



CAA for Non-Airheads

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M-D1

February 27, 2024

26th California Unified Program
Annual Training Conference
February 26-29, 2024



1306



1750



1908



1955



1963



1970



1



A photograph of a bright blue sky filled with various white and light grey clouds. The clouds are scattered across the frame, with some larger, more prominent ones and many smaller, wispy ones. The overall scene is bright and clear.

What is a pollutant?



Sulfur dioxide

Ozone

Lead

Chemical

Volatility

Particle size

Atmospheric
reactivity

Physical or chemical properties

Glycol ethers



Groups



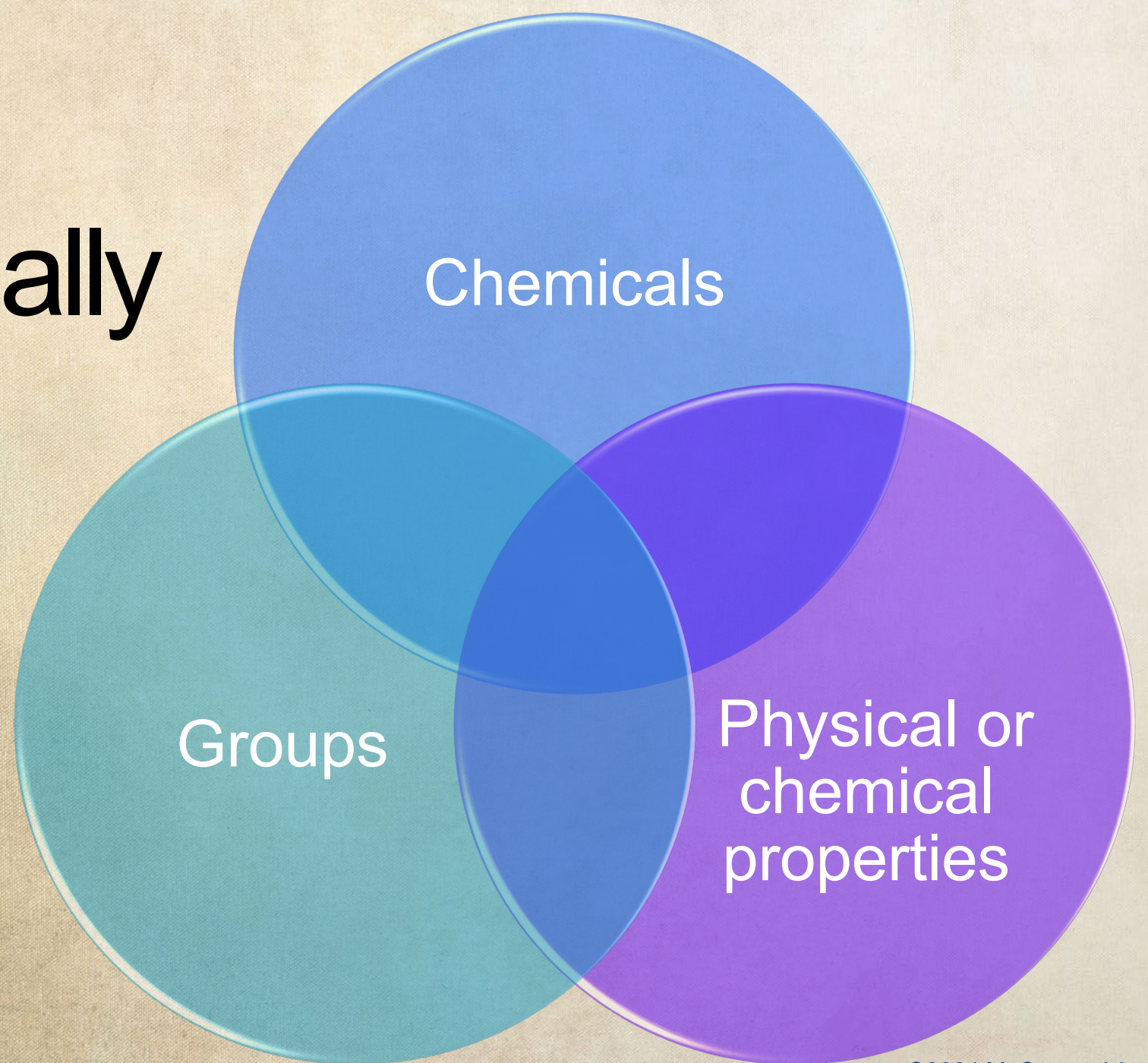
Arsenic
compounds



Asbestos



**Pollutants
are not mutually
exclusive**



Pollutant Categories

A nighttime photograph of a city skyline with numerous skyscrapers illuminated with blue and white lights.

Criteria

A small, dark glass bottle with a white label featuring a black skull and crossbones symbol, representing a hazardous air pollutant.

HAPs

An underwater photograph of a fish swimming in clear water, with a forested shoreline visible in the background.

Acid rain

A bright blue sky with scattered white clouds, representing ozone-depleting substances (ODS).

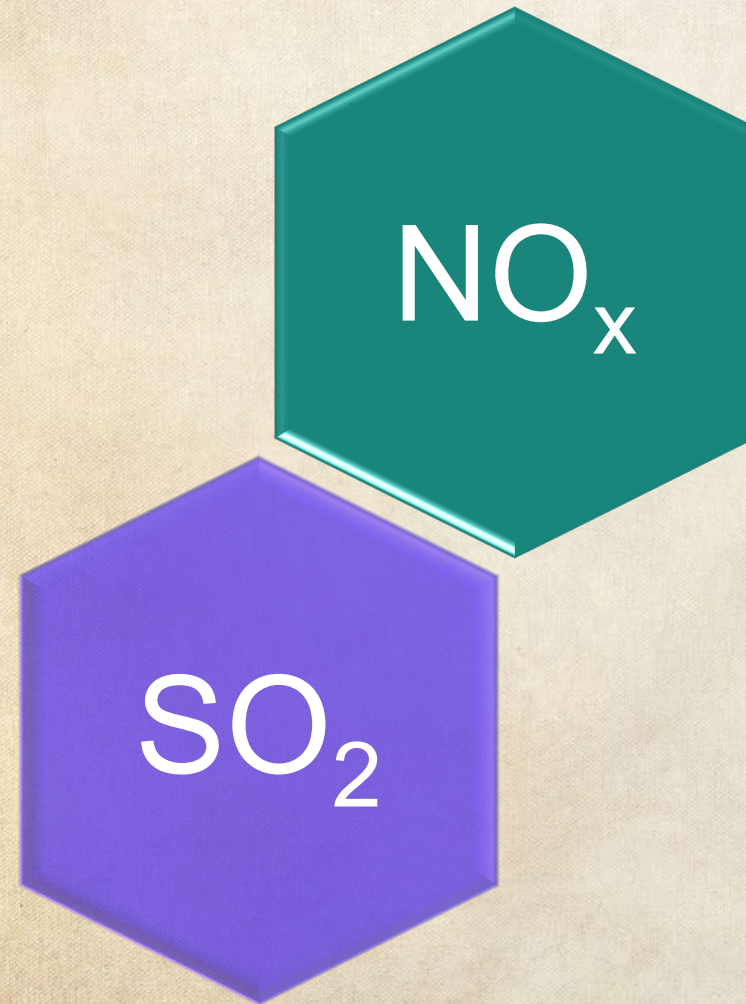
ODS

Think pollutant...first

Criteria Pollutants



Acid Rain



Hazardous Air Pollutants

8 Original HAPs

Asbestos

Benzene

Beryllium

Inorganic arsenic

Mercury

Radionuclides

Vinyl chloride

Coke oven emissions

188 Air Toxics

APPENDIX

List of Hazardous Air Pollutants
[delisted HAPs are italicized]

CAS Number	Chemical Name	Urban HAPs List?
75-07-0	Acetaldehyde	Y
60-35-5	Acetamide	
75-05-8	Acetonitrile	
98-86-2	Acetophenone	
53-96-3	2-Acetylaminofluorene	
107-02-8	Acrolein	Y
79-06-1	Acrylamide	
79-10-7	Acrylic acid	
107-13-1	Acrylonitrile	Y
107-05-1	Allyl chloride	
92-67-1	4-Aminobiphenyl	
62-53-3	Aniline	
90-04-0	o-Anisidine	
1332-21-4	Asbestos	Y
71-43-2	Benzene (including benzene from gasoline)	Y
92-87-5	Benzidine	
98-07-7	Benzotrichloride	
100-44-7	Benzyl chloride	
92-52-4	Biphenyl	
117-81-7	Bis(2-ethylhexyl)phthalate (DEHP)	
542-88-1	Bis(chloromethyl)ether	
75-25-2	Bromoform	
106-99-0	1,3-Butadiene	Y
156-62-7	Calcium cyanamide	
105-60-2	Caprolactam	
133-06-2	Captan	
63-25-2	Carbaryl	
75-15-0	Carbon disulfide	
56-23-5	Carbon tetrachloride	Y
463-58-1	Carbonyl sulfide	
120-80-9	Catechol	
133-90-4	Chloramben	
57-74-9	Chlordane	
7782-50-5	Chlorine	
79-11-8	Chloroacetic acid	
532-27-4	2-Chloroacetophenone	
108-90-7	Chlorobenzene	

List of Hazardous Air Pollutants
[delisted HAPs are italicized]

CAS Number	Chemical Name	Urban HAPs List?
510-15-6	Chlorobenzilate	
67-66-3	Chloroform	Y
107-30-2	Chloromethyl methyl ether	
126-99-8	Chloroprene	
1319-77-3	Cresols/Cresylic acid (isomers and mixture)	
95-48-7	o-Cresol	
108-39-4	m-Cresol	
106-44-5	p-Cresol	
98-82-8	Cumene	
94-75-7	2,4-D, salts and esters	
3547-04-4	DDE	
334-88-3	Diazomethane	
132-64-9	Dibenzofurans	
96-12-8	1,2-Dibromo-3-chloropropane	
84-74-2	Dibutylphthalate	
106-46-7	1,4-Dichlorobenzene(p)	
91-94-1	3,3-Dichlorobenzidine	
111-44-4	Dichloroethyl ether (Bis(2-chloroethyl)ether)	
542-75-6	1,3-Dichloropropene	Y
62-73-7	Dichlorvos	
111-42-2	Diethanolamine	
121-69-7	N,N-Diethyl aniline (N,N-Dimethylaniline)	
64-67-5	Diethyl sulfate	
119-90-4	3,3-Dimethoxybenzidine	
60-11-7	Dimethyl aminoazobenzene	
119-93-7	3,3'-Dimethyl benzidine	
79-44-7	Dimethyl carbamoyl chloride	
68-12-2	Dimethyl formamide	
57-14-7	1,1-Dimethyl hydrazine	
131-11-3	Dimethyl phthalate	
77-78-1	Dimethyl sulfate	
534-52-1	4,6-Dinitro-o-cresol, and salts	
51-28-5	2,4-Dinitrophenol	
121-14-2	2,4-Dinitrotoluene	
123-91-1	1,4-Dioxane (1,4-Diethyleneoxide)	
122-66-7	1,2-Diphenylhydrazine	

Ozone-Depleting Substances (ODS)

Chlorofluorocarbons (CFCs)

Hydrochlorofluorocarbons (HCFCs)

Halons

Methyl chloroform

Methyl bromide

Bromofluorocarbons (BFCs)

Pollutant Regulation Matrix

Pollutant	CO	Lead	NO ₂	Ozone	PM	SO ₂	VOCs	NO _x	VHAPs	Metal HAPs	Other HAPs	ODS
CO	■											
Lead		■			■					■		
NO ₂			■		■			■				
Ozone				■			■	■				
PM		■	■		■	■	■	■	■	■	■	■
SO ₂					■	■						
VOCs				■	■		■		■			■
NO _x			■	■	■			■				
VHAPs					■		■		■			■
Metal HAPs		■			■					■		
Other HAPs					■						■	■
ODS					■		■		■		■	■

A background image of a bright blue sky filled with various white and light grey clouds. The clouds are scattered across the frame, with some larger, more prominent ones and many smaller, wispy ones. The overall scene is bright and clear.

Any pollutant may also be regulated
as one or more other pollutants

Major Programs



NAAQS



NESHAP



Title V



NSPS



Acid Rain



SOP

Mobile Sources



NAAQS

National Ambient
Air Quality Standards

EPA: Criteria Pollutants



EPA: NAAQS

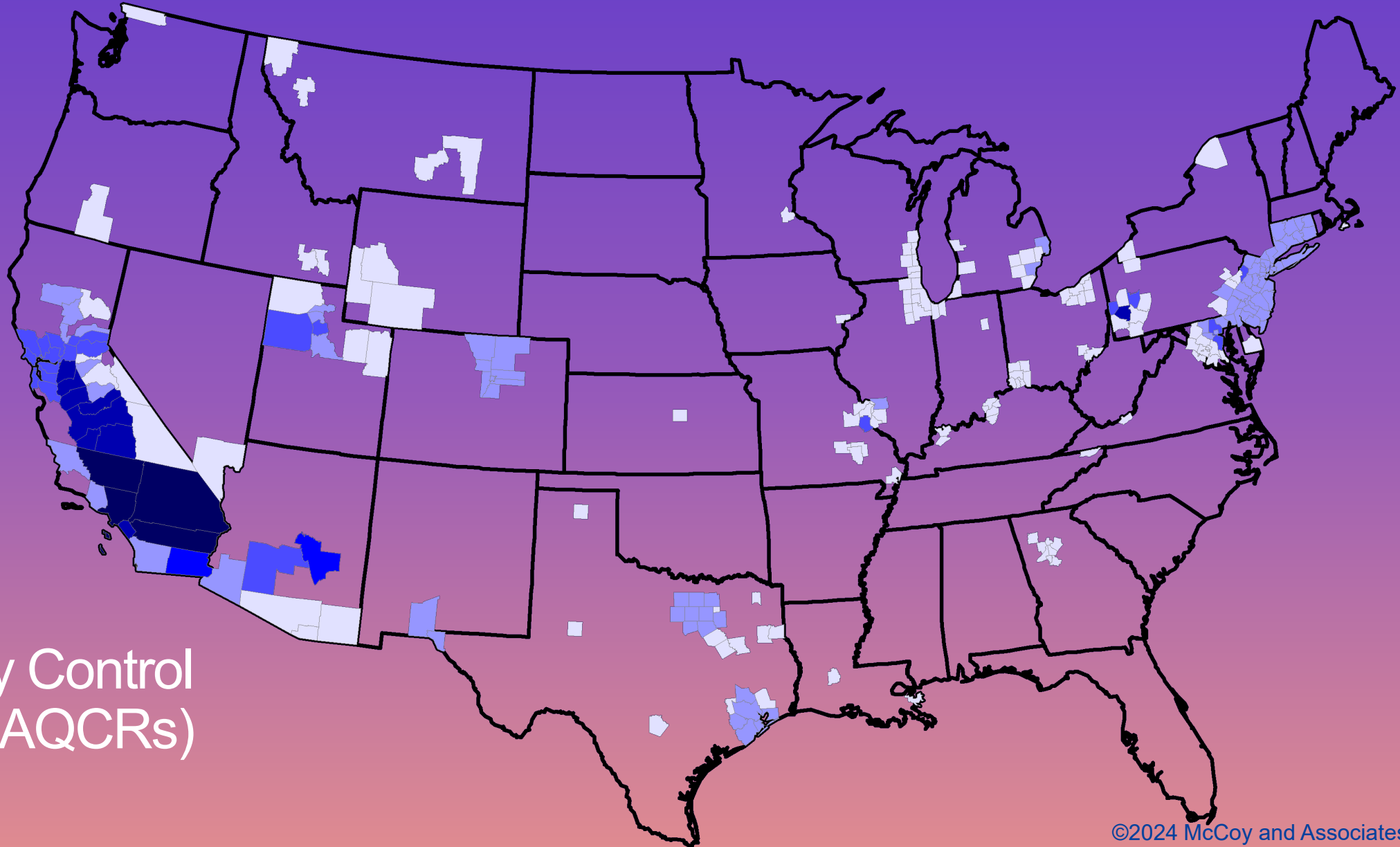


States: SIPs



States: Regulated Sources

Nonattainment Areas



Air Quality Control
Regions (AQCRs)

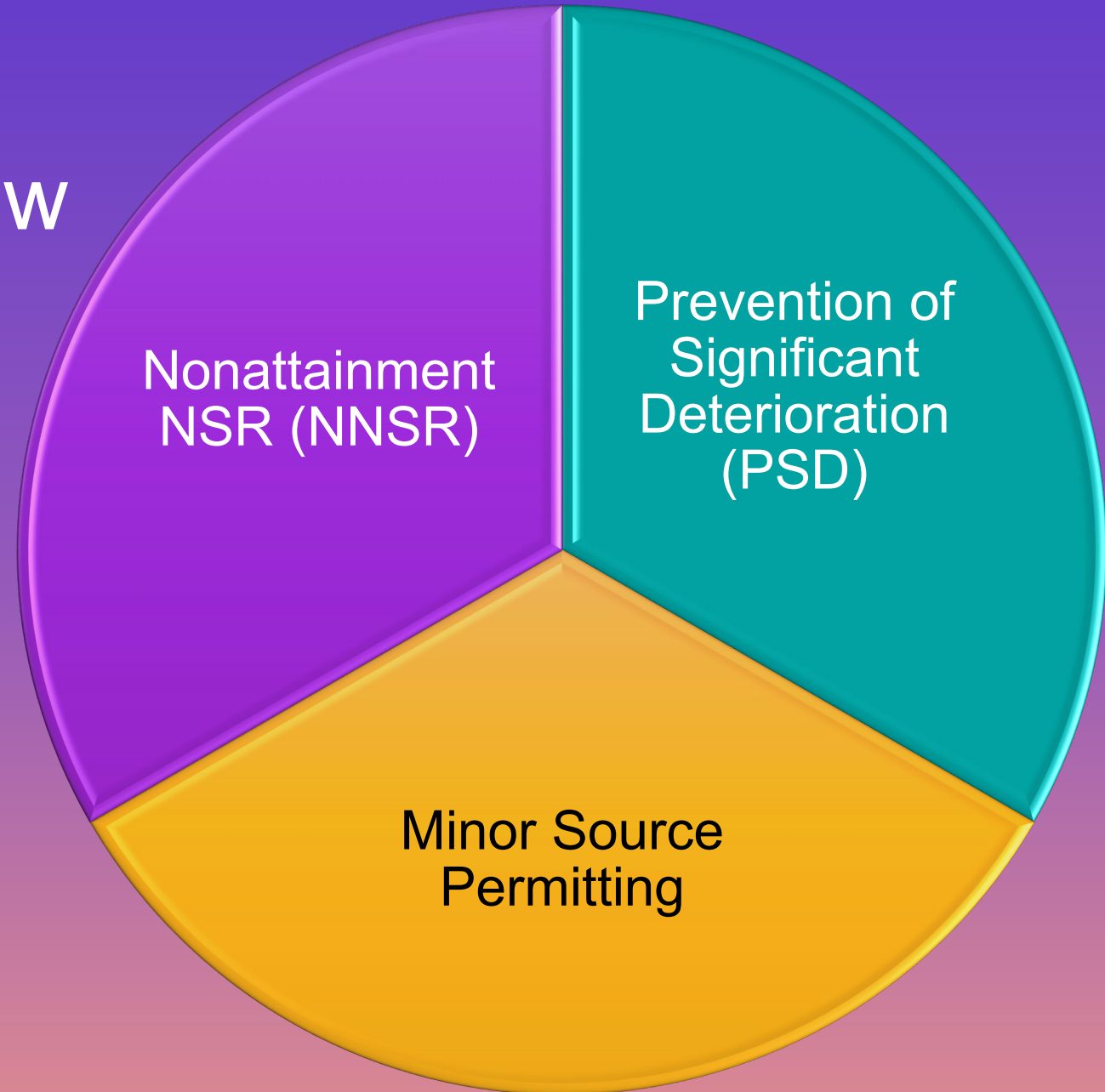
SIPs

Must include:

- Enforceable emissions limits
- Stationary source monitoring/reporting
- Enforcement program
- Ambient air quality monitoring/modeling
- New source review (NSR)
- Visibility provisions
- Delegation of NSPS, NESHAP, Air Toxics optional

NSR

New Source Review



NSR Applicability

Part 1: Define sources

Part 2: Major or minor source?

Major

Minor

Existing

New

Minor NSR*

Part 3: Major modification?

PSD or NNSR

Yes: PSD or NNSR

No: Minor NSR

*For existing minor sources, if modification constitutes a major source, either PSD or NNSR will apply.

NSR

NNSR

- LAER
- Offsets
- Complete compliance

PSD

- BACT
- Ambient impact analysis
- Other impact analysis

Minor Source

- General permits
- Permits-by-rule
- Very location-dependent

Visibility

A wide-angle photograph of the Grand Canyon under a dramatic, cloudy sky. The word "Visibility" is overlaid in white text on the left side of the image. The canyon's layered rock formations are visible, with some areas illuminated by sunlight and others in shadow. The sky is filled with dark, heavy clouds, with some light breaking through near the horizon.

NSPS

New Source

Performance Standards

NSPS

New, modified, reconstructed sources

Minimum source category standards

Original “ratcheting” provision

Reviewed every 8 years

The background of the slide is an abstract, flowing pattern of light blue and white, resembling smoke or liquid waves. The colors transition from a pale, almost white blue to a deeper, more saturated blue, creating a sense of movement and depth.

NESHAP

National Emission Standards
for Hazardous Air Pollutants

NESHAP

All air toxics sources

Minimum source category standards

Original NESHAP vs. Air toxics standards

Reviewed (RTR) every 8 years

Acid Rain





Coal-fired
power plants

Cap and trade

Title V

Major Source

Operating Permit Program



Title V

All major sources

Applicable requirements

Permit shield?

Title V Permit





SOP

Stratospheric Ozone Protection Program

SOP



Motor vehicle air conditioners

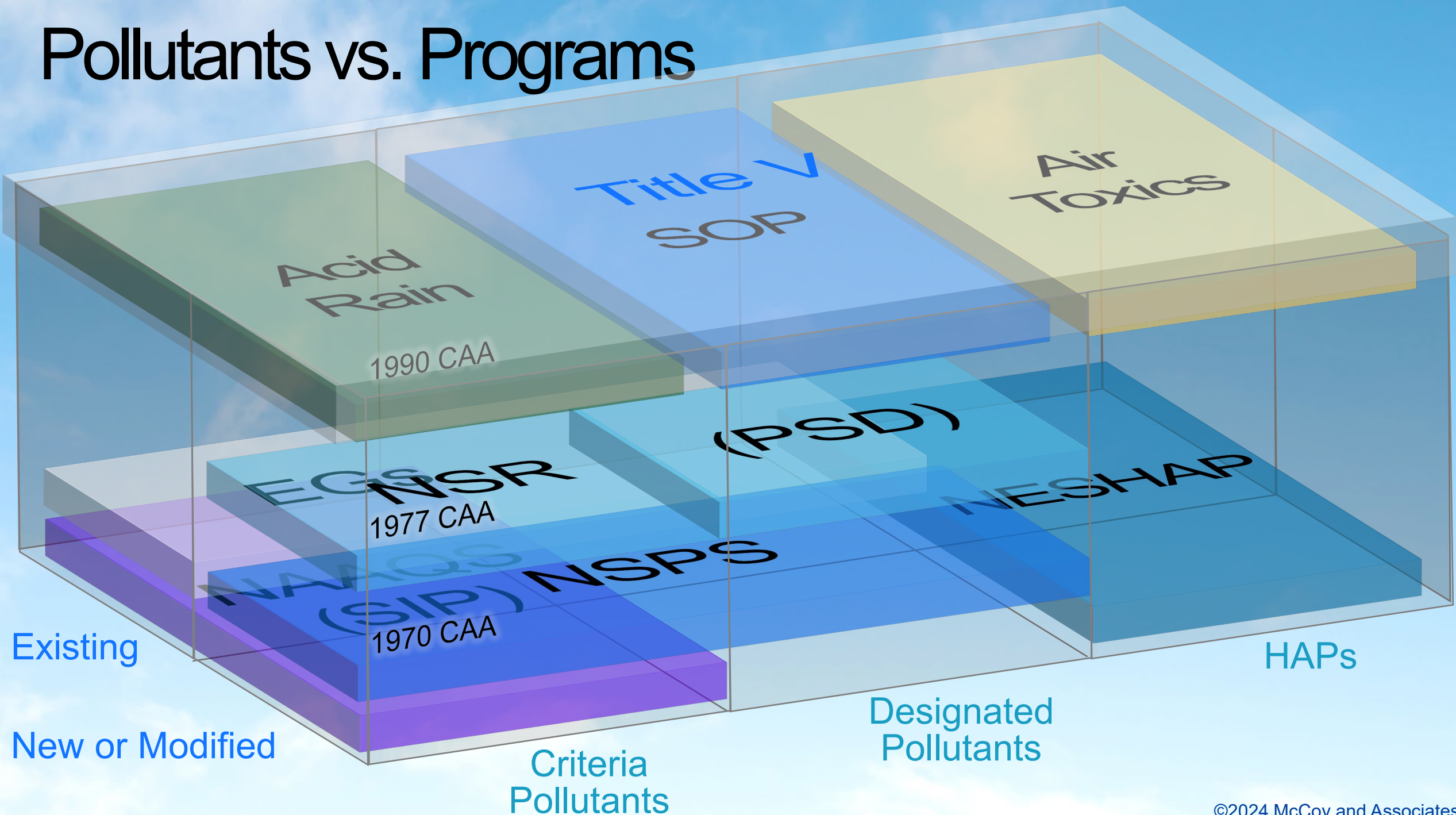


Other equipment
(e.g., refrigeration)



Products

Pollutants vs. Programs





CAA for Non-Airheads

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