



Potential Impacts of the New PM_{2.5} Annual Standard

Douglas Watson | April 17, 2024

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Air Quality Overview

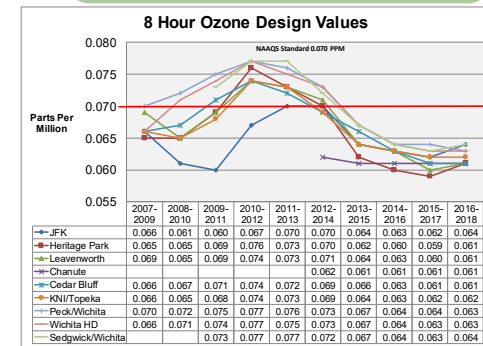
1. National Ambient Air Quality Standards

Pollutant (link to table of table of NAAQS review)	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 (NO ₂)	primary and secondary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		1 year	54 ppb (1)	Annual mean
Ozone (O ₃)	primary and secondary	8 hours	0.070 ppm (1)	Annual fourth-highest daily maximum 8-hour concentrations, averaged over 3 years
		1 year	12.0 µg/m ³	annual mean, averaged over 3 years
Particulate Matter (PM _{2.5})	primary and secondary	1 year	12.0 µg/m ³	annual mean, averaged over 3 years
		3 years	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
		24 hours	150 µg/m ³	not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO ₂)	primary	1 hour	75 ppb (1)	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		3 hours	0.5 ppm	not to be exceeded more than once per year

2. Why and where we monitor



3. Air Monitoring Results



National Ambient Air Quality Standards (NAAQS)

- Clean Air Act (CAA) requires EPA to
 - Set National Ambient Air Quality Standards for six air pollutants
 - Review every 5 years
 - Determine which counties meet the standards
- Based on Health effects
- Cost not taken into consideration in setting standards



NAAQS Pollutants

- Ozone
- Particulate Matter
 - PM₁₀
 - PM_{2.5}
- Carbon Monoxide
- Sulfur Dioxide
- Lead
- Nitrogen Dioxide

Particulate Matter: What is It?
A complex mixture of extremely small particles and liquid droplets

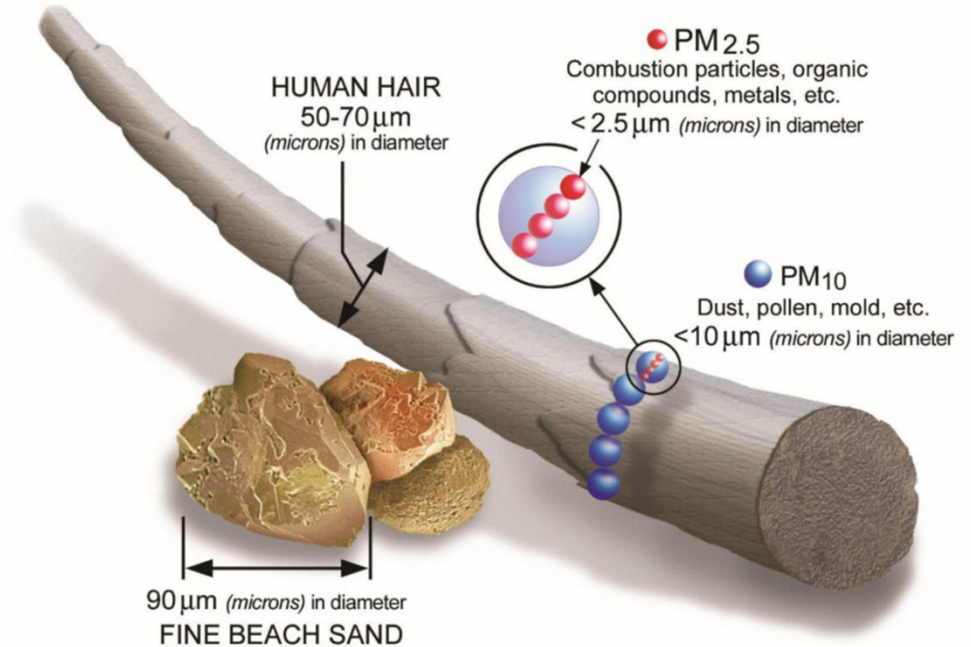


Image courtesy of the U.S. EPA

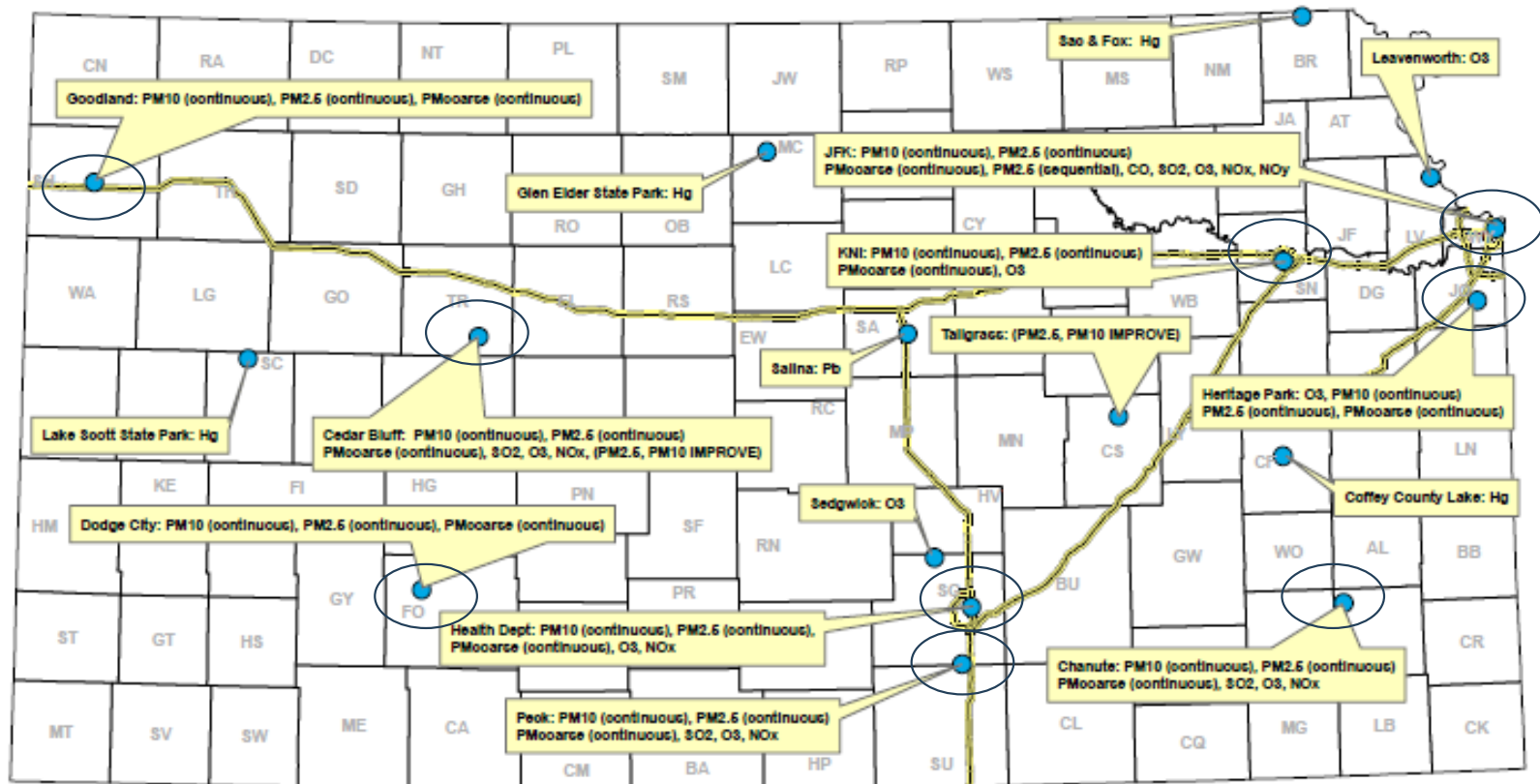
Why do we monitor?

- Compliance with air quality standards
- Evaluate trends
- Determine health-risk
- Establish baseline concentrations
- PSD construction permit requirement
- Model validation
- Post results to national database



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2024 Kansas Air Monitoring Sites





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Main Elements of the PM NAAQS Final Decision

- EPA is **strengthening the level of the primary (health-based) annual standard for fine particles (PM_{2.5})** to 9.0 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to reflect the latest available health science.
- EPA is **not changing all other PM standards:**
 - The primary (health-based) and secondary (welfare-based) 24-hour PM_{2.5} standards stay at the level of $35 \mu\text{g}/\text{m}^3$
 - The primary and secondary 24-hour PM₁₀ standards stay at the level of $150 \mu\text{g}/\text{m}^3$
 - The secondary annual PM_{2.5} standard stays at the level of $15.0 \mu\text{g}/\text{m}^3$
- EPA is also:
 - Revising the Air Quality Index (AQI) to improve public communications about the risks from PM_{2.5} exposures
 - Making changes to the monitoring network to enhance protection of air quality in communities overburdened by air pollution

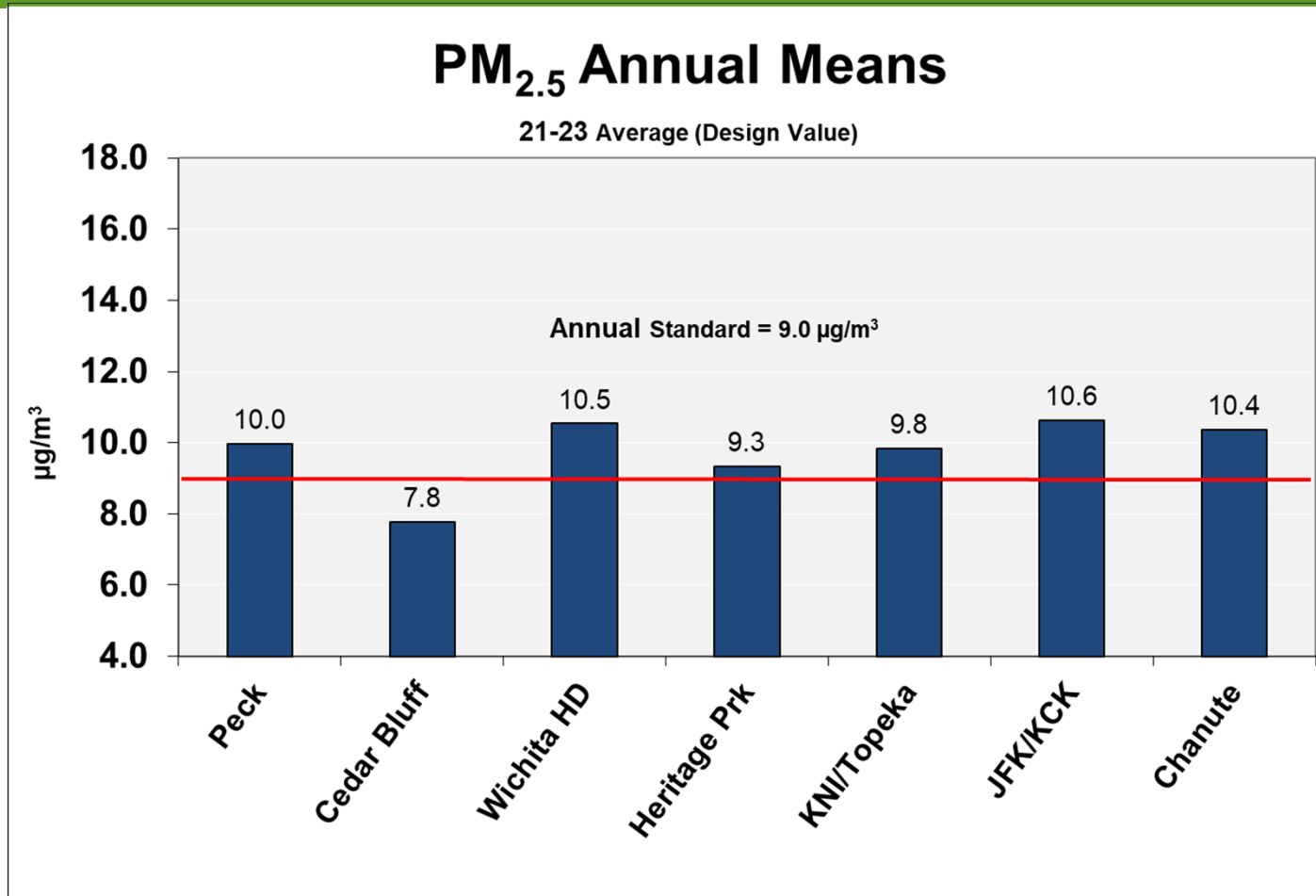


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Designations/Implementation Timeline

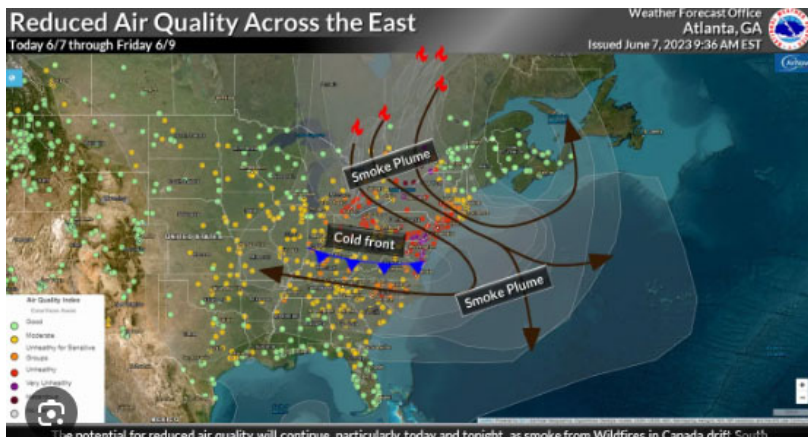
- **Stationary source permitting.**
 - Prevention of Significant Deterioration (attainment area permitting) applies with respect to a new standard in all areas of the U. S. designated attainment for the pollutant upon the effective date of the new standard.
 - Nonattainment New Source Review applies in areas designated nonattainment for the pollutant, which includes any areas newly designated nonattainment at/after the effective date of nonattainment designations.
- **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 PM_{2.5} nonattainment areas are initially designated as “Moderate”.
- **Within 3 years after 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 PM_{2.5} state implementation plans are due.
- **End of 6th calendar year after effective date of designations:** “Moderate” area attainment date.

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Remaining Issues

- T640(x) PM_{2.5} Instrument - Data High Bias Correction
 - Waiting on EPA to make data correction in AQS
- Data Influenced by Exceptional Events (wildfires, fireworks, etc.)
 - BOA will need to submit EE requests to EPA for any days that might cause a monitoring site not meet standard





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- By February 7, 2025, the state has to submit to EPA designation recommendations based on five factors including current monitoring data (2021-2023).
 - Factor 1: Air Quality Data.
 - Factor 2: Emissions and Emissions-Related Data.
 - Factor 3: Meteorology.
 - Factor 4: Geography/Topography.
 - Factor 5: Jurisdictional Boundaries.
- EPA will review these recommendations, look at the current monitoring data available at that time (2022-2024) then make the final designations by February 6, 2026.



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Will new rules and strategies be required to meet the new standard?

- Yes, a revision to the State Implementation Plan (SIP) will be developed and submitted to EPA.
- The SIP revision will include emission reductions measures required by the federal Clean Air Act, including new rules to reduce emissions that contribute to PM_{2.5} pollution.
- The state's transition to cleaner energy sources, electrification of vehicles and more efficient pollution controls on industrial sources may help drive down fine particulate matter going forward.
- While additional analysis is needed, these measures collectively may be enough for the state to meet the new standard by 2032.

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Hypothetical Permitting Scenarios



A facility has a final permit in hand before the effective date of new standard

- Project moves ahead
- No new air permitting requirements
- Permit issued



A facility has a permit in process when new standard takes effect – likely to be issued by a state or local air agency

- Compare current air quality modeling results to the new standard level, working with permitting agency
- Evaluate if additional air pollution emissions reductions are needed
- Permit issued



Plans for building new facility or expanding an existing one

- Work with permitting agency to estimate how much particle pollution will be emitted and choose best available air pollution control technology
- Demonstrate compliance with Clean Air Act requirements
- Permit issued



Plans for building new facility or expanding one in an area not meeting the new standard (permit needed after EPA designations process is completed – likely in or after 2026)

- Work with permitting agency to estimate how much particle pollution will be emitted and choose pollution controls with lowest achievable emission rate
- Demonstrate compliance with Clean Air Act requirements
- Permit issued

Thank you/Questions



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