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AN INDEPENDENT, NON-PARTISAN ENVIRONMENTAL EDUCATION AND POLICY RESEARCH CENTER.

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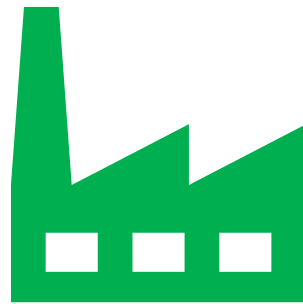
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Earth & Water Law_{PLLC}

SOLUTIONS FOR BUSINESS AND THE PLANET

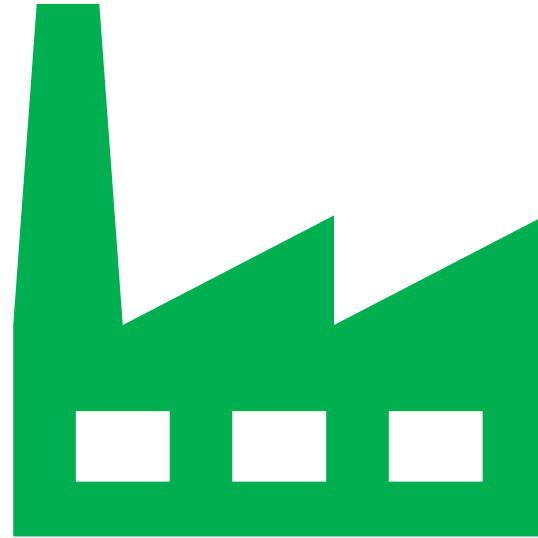
How *stationary sources* are regulated under the CAA



How *stationary sources* are regulated under the CAA

What constitutes a “stationary source”?

Important question!



“Stationary Source” Definition

40 CFR 52.21(b)

Prevention of Significant Deterioration Definition:

(5) *Stationary source* means any building, structure, facility, or installation which emits or may emit a regulated NSR pollutant.

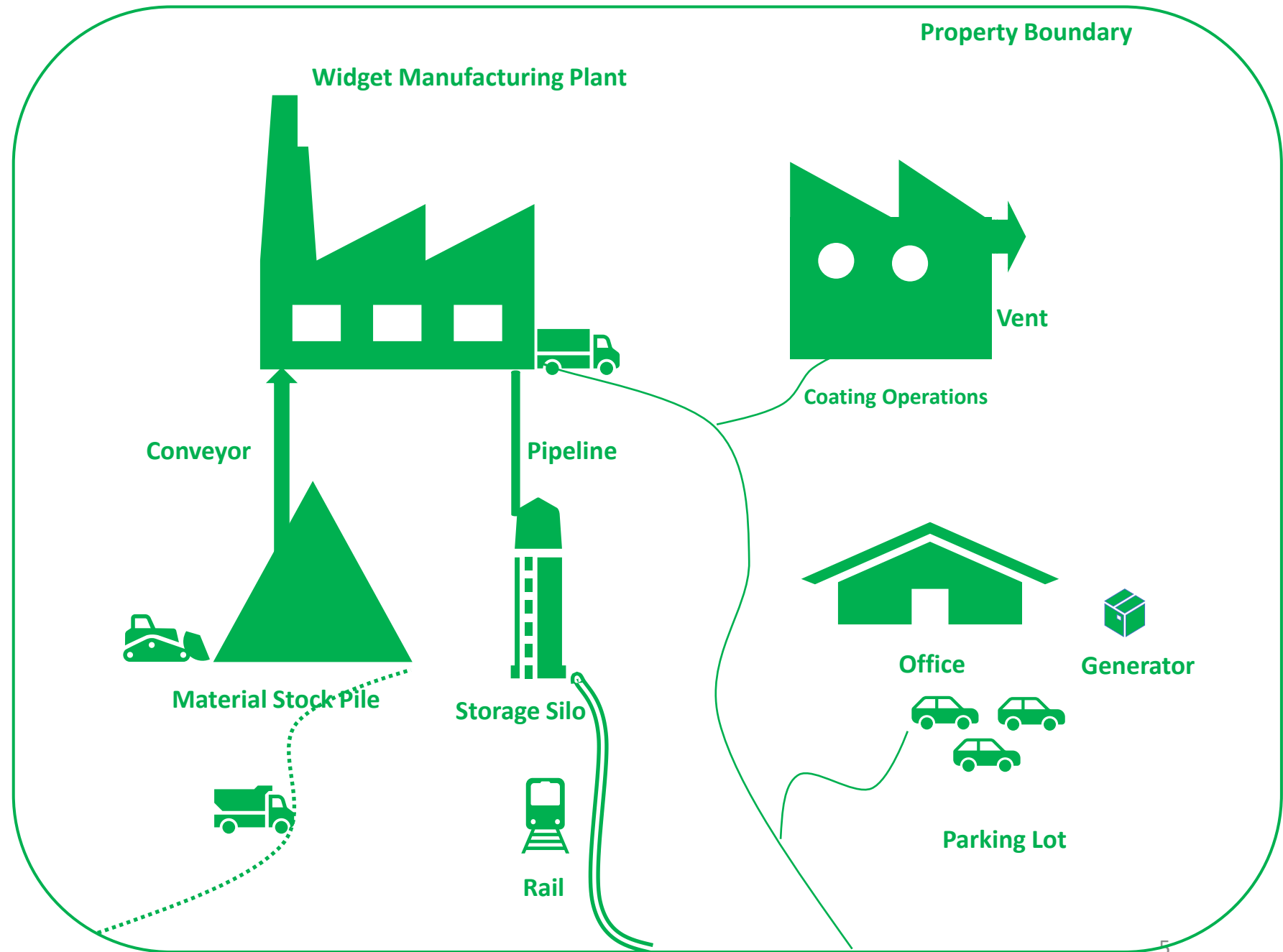
(6)(i) *Building, structure, facility, or installation* means

all of the pollutant-emitting activities which belong to the same industrial grouping,

are located on one or more contiguous or adjacent properties, and

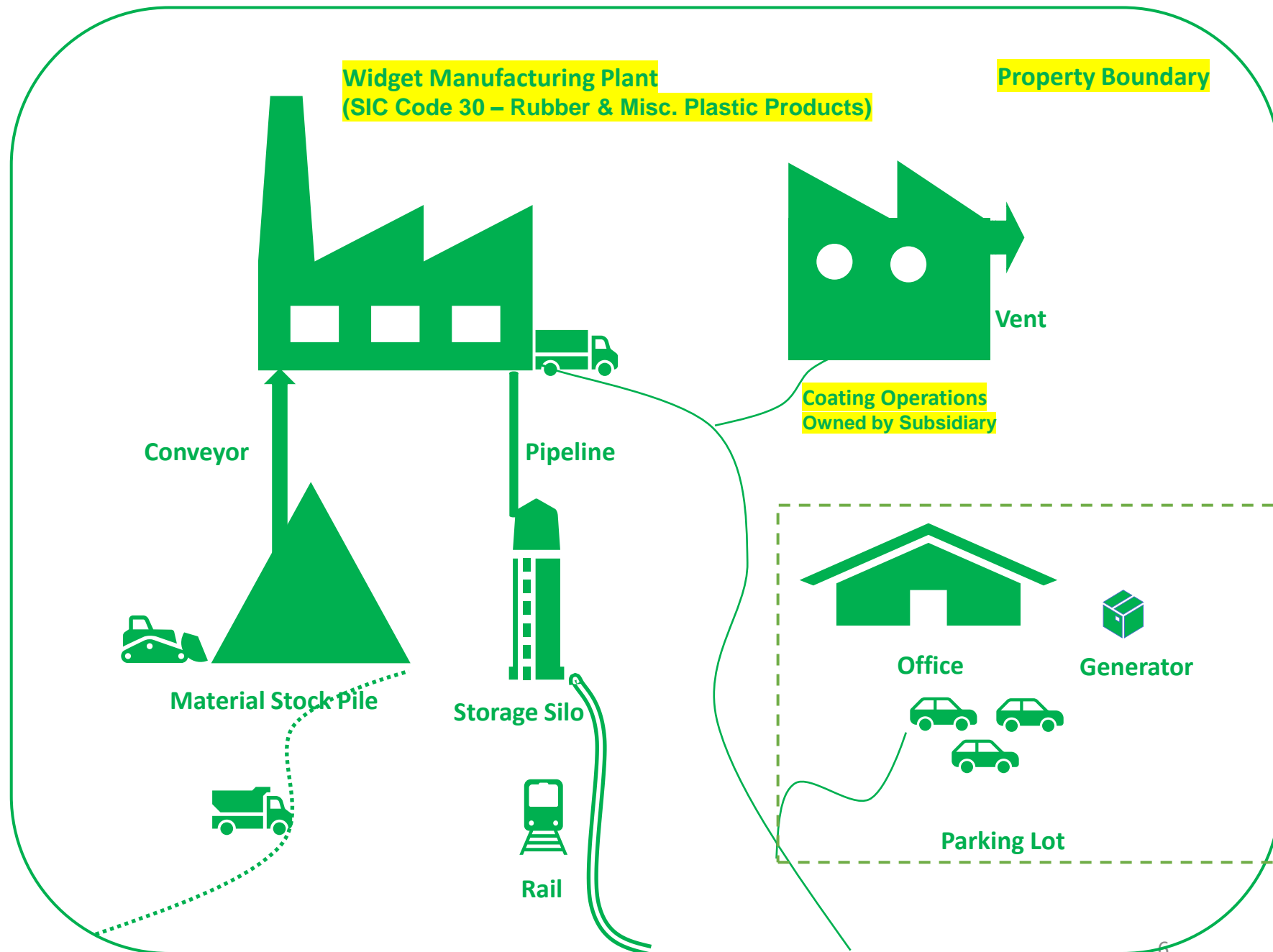
are under the control of the same person (or persons under common control) except the activities of any vessel.

Example Stationary Source

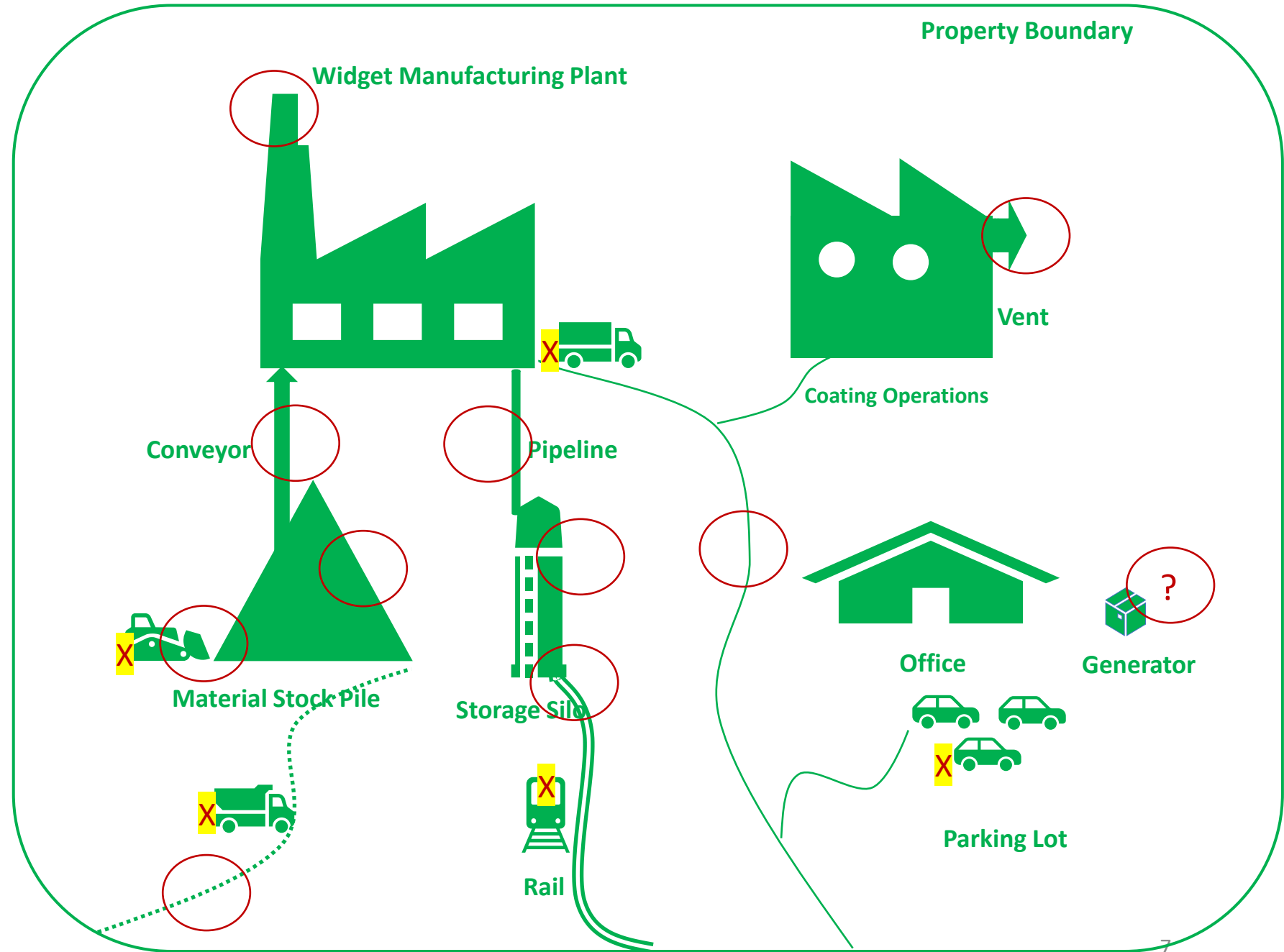


Example Stationary Source

1. Same industrial grouping
2. Contiguous or adjacent
3. Common control



Stationary Source Emissions



How
stationary
sources are
regulated
under the
CAA

- Title I – Air Quality
 - Focus on criteria pollutants
 - State Implementation Plans (SIPs)
 - New Source Performance Standards
 - Preconstruction Review Permitting
- Title III – Air Toxics
- Title IV – Acid Rain Program
- Title V – Air Operating Permits

Criteria Pollutants

- Carbon monoxide (CO)
- Nitrogen dioxide (NO₂)
- Ozone (O₃)
(volatile organic compounds and nitrogen oxides)
- Particulate matter (PM)
 - PM₁₀ (10 microns and smaller)
 - PM_{2.5} (2.5 microns and smaller)
- Sulfur dioxide (SO₂)
- Lead (Pb)

Emission Standards

- State Implementation Plans (SIPs)
- New Source Performance Standards (NSPS)
- National Emission Standards for Hazardous Air Pollutants (NESHAP)
- Preconstruction Review Permitting
 - Prevention of Significant Deterioration
 - Nonattainment New Source Review

State Implementation Plans (SIPs)

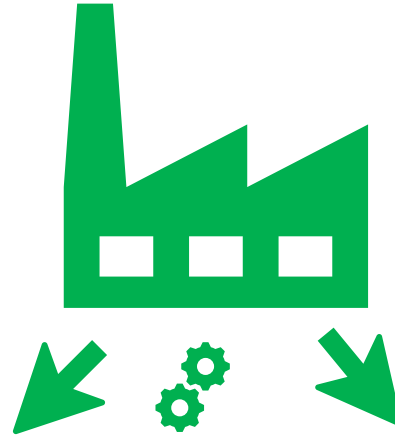
- Reasonably available control technology (RACT)
- Standards for source categories
- General standards
- Preconstruction review permitting

New Source Performance Standards (NSPS)

- Source-category-based
- Technology-forcing
- Applicable to new, modified, and reconstructed units
- Focused on criteria pollutant emissions
- 40 CFR Part 60

New Source Performance Standards (NSPS)

Widget Manufacturing Building



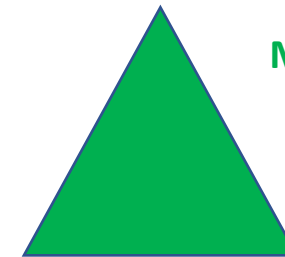
Boiler

Non-Metallic Minerals Processing

Coating Operations



Numerous categories for specific types of coating operations



Material Stock Pile

Fugitive sources can also have standards

National Emission Standards for Hazardous Air Pollutants (NESHAP)

- 189 air toxics listed initially
- New standards are technology-forcing
- Maximum Achievable Control Technology (MACT) for major sources
- Generally Available Control Technology (GACT) for area sources

National Emission Standards for Hazardous Air Pollutants (NESHAP)

- Residual risk analysis required 8 years after initial MACT
- Reconsideration of each MACT based on technology improvements every 8 years
- Standards established for new and existing sources
- 40 CFR 61 and 63

What
permits
might be
needed?

- Prevention of Significant Deterioration (PSD) permit
- Nonattainment New Source Review (NNSR) permit or component
- SIP-based minor NSR permit
- Title V air operating permit
- General permit

Pollutant [links to historical tables of NAAQS reviews]	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	primary	8 hours	9 ppm	Not to be exceeded more than once per year
		1 hour	35 ppm	
Lead (Pb)	primary and secondary	Rolling 3 month average	0.15 µg/m ³ ⁽¹⁾	Not to be exceeded
Nitrogen Dioxide (NO₂)	primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	primary and secondary	1 year	53 ppb ⁽²⁾	Annual Mean
Ozone (O₃)	primary and secondary	8 hours	0.070 ppm ⁽³⁾	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m³ as a calendar quarter average) also remain in effect.

(2) The level of the annual NO₂ standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

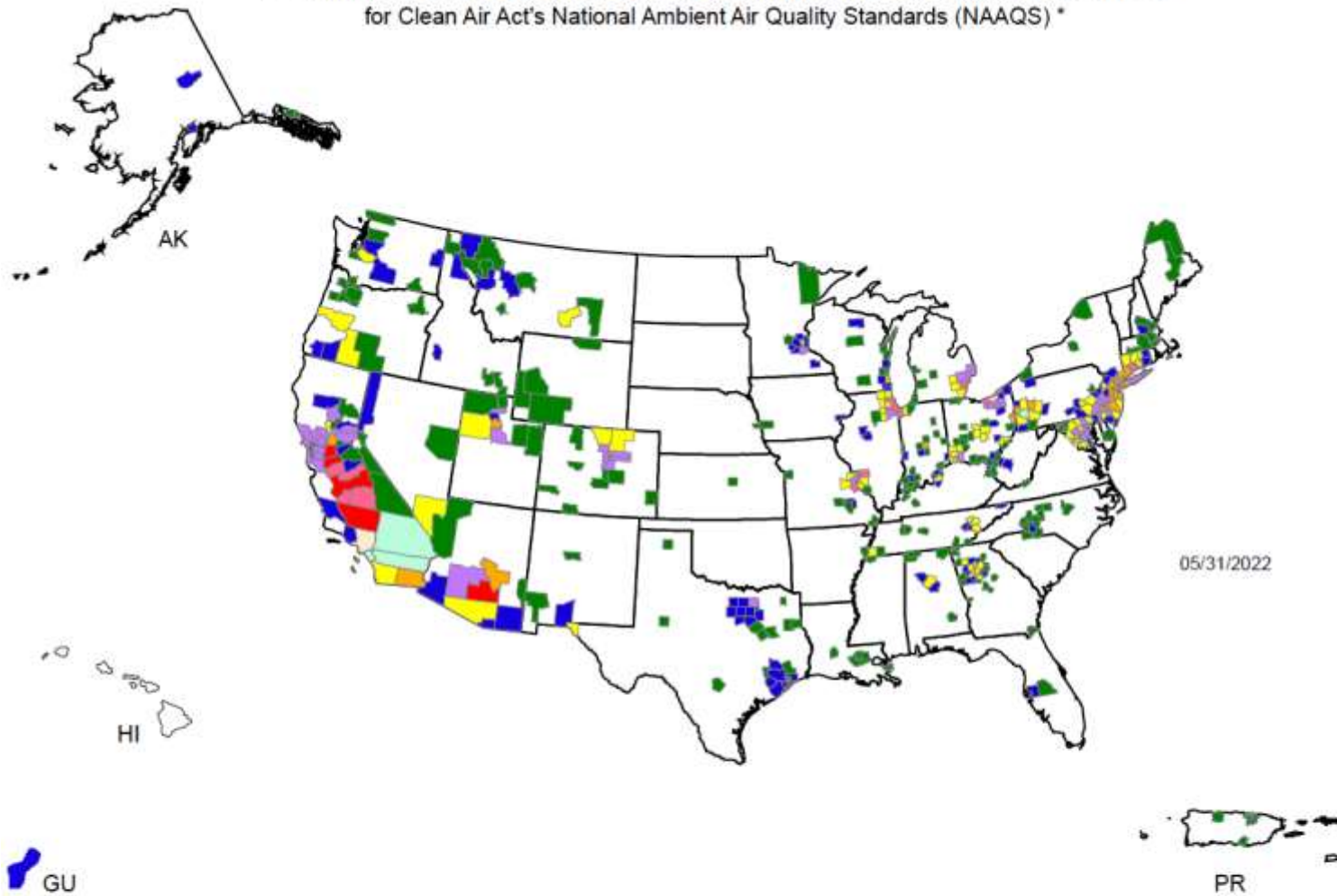
(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O₃ standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O₃ standards.

Pollutant [links to historical tables of NAAQS reviews]		Primary/ Secondary	Averaging Time	Level	Form
Particle Pollution (PM)	PM _{2.5}	primary	1 year	12.0 µg/m ³	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m ³	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m ³	98th percentile, averaged over 3 years
	PM ₁₀	primary and secondary	24 hours	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO₂)		primary	1 hour	75 ppb ⁽⁴⁾	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

(4) The previous SO₂ standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO₂ standards or is not meeting the requirements of a SIP call under the previous SO₂ standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

Counties Designated "Nonattainment" or "Maintenance"

for Clean Air Act's National Ambient Air Quality Standards (NAAQS) *



Legend **

- County Designated Nonattainment or Maintenance for 9 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 8 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 7 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 6 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 5 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 4 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 3 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 2 NAAQS Pollutants
- County Designated Nonattainment or Maintenance for 1 NAAQS Pollutants

8-Hour Ozone Nonattainment Areas (2015 Standard)



Nonattainment areas are indicated by color. When only a portion of a county is shown in color, it indicates that only that part of the county is within a nonattainment area boundary.

Determine applicable “major source” threshold

- PSD
 - 100 tons per year (TPY) for 28 listed source categories
 - 250 TPY for all other source categories
- NNSR – varies based upon severity
- Title V
 - 100 TPY
 - 10/25 TPY for single and total HAPs

If PSD/NNSR
is triggered
...

- Control technology analysis
- Ambient air quality impact analysis
- Offsets for nonattainment pollutants if NNSR
- Additional impacts analysis for Class I areas in vicinity

Control technology analysis

- Case-by-case
- NSPS and NESHAP standards are baseline
- “Best Available Control Technology” – PSD
- “Lowest Achievable Emission Rate” – NNSR

Ambient Air Quality Analysis

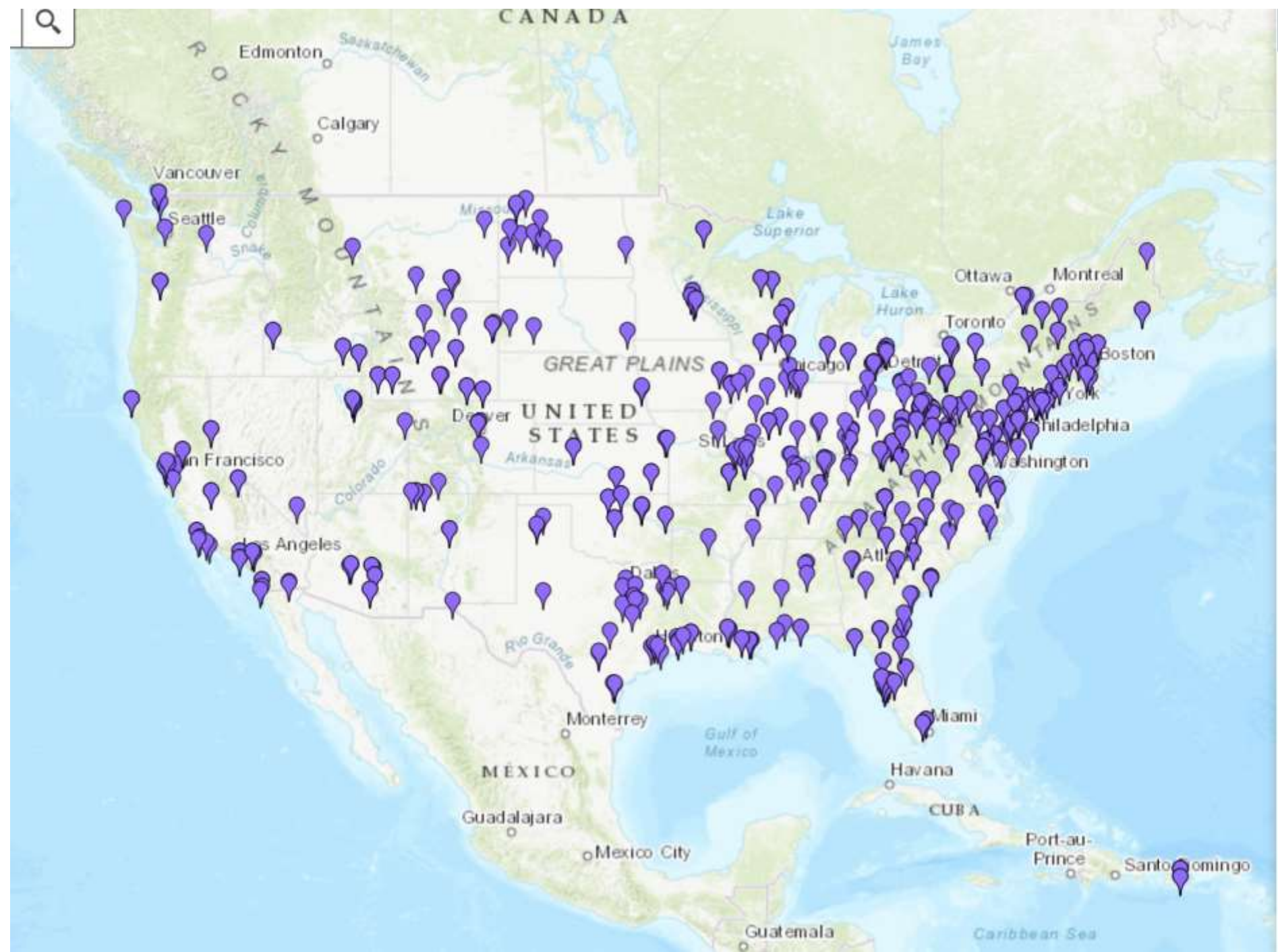


SPods (in blue) are fenceline monitoring devices developed by EPA to measure air pollutant plumes at an industrial facility. EPA scientists tested them at EPA's research campus in RTP, NC, alongside prototypes designed by commercial developers using the open source SPod technology.

- AAQS “fenceline” standards (ambient air)
- Separate PSD *increment* analysis
- Computer modeling used
- Background concentrations taken into account, along with meteorological data

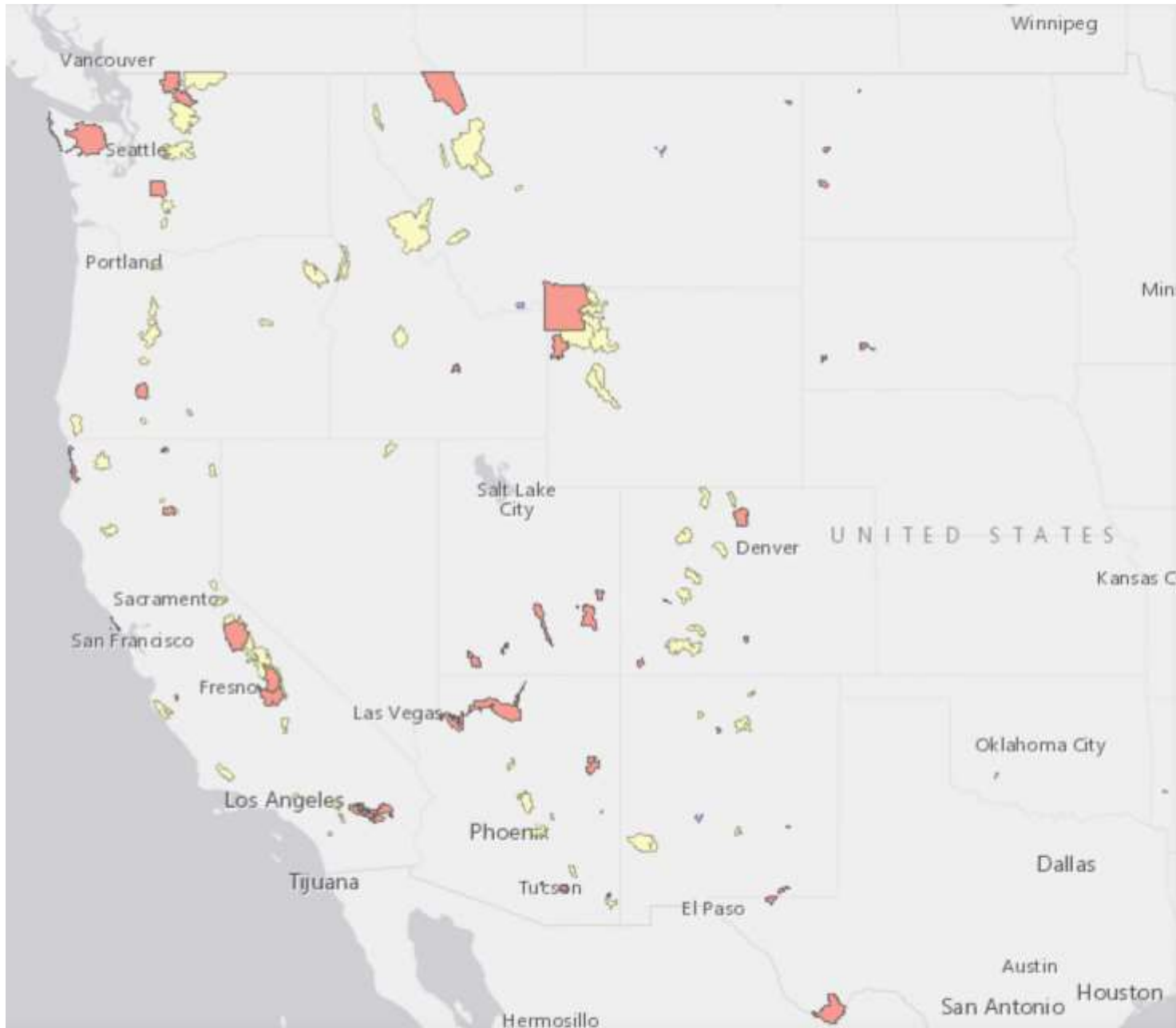
Legend for Select

SO2 - Active



Ambient Air Quality Analysis





Legend for Selected Layers


Federal Class 1 Areas: US Forest Service

Areas

-  Forest Service

Federal Class 1 Areas: US Fish & Wildlife Service

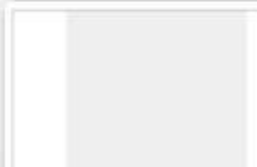
Areas

-  Fish and Wildlife Service

Federal Class 1 Areas: National Park Service

Areas

-  National Park Service



THE NATIONAL AMBIENT AIR QUALITY STANDARD (NAAQS)

Allowed Pollution Levels Before PSD

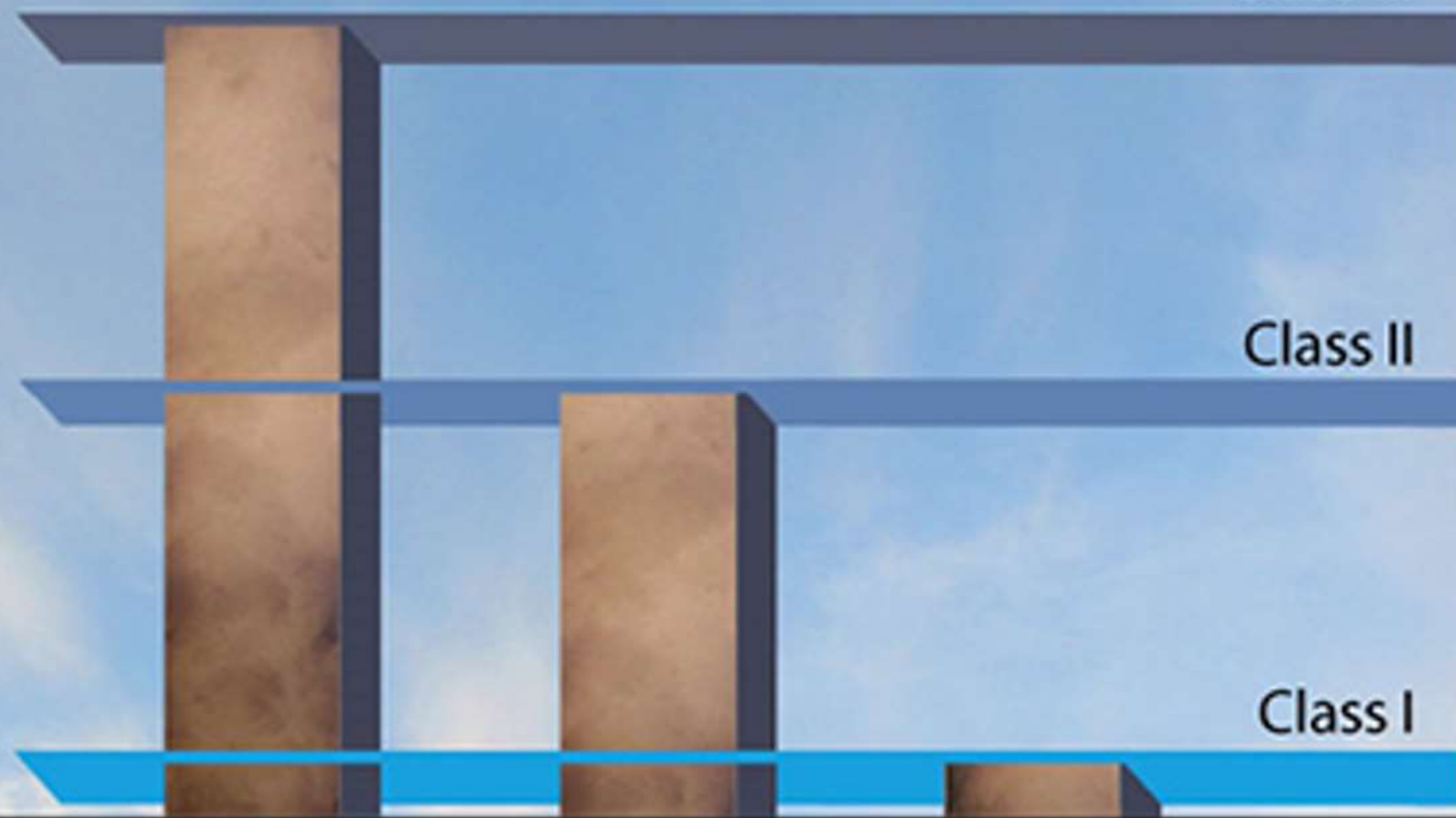
1977 Amendments

Class III

Class II

Class I

AIR QUALITY BEFORE THE FIRST LARGE AIR POLLUTION SOURCE MOVES INTO THE AREA.



How does PSD/NNSR permitting process work?

- Process (different in each jurisdiction)
- Public comment period
- EPA oversight
- Federal Land Manager review for Class I areas

How does PSD/NNSR permitting process work?

- NEPA not triggered
- No health risk assessment required
(unless by state/local/tribal program)
- Environmental Justice analysis
(encouraged)

Title V Air Operating Permits

- Implemented by states/local/tribal programs (sometimes EPA)
- After construction completed
- All applicable requirements identified
- Annual compliance certifications by “responsible official”

Title V Air Operating Permits

- Title V fees to sustain program
- Renewed every 5 years
- Public comment period and opportunity for public meeting
- State/local/tribal administrative procedures would apply (unless EPA or delegation)

Thank you!

Any questions?