

MEC 33rd Annual Sustainability & EHS Symposium

Session EE – 54th Anniversary of the Clean Air Act of 1970 and 34th Anniversary of the Clean Air Act Amendments of 1990 ... What's on the Horizon for Business & Industry in America's Heartland?

March 20, 2024



John Colebrook, Principal Consultant (Moderator)

Matt Stuckey, IDEM Asst. Commissioner of Air Quality

Michael Kennedy, Director of the Division for Air Quality, KYDEP

Bob Hodanbosi, Ohio EPA Div. of Air Pollution Control Chief



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Workshop Overview

▶ Format

- Short introduction to each topic
- Questions and answers

▶ Planned Topics

- Revised annual PM_{2.5} NAAQS
- Regulatory uncertainty from EPA's recent rulemaking/initiatives

Final Revision to PM_{2.5} NAAQS

- ▶ National Ambient Air Quality Standards (NAAQS) established to protect most sensitive individuals
 - Reviewed every 5 years
- ▶ Current PM_{2.5} NAAQS
 - 12 µg/m³ annual avg
 - 35 µg/m³ 24-hr avg
- ▶ 03/06/2024 final rule for PM NAAQS reconsideration (89 FR 16202)
 - Reconsideration of 2020 decision to maintain current standards
 - No changes to primary 24-hr PM_{2.5} standard, primary 24-hr PM₁₀ standard, and the secondary PM_{2.5} and PM₁₀ standards
 - Revise annual standard to 9 µg/m³ (**25% reduction to annual PM_{2.5} NAAQS w/ 26% of existing PM_{2.5} monitors for 2020-2022 design value exceeding standard!**)

Projected PM_{2.5} Nonattainment Areas Under Revised NAAQS

EPA's View of Annual PM_{2.5} NAAQS

Most Counties with Monitors Already Meet the Strengthened Particle Pollution Standard
(Based on 2020-2022 Air Monitoring Data)



<https://www.epa.gov/system/files/documents/2024-02/2024-pm-naaqs-final-2020-22-dv-map.pdf>

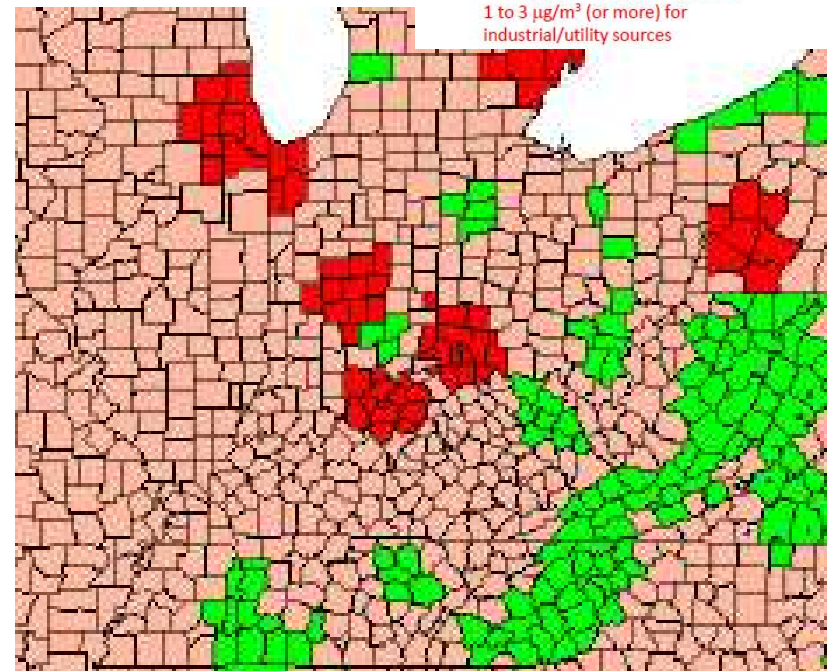
Industry's View of Annual PM_{2.5} NAAQS

2020-2022 Annual PM_{2.5} DV
Headroom to Threshold

- Nonattainment
- 1-3 ug/m3
- 3+ ug/m3

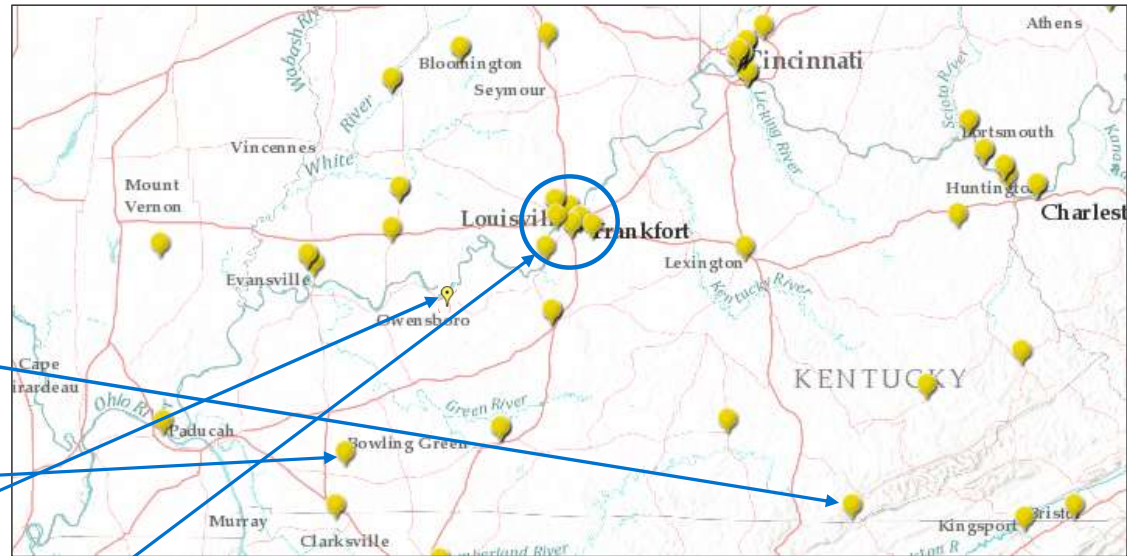
	Modeled
Count	35
90th Percentile	4.4
75th Percentile	3.5
Average	2.6
Median	2.5
25th Percentile	1.6
10th Percentile	0.9

Permit applicants typically model 1 to 3 µg/m³ (or more) for industrial/utility sources

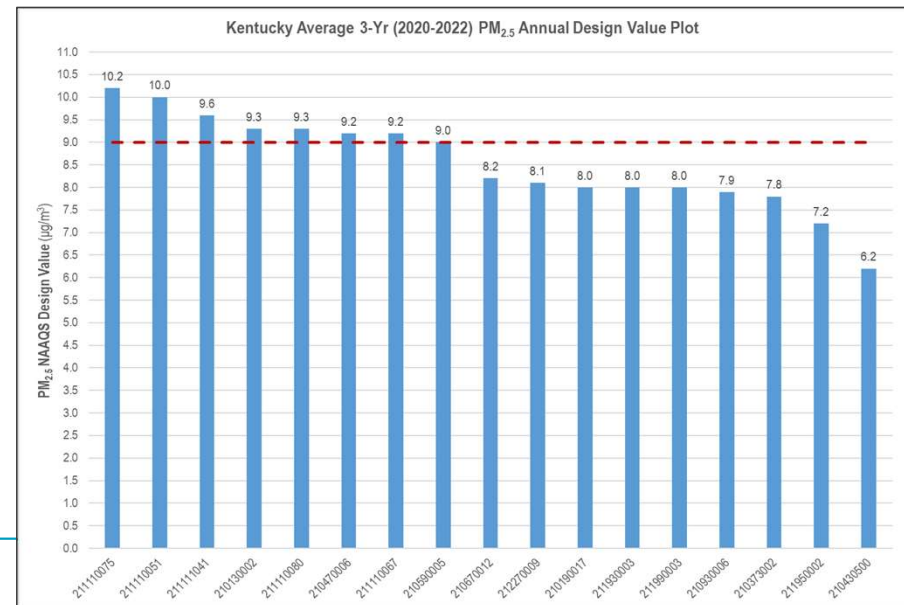


<https://www.regulations.gov/document/EPA-HQ-OAR-2015-0072-5976>

Annual PM_{2.5} Background Concentrations- Kentucky



State Name	County Name	CBSA Name	AQS Site ID	2020-2022 Annual Design Value (µg/m ³) [1,2]
Kentucky	Bell	Middlesborough, KY	210130002	9.3
Kentucky	Boyd	Huntington-Ashland, WV-KY-OH	210190017	8.0
Kentucky	Campbell	Cincinnati, OH-KY-IN	210373002	7.8
Kentucky	Carter		210430500	6.2
Kentucky	Christian	Clarksville, TN-KY	210470006	9.2
Kentucky	Daviess	Owensboro, KY	210590005	9.0
Kentucky	Fayette	Lexington-Fayette, KY	210670012	8.2
Kentucky	Hardin	Elizabethtown-Fort Knox, KY	210930006	7.9
Kentucky	Jefferson	Louisville/Jefferson County, KY-IN	211110051	10.0
Kentucky	Jefferson	Louisville/Jefferson County, KY-IN	211110067	9.2
Kentucky	Jefferson	Louisville/Jefferson County, KY-IN	211110075	10.2
Kentucky	Jefferson	Louisville/Jefferson County, KY-IN	211110080	9.3
Kentucky	Jefferson	Louisville/Jefferson County, KY-IN	211111041	9.6
Kentucky	Perry		211930003	8.0
Kentucky	Pike		211950002	7.2
Kentucky	Pulaski	Somerset, KY	211990003	8.0
Kentucky	Warren	Bowling Green, KY	212270009	8.1

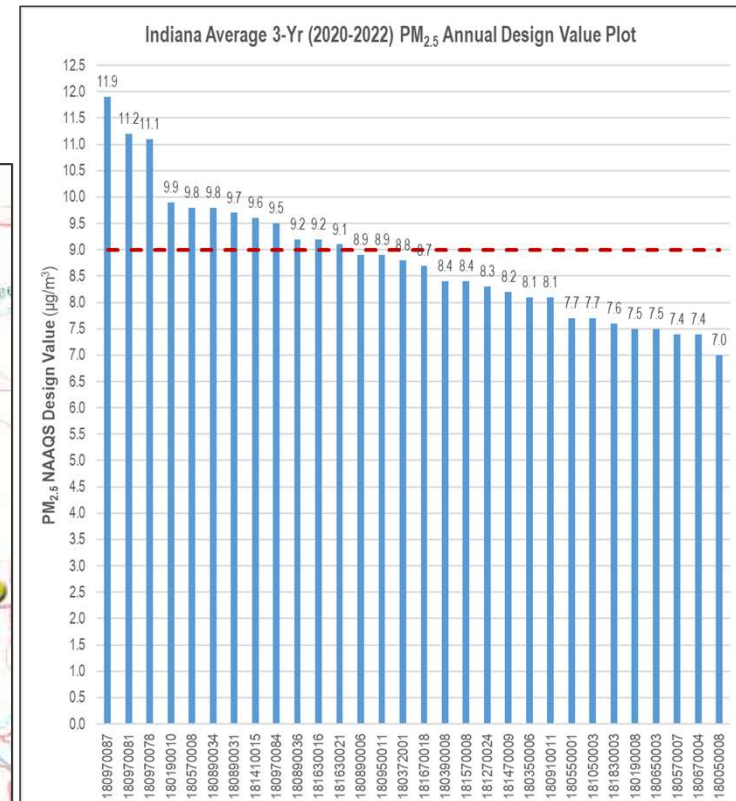


- ▶ Significant changes from FEM bias adjustment?
- ▶ Owensboro PM_{2.5} monitor now inactive; Can historical data be used to designate nonattainment area (NAA)?
- ▶ Hopkinsville (Christian Cty.) monitor valid data?

Annual PM_{2.5} Background Concentrations- Indiana



State Name	County Name	CBSA Name	AQS Site ID	2020-2022 Annual Design Value (µg/m ³) [1,2]
Indiana	Bartholomew	Columbus, IN	180050008	7.0
Indiana	Clark	Louisville/Jefferson County, KY-IN	180190008	7.5
Indiana	Clark	Louisville/Jefferson County, KY-IN	180190010	9.9
Indiana	Delaware	Muncie, IN	180350006	8.1
Indiana	Dubois	Jasper, IN	180372001	8.8
Indiana	Elkhart	Elkhart-Goshen, IN	180390008	8.4
Indiana	Greene	Greene, IN	180550001	7.7
Indiana	Hamilton	Indianapolis-Carmel-Anderson, IN	180570007	7.4
Indiana	Hamilton	Indianapolis-Carmel-Anderson, IN	180570008	9.8
Indiana	Henry	New Castle, IN	180650003	7.5
Indiana	Howard	Kokomo, IN	180670004	7.4
Indiana	Lake	Chicago-Naperville-Elgin, IL-IN-WI	180890006	8.9
Indiana	Lake	Chicago-Naperville-Elgin, IL-IN-WI	180890031	9.7
Indiana	Lake	Chicago-Naperville-Elgin, IL-IN-WI	180890034	9.8
Indiana	Lake	Chicago-Naperville-Elgin, IL-IN-WI	180890036	9.2
Indiana	LaPorte	Michigan City-La Porte, IN	180910011	8.1
Indiana	Madison	Indianapolis-Carmel-Anderson, IN	180950011	8.9
Indiana	Marion	Indianapolis-Carmel-Anderson, IN	180970078	11.1
Indiana	Marion	Indianapolis-Carmel-Anderson, IN	180970081	11.2
Indiana	Marion	Indianapolis-Carmel-Anderson, IN	180970084	9.5
Indiana	Marion	Indianapolis-Carmel-Anderson, IN	180970087	11.9
Indiana	Monroe	Bloomington, IN	181050003	7.7
Indiana	Porter	Chicago-Naperville-Elgin, IL-IN-WI	181270024	8.3
Indiana	St. Joseph	South Bend-Mishawaka, IN-MI	181410015	9.6
Indiana	Spencer	Spencer, IN	181470009	8.2
Indiana	Tippecanoe	Lafayette-West Lafayette, IN	181570008	8.4
Indiana	Vanderburgh	Evansville, IN-KY	181630016	9.2
Indiana	Vanderburgh	Evansville, IN-KY	181630021	9.1
Indiana	Vigo	Terre Haute, IN	181670018	8.7
Indiana	Whitley	Fort Wayne, IN	181830003	7.6

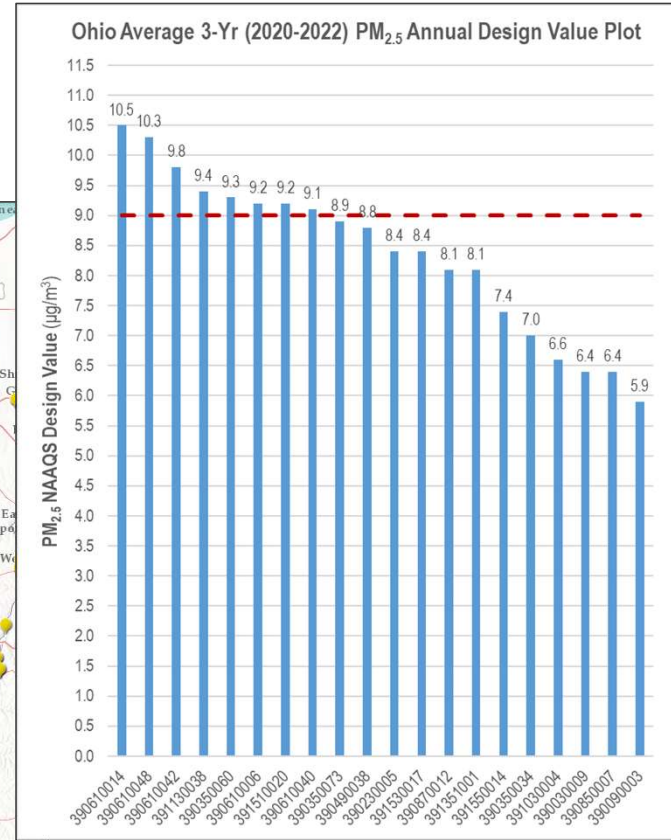
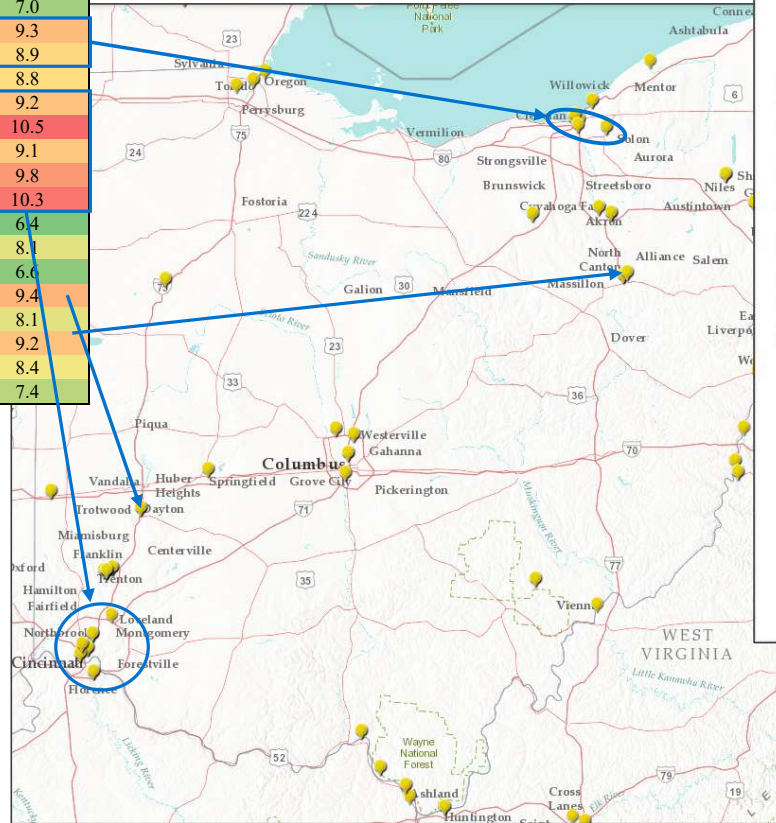


- ▶ Indianapolis-Carmel-Anderson NAA boundary extended to include Madison County?
- ▶ South Bend (St. Joseph) first time PM_{2.5} NAA?

Annual PM_{2.5} Background Concentrations- Ohio



State Name	County Name	CBSA Name	AQS Site ID	2020-2022 Annual Design Value (µg/m ³) [1,2]
Ohio	Allen	Lima, OH	390030009	6.4
Ohio	Athens	Athens, OH	390090003	5.9
Ohio	Clark	Springfield, OH	390230005	8.4
Ohio	Cuyahoga	Cleveland-Elyria, OH	390350034	7.0
Ohio	Cuyahoga	Cleveland-Elyria, OH	390350060	9.3
Ohio	Cuyahoga	Cleveland-Elyria, OH	390350073	8.9
Ohio	Franklin	Columbus, OH	390490038	8.8
Ohio	Hamilton	Cincinnati, OH-KY-IN	390610006	9.2
Ohio	Hamilton	Cincinnati, OH-KY-IN	390610014	10.5
Ohio	Hamilton	Cincinnati, OH-KY-IN	390610040	9.1
Ohio	Hamilton	Cincinnati, OH-KY-IN	390610042	9.8
Ohio	Hamilton	Cincinnati, OH-KY-IN	390610048	10.3
Ohio	Lake	Cleveland-Elyria, OH	390850007	6.4
Ohio	Lawrence	Huntington-Ashland, WV-KY-OH	390870012	8.1
Ohio	Medina	Cleveland-Elyria, OH	391030004	6.6
Ohio	Montgomery	Dayton, OH	391130038	9.4
Ohio	Preble	Dayton, OH	391351001	8.1
Ohio	Stark	Canton-Massillon, OH	391510020	9.2
Ohio	Summit	Akron, OH	391530017	8.4
Ohio	Trumbull	Youngstown-Warren-Boardman, OH-PA	391550014	7.4



- ▶ 51 Active PM_{2.5} Monitors
- ▶ 20 PM_{2.5} Monitors w/ valid 2020-2022 DV
- ▶ Canton (Stark Cty.) designated NAA for first time
- ▶ Columbus (Franklin Cty.) borderline w/ new monitors added...will it fall into NAA?

Basic Permitting/Compliance Implications of Revised PM_{2.5} NAAQS

- ▶ **Short-Term Impact** (>5/6/24) - Air quality analysis component of PSD must address reduced annual PM_{2.5} NAAQS; Affects active/planned PSD projects
- ▶ **Medium-Term Impact** (Next Modeling Study in Your Area?) – Your source shown as “culpable” for modeled NAAQS exceedances from nearby source
- ▶ **Medium Term Impact** (within ~2 years of Eff. Date) - More prevalent Nonattainment NSR (NNSR) permitting from new or expanded NAA
 - LAER/offsets in place of BACT /modeling for major NSR actions in newly designated nonattainment areas
- ▶ **Medium Term Impact** (within ~2 years of Eff. Date) - Sources located near nonattainment areas cannot impact NAAQS attainment plan
- ▶ **Long-Term Impact** (18 months after designations or ~3-4 Years from Eff. Date) - New and revised RACT requirements for existing sources in NAA
- ▶ **Very Long-Term Impact** (~2032 and beyond) – Reduced major source thresholds for areas not attaining standard

Regulatory Uncertainty from EPA Rulemaking/Initiatives (1/4)

- ▶ Biden EPA picking up momentum with very active regulatory agenda in Year 4 of administration (common trend similar to prior admins.)
 - ▶ Dynamic of proposed rule → large number comment from industry/agencies/environmental groups → major changes in final rule → court challenges → court rulings → rule stay/remand ...creates uncertainty
1. Good Neighbor Federal Implementation Plan (FIP) for Ozone Transport
 - Affects NO_x emissions from EGU and select industrial sectors
 - EGU NO_x allowance trading program under CSAPR; Non-EGU NO_x limits (RACT-like) for 6 largest contributing industrial categories
 - List of affected States is actively changing with multiple court challenges/rulings involving stays of the rule's effectiveness
 - Ozone season 2026 compliance date is rapidly approaching in the face of uncertainty on rule actually taking effect...

Regulatory Uncertainty from EPA Rulemaking/Initiatives (2/4)

2. GHG NSPS and Emissions Guidelines (EG) for Oil & Gas (O&G) (Final Rule)

- NSPS 0000b/EG 0000c sharply reduce methane from new and existing O&G operations (**starting w/ single wellhead sites!**)

<https://www.epa.gov/system/files/documents/2023-12/key-things-to-know-about-epas-final-rule-for-oil-and-natural-gas-operations.fact-sheet.pdf>

<https://www.epa.gov/system/files/documents/2023-12/epas-final-rule-for-oil-and-gas-operations.-overview-fact-sheet.pdf>

- “Super-emitter” program involves **satellite detection, remote-sensing equipment on aircraft, or mobile monitoring platforms** for >100 kg/hr
- Periodic inspections w/ audible, visual, and olfactory (AVO) and optical gas imaging (OGI) inspections for leak detection and repair (LDAR)
- NSPS 0000b for new, modified, reconstructed sources has tiered compliance dates ranging from 60 days after FR date to 790 days after FR date
- NSPS 0000c for existing sources has initial compliance date in early 2029
- 40 CFR Part 60 applicable requirements can nullify permit exemptions under some state air permitting programs introducing a large burden for agencies to process applications/issue permits for “first time” sources...

Regulatory Uncertainty from EPA Rulemaking/Initiatives (3/4)

3. GHG NSPS and EG for Fossil-Fuel Fired EGU (Proposed Rule; Final Rule ~April '24)
 - NSPS Subpart TTTTa affects new and reconstructed stationary combustion turbines (replaces Subpart TTTT) and modified coal-fired EGU (new/reconstructed coal-fired EGU covered under revised Subpart TTTT)
 - ◆ Subcategories for low load/peaking, intermediate load, and base load turbines w/ phase in of new best system of emission reduction (BSER) involving H₂ co-firing or carbon capture and storage (CCS)
 - ◆ Modified coal-fired EGU BSER is 88.4% reduction in annual CO₂ over 2002 baseline
 - EG Subpart UUUUb affects existing steam generating units and existing natural gas fired stationary combustion turbines and replaces 2019 Subpart UUUUa
 - ◆ Subcategories for coal plants based on planned retirement date and large existing baseload combustion turbines (expected to be excluded from final rule)
 - ◆ BSER for coal plants is co-firing with natural gas until 2039 and CCS in 2040 and beyond
 - Final rule has been released to OMB Information and Regulatory Affairs (OIRA) and is expected to be released in April; SIP plans due within 2 years of effective date

Regulatory Uncertainty from EPA Rulemaking/Initiatives (4/4)

3. Environmental Justice (EJ) and Participatory Science introduces increased public participation in agency actions

- Biden EPA releases \$600 million in funding to 11 selected grantmakers created by EPA's *Environmental Justice Thriving Communities Grantmaking* program under the Inflation Reduction Act (IRA)

<https://www.epa.gov/newsreleases/biden-harris-administration-announces-600m-11-grantmakers-fund-thousands-environmental#:~:text=EPA%20announced%20nearly%20%24128%20million,Biden%27s%20Investing%20in%20America%20agenda.>

- Illinois EPA enters a Civil Rights Act Title VI settlement with US EPA for a contested air permit at a metals recycling facility with a heavy EJ-focus

- ◆ Numerous enhancements to permit review process including “further analysis” of sensitive populations (schools, hospitals, day care centers, etc.) near the proposed/affected facility

<https://chicago.suntimes.com/environment/2024/02/23/pritzker-general-iron-epa-environmental-impact-southeast-side-low-income-areas-southside-recycling>

https://epa.illinois.gov/content/dam/soi/en/web/epa/topics/environmental-justice/documents/grievance/021424%20Informal%20Resolution%20Letter%20and%20Agreement_EPA%20Complaint%20No.%2001RNO-21-R5.pdf

- EPA maintains well-funded and active programs encouraging Participatory Science (Citizen Science) where general members of the public would initiate various environmental monitoring programs

<https://www.epa.gov/participatory-science/frequently-asked-questions-participatory-science>

Questions & Discussion

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Biographical Information

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John Colebrook is a Principal Consultant in Trinity Consultants' Covington, Kentucky office with 17 years of consulting experience. He provides a wide array of environmental solutions to clients including greenfield facility siting support, state and federal air quality permitting, NSPS and MACT compliance assistance, emission inventory development, and dispersion modeling. Mr. Colebrook has worked on regulatory compliance and air permitting projects for clients in numerous industrial sectors including electric utility, gasification, petroleum refining, chemical manufacturing, primary and secondary metals, natural gas distribution, fiberglass products manufacturing, and roofing products manufacturing. Additionally, Mr. Colebrook is an instructor for some of Trinity's popular training courses including Air Regulations and Permitting in Kentucky and Kentucky Air Reporting Workshop. Mr. Colebrook has a B.S. in Chemical Engineering from Bucknell University.

**Matthew Stuckey, Assistant Commissioner
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Matthew started at IDEM in 1993 in the Office of Management and Budget as a Stores Clerk. He was hired by IDEM's Office of Enforcement in 1994 as a case manager where he handled air cases and represented enforcement on OAQ work groups. In 2005, Matt transferred to OAQ as a senior environmental manager in the New Source Review Section of the Permits Branch. He became section chief of that section in 2006. In 2007, Matt became the deputy chief of the Permits Branch and not long after was promoted to the chief of the Permits Branch. Matt has a Bachelor of Science degree in Criminal Justice from Indiana University – School of Public and Environmental Affairs

**Michael Kennedy, PE, Director, Kentucky Division for Air Quality
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Michael Kennedy is the Director for Kentucky's Division for Air Quality. He has been with the Kentucky Energy and Environment Cabinet since 2009. He started his EEC career with DAQ in source sampling then moved to Permit Review Branch. Michael also had a stretch as Assistant Director for Kentucky's Office of Energy Policy. Prior to working for EEC, he worked in the private sector as an engineer for a small but diverse manufacturing company located in his hometown of Manchester, Kentucky. He graduated from the University of Kentucky with a bachelor's degree in Bio-systems and Agricultural Engineering. He holds a PE in environmental engineering. He lives in Lexington with his wife, Heather, three daughters, and a son.

Biographical Information

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Bob Hodanbosi became chief of the Division of Air Pollution Control (DAPC), Ohio Environmental Protection Agency (Ohio EPA) in September 1992. His current duties include being responsible for the air pollution control program for the state of Ohio and development of the programs needed to comply with the Clean Air Act Amendments. In 2004, Bob was selected to represent state permitting authorities on the Title V Permit Performance Task Force that was formed by the U.S. EPA's Clean Air Act Advisory Committee (CAAAC). Bob has also had the opportunity to testify at U.S. House and Senate committees on Clean Air Act impacts on facilities in Ohio. From May 1987 to September 1992, his position was assistant chief of DAPC and manager of the Air Quality Modeling and Planning Section, DAPC, Ohio EPA. From April 1978 to May 1987, as manager of the Air Quality Modeling and Planning Section, his main duties included: development of the technical support for air pollution control regulations for criteria air pollutants; atmospheric dispersion modeling; air quality designations under Section 107 of the Clean Air Act; development of new source review procedures; Since the 1980's, Bob has represented Ohio EPA on the Ohio Coal Development Office, Technical Advisory Committee. From January 1977 to April 1978, his position was supervisor of the Environmental Assessment Unit, DAPC, Ohio EPA. The main responsibilities of this position involved the supervising of all air quality evaluation and atmospheric dispersion modeling activities for DAPC. From June 1973 to December 1976, he held a position in the Northeast District Office/Engineering Services Section, DAPC, Ohio EPA. The main function of this position involved the engineering review of air pollution permit applications. Bob has lectured extensively on topics relating to the requirements under the Clean Air Act and the controls needed to meet air quality standards. Finally, Bob is a current member of CAAAC.

PROFESSIONAL ASSOCIATIONS

Mr. Hodanbosi is a member of the American Institute of Chemical Engineers and Air & Waste Management Association, and is registered as a Professional Engineer in the states of Ohio and West Virginia. Bob is current President of the Association of Air Pollution Control Agencies.

EDUCATIONAL BACKGROUND

Mr. Hodanbosi received his Master's of Science degree in Chemical Engineering at the Cleveland State University in 1977, and a Bachelor in Chemical Engineering at the Cleveland State University in 1973. In addition, he completed post-graduate courses in fluid mechanics and turbulence at the Ohio State University, 1978 to 1982.

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