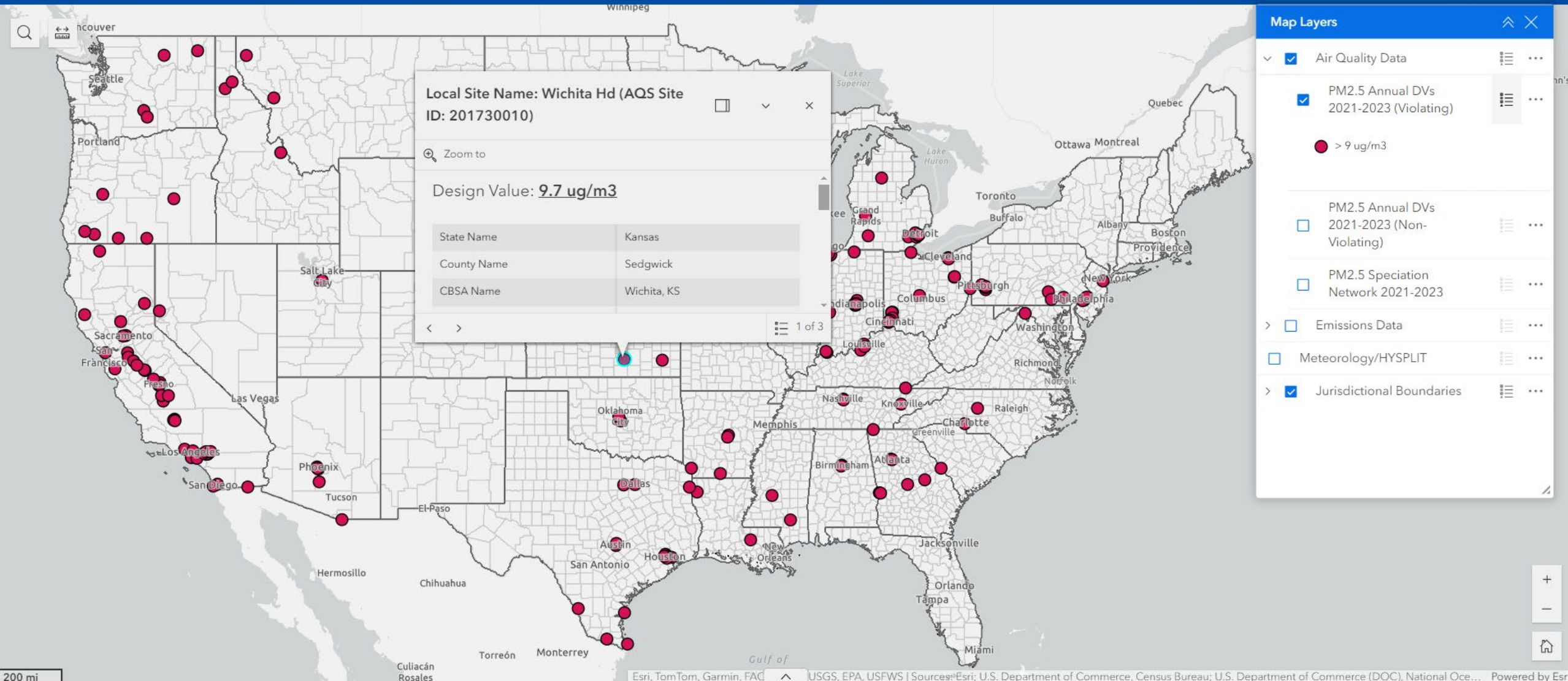
Map Layers



Map Layers

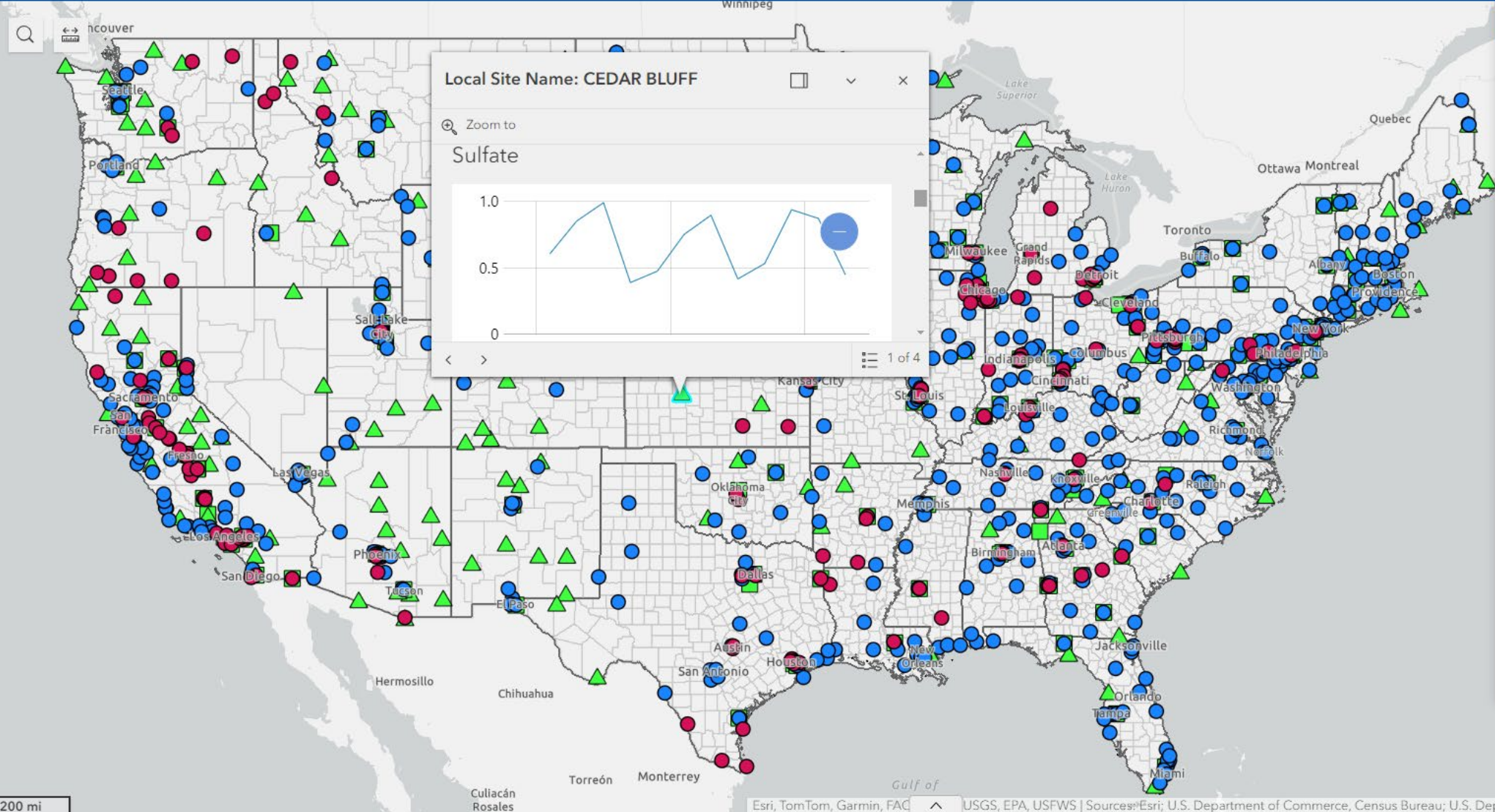
- Air Quality Data
 - PM2.5 Annual DVs 2021-2023 (Violating)
 - PM2.5 Annual DVs 2021-2023 (Non-Violating)
 - PM2.5 Speciation Network 2021-2023
- Emissions Data
 - Emissions Modeling Platform (EMP) 2022v1 - Facility Level Emissions
 - Emissions Modeling Platform (EMP) 2022v1 - County Level Emissions
 - Meteorology/HYSPLIT
- Jurisdictional Boundaries

Map Layers



200 mi

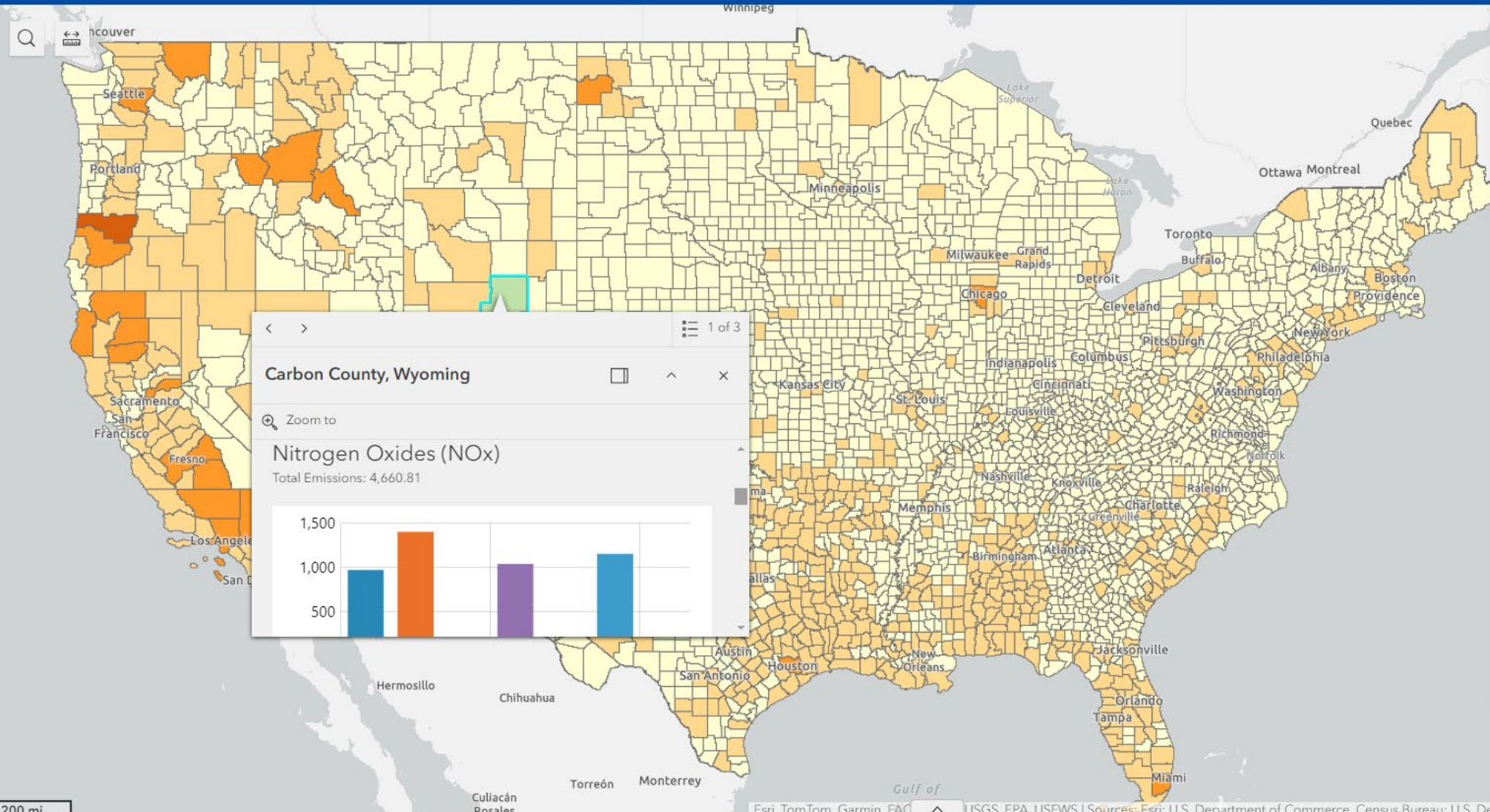
Map Layers



Map Layers

- Air Quality Data
 - PM2.5 Annual DVs 2021-2023 (Violating)
 - > 9 ug/m3
 - PM2.5 Annual DVs 2021-2023 (Non-Violating)
 - <= 9 ug/m3
 - PM2.5 Speciation Network 2021-2023
 - CSN
 - ▲ IMPROVE
- Emissions Data
- Meteorology/HYSPLIT
- Jurisdictional Boundaries

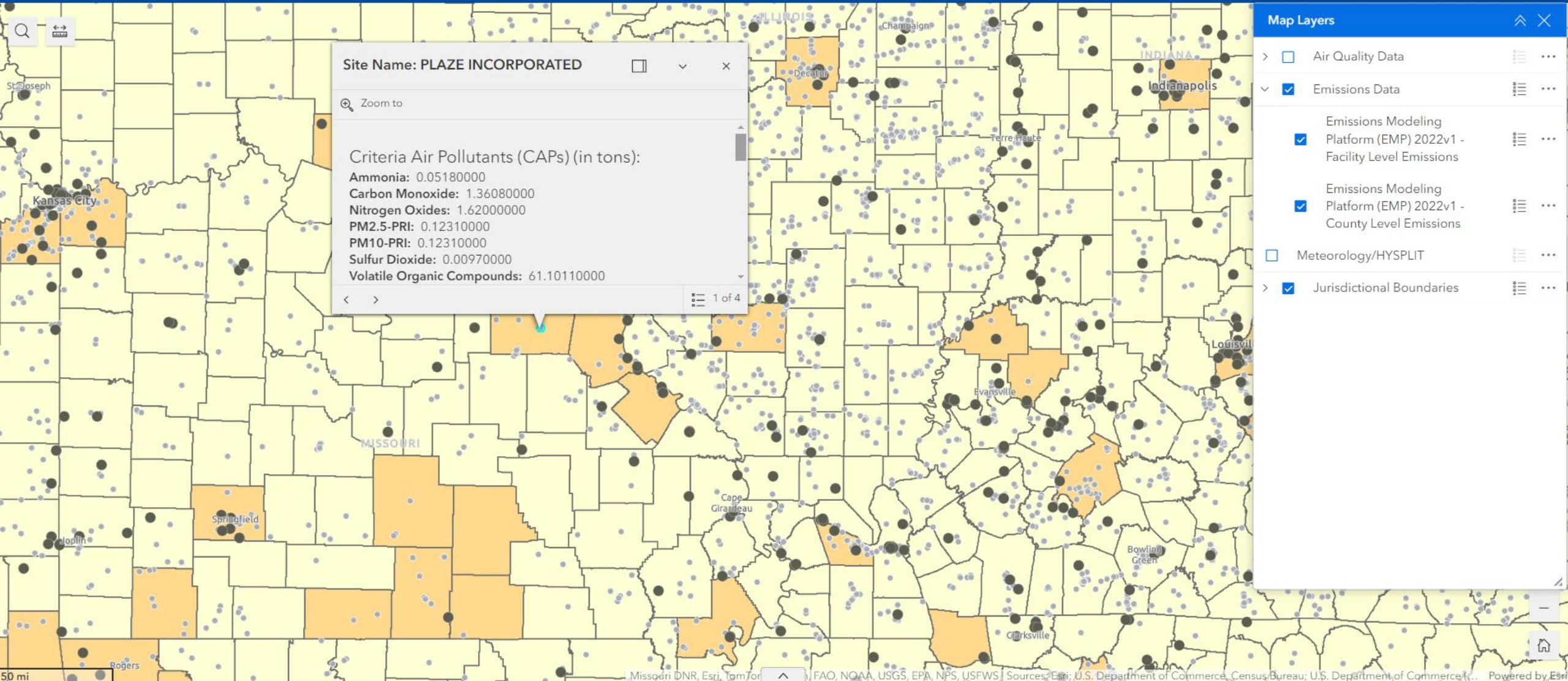
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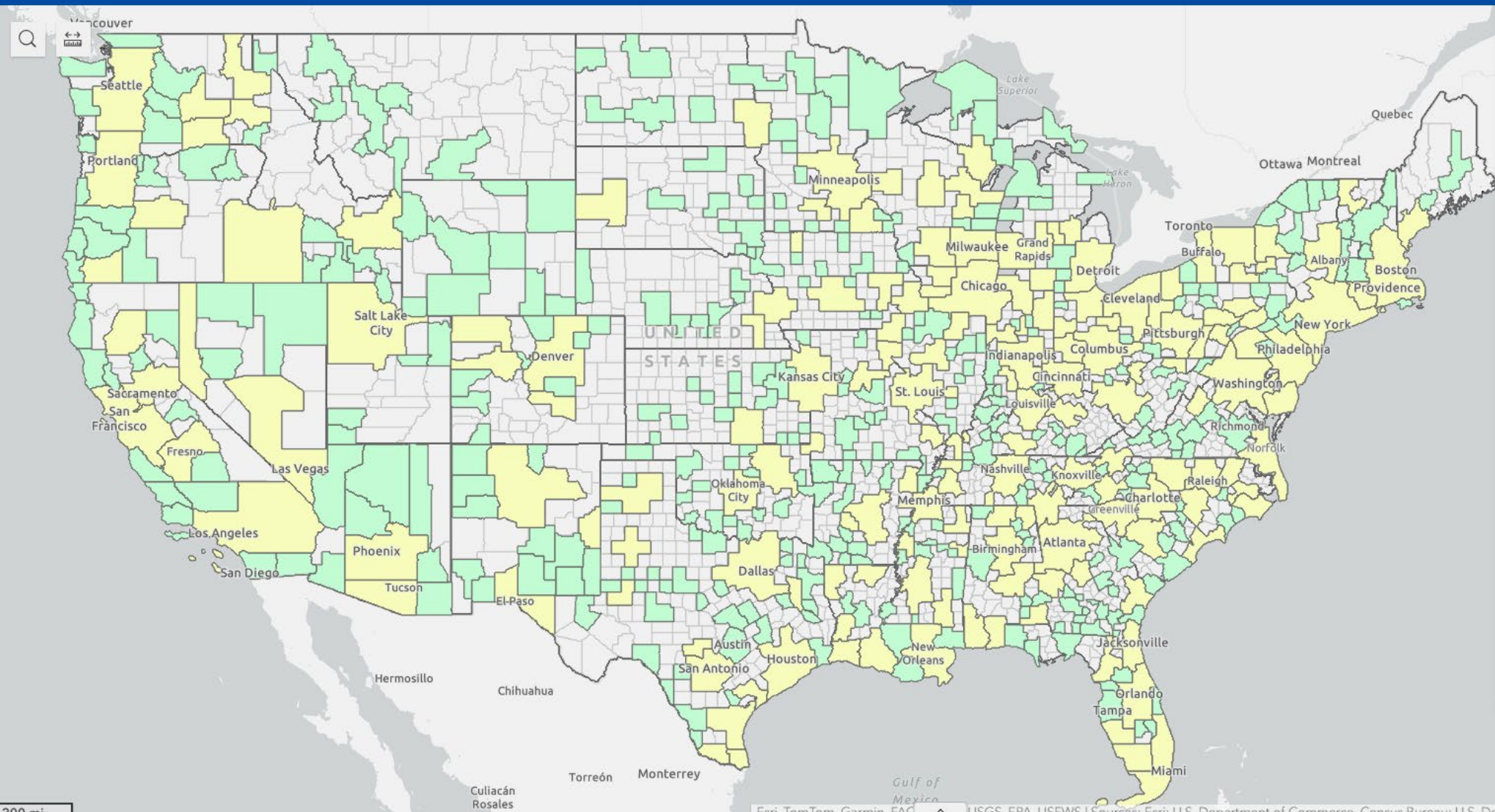
Map Layers

- Air Quality Data
- Emissions Data
 - Emissions Modeling Platform (EMP) 2022v1 - Facility Level Emissions
 - Emissions Modeling Platform (EMP) 2022v1 - County Level Emissions
- Meteorology/HYSPLIT
- Jurisdictional Boundaries

Map Layers



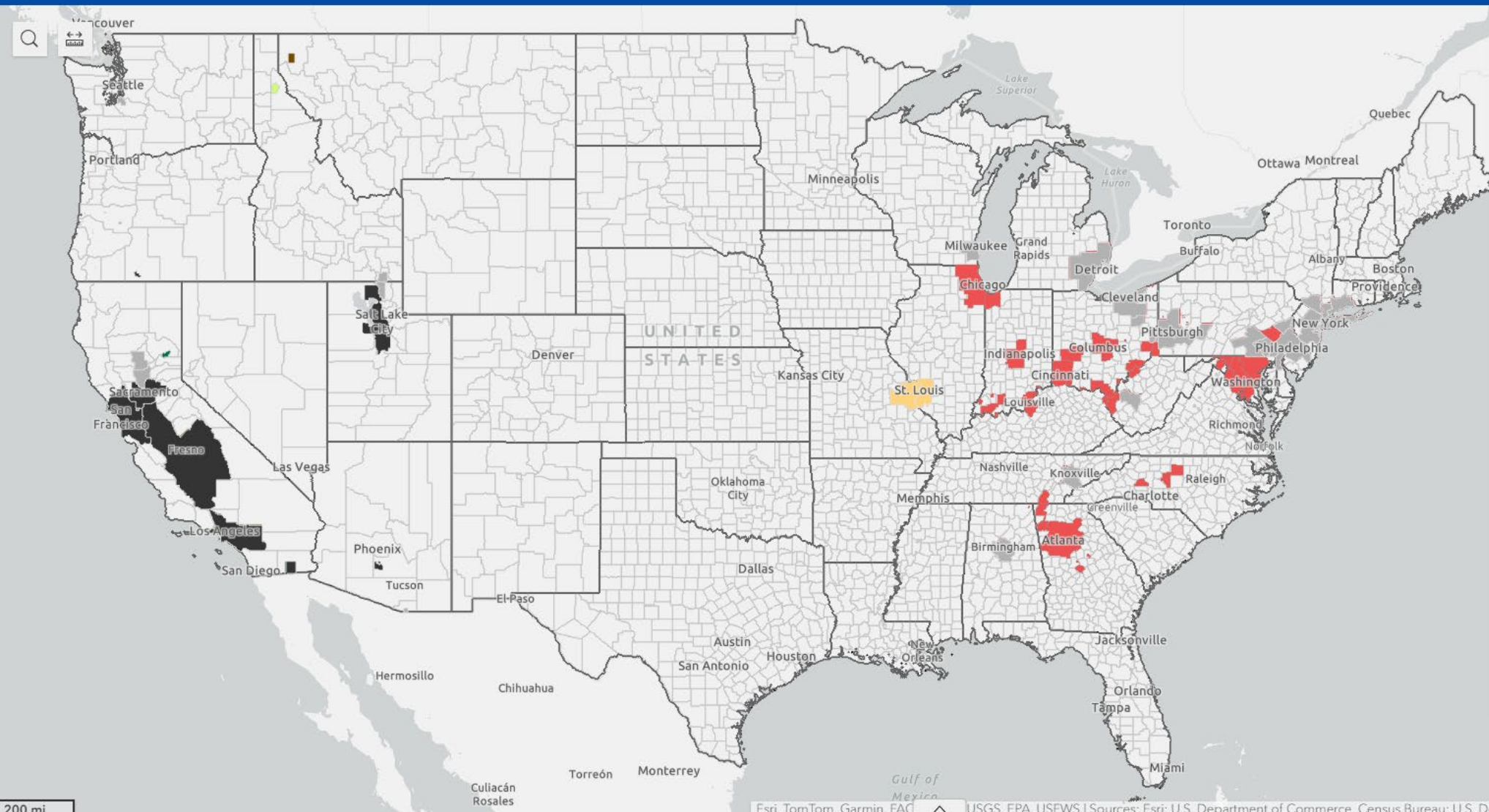
Map Layers



Map Layers

- Air Quality Data
- Emissions Data
- Meteorology/HYSPLIT
- Jurisdictional Boundaries
 - Combined Statistical Areas (CSAs)
 - Core Based Statistical Areas (CBSAs)
- PM2.5 Nonattainment Areas and Designations
- Tribal Boundaries
- Disadvantaged Communities per CEJST v1.0 (as of 11/22/2022)
- US Federal Lands
- US Census Counties (with 2020 Population)
- US Census States (with 2020 Population)

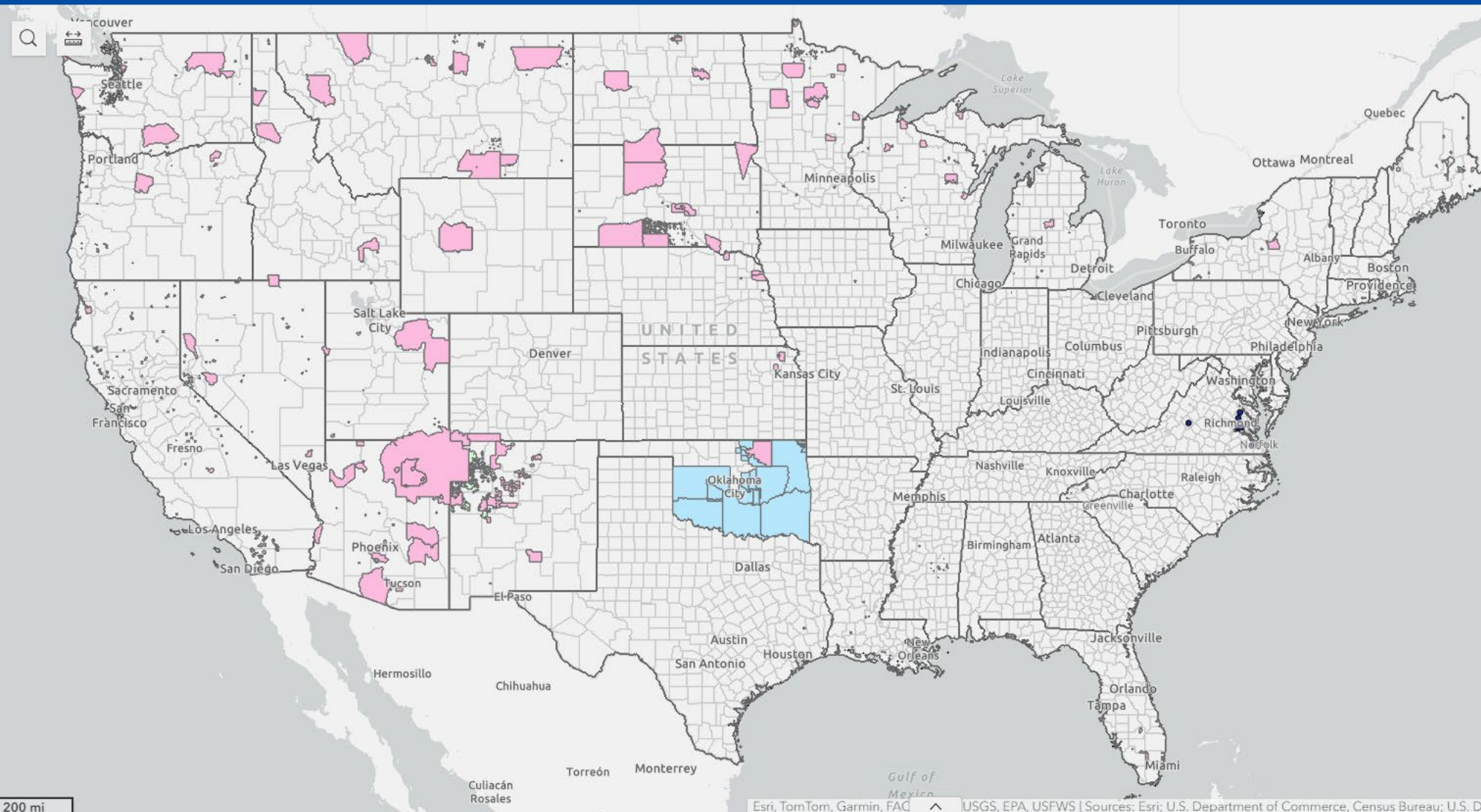
Map Layers



Map Layers

- PM2.5 Nonattainment Areas and Designations
 - PM2.5 24hr (2006 standard)
 - Maintenance (grey)
 - Nonattainment (black)
 - PM2.5 Annual (1997 standard)
 - Maintenance (yellow)
 - Nonattainment (brown)
 - Maintenance (NAAQS revoked) (red)
 - PM2.5 Annual (2012 standard)
 - Maintenance (light green)
 - Nonattainment (dark green)

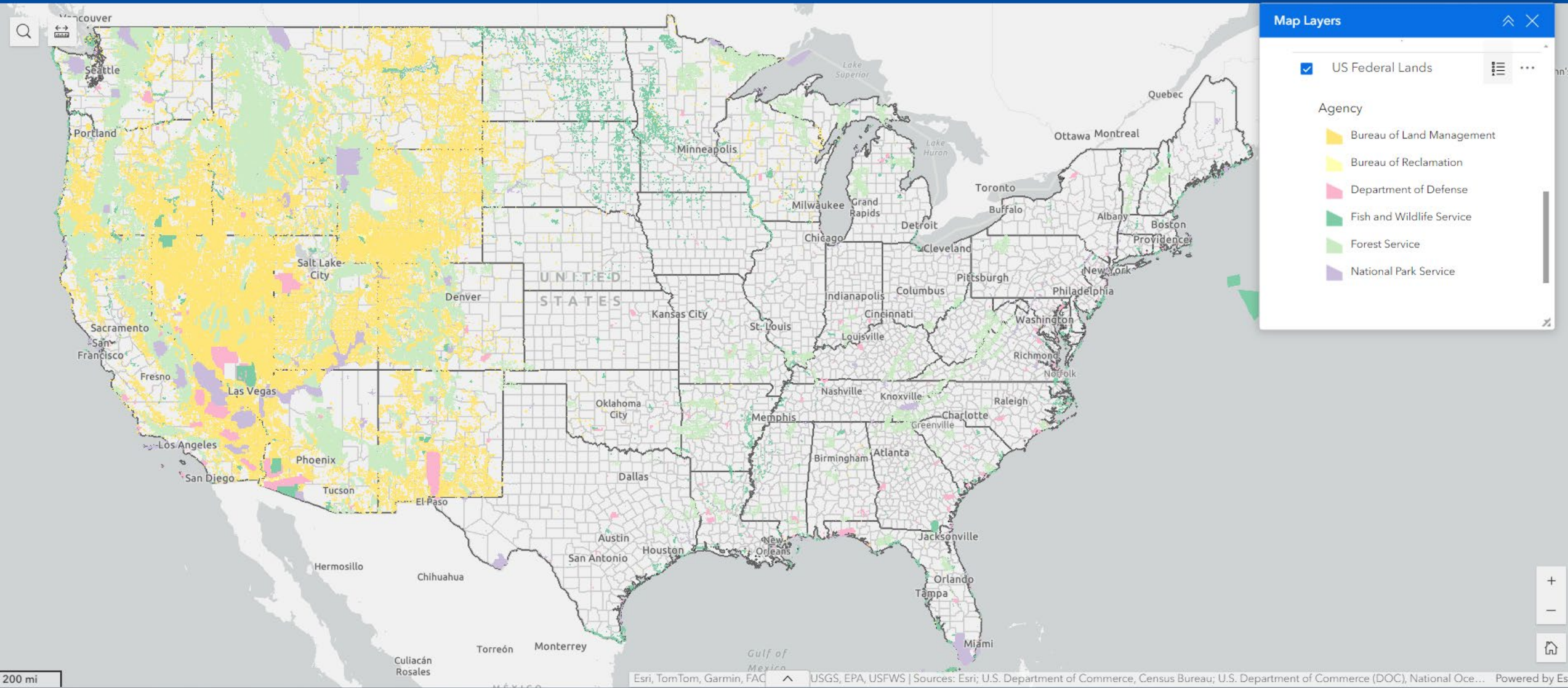
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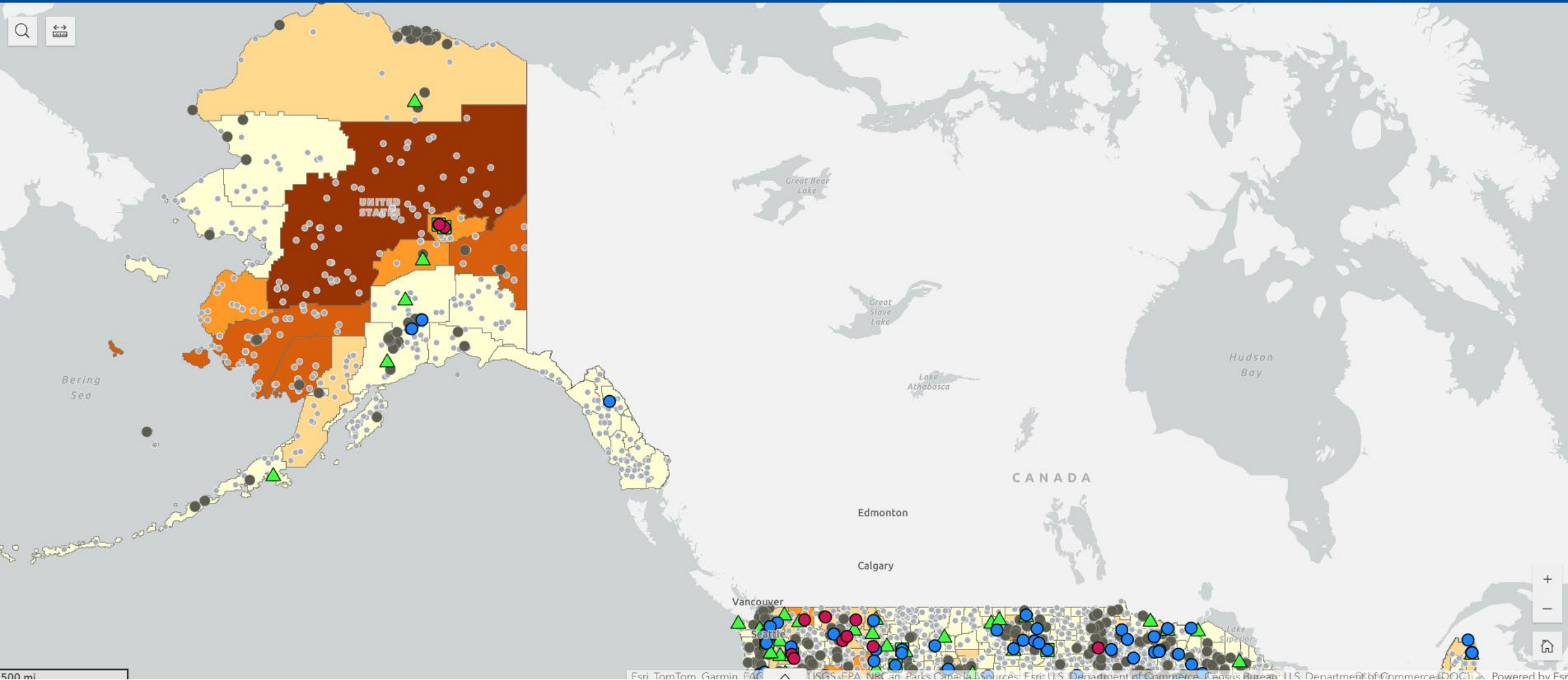
Map Layers

- Tribal Boundaries
 - Tribal Areas for Designating Areas of Indian Country
 - American Indian Reservations
 - American Indian Off-reservation Trust Lands
 - Federally Recognized Tribes

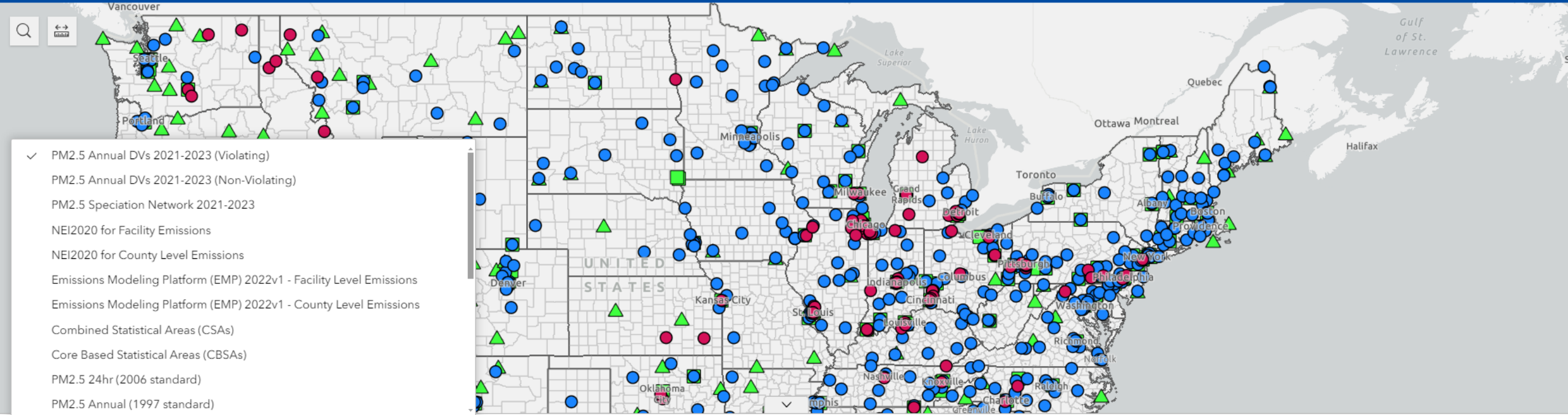
Map Layers



Map Layers



Map Layers



- PM2.5 Annual DVs 2021-2023 (Violating)
- PM2.5 Annual DVs 2021-2023 (Non-Violating)
- PM2.5 Speciation Network 2021-2023
- NEI2020 for Facility Emissions
- NEI2020 for County Level Emissions
- Emissions Modeling Platform (EMP) 2022v1 - Facility Level Emissions
- Emissions Modeling Platform (EMP) 2022v1 - County Level Emissions
- Combined Statistical Areas (CSAs)
- Core Based Statistical Areas (CBSAs)
- PM2.5 24hr (2006 standard)
- PM2.5 Annual (1997 standard)

PM2.5 Annual DVs 2021-2023 (Violating)



AQS Site ID	Local Site Name	State Name	County Name	CBSA Name	CSA Name	EPA Region	2012 Annual PM...	1997 Annual
010730023	North Birmingham	Alabama	Jefferson	Birmingham-Hoover, AL	Birmingham-Hoover-Talla...	4		Birmingham, A
010732059	Arkadelphia/Near Road	Alabama	Jefferson	Birmingham-Hoover, AL	Birmingham-Hoover-Talla...	4		Birmingham, A
011130003	Phenix City - South Girard ...	Alabama	Russell	Columbus, GA-AL	Columbus-Auburn-Opelik...	4		
020900034	Ncore	Alaska	Fairbanks North Star	Fairbanks, AK		10		

Total: 193 | Selection: 0

Non-Regulatory Docket

Non-Regulatory Docket

- Interested parties are welcome to submit written comments to a non-regulatory docket prior to the submission of state and Tribal designations recommendations.
- The focus of this docket is to seek ideas for ways to offer meaningful engagement and outreach throughout the initial area designations process.
- Individuals are invited to submit comments by January 3, 2025 to the following docket at *regulations.gov*: EPA-HQ-OAR-2024-0078

Thank you for joining.

EPA's Informational Overview Webinar on the 2024 PM_{2.5} Initial Area Designations Process