
Air Quality Issues Update

LADCO Regional Air Quality Workshop

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Control

Ohio's Attainment Status

- ❑ The entire state is attainment for nitrogen dioxide, sulfur dioxide, lead and carbon monoxide.
 - ❑ Ohio has nonattainment areas for PM2.5 and ozone
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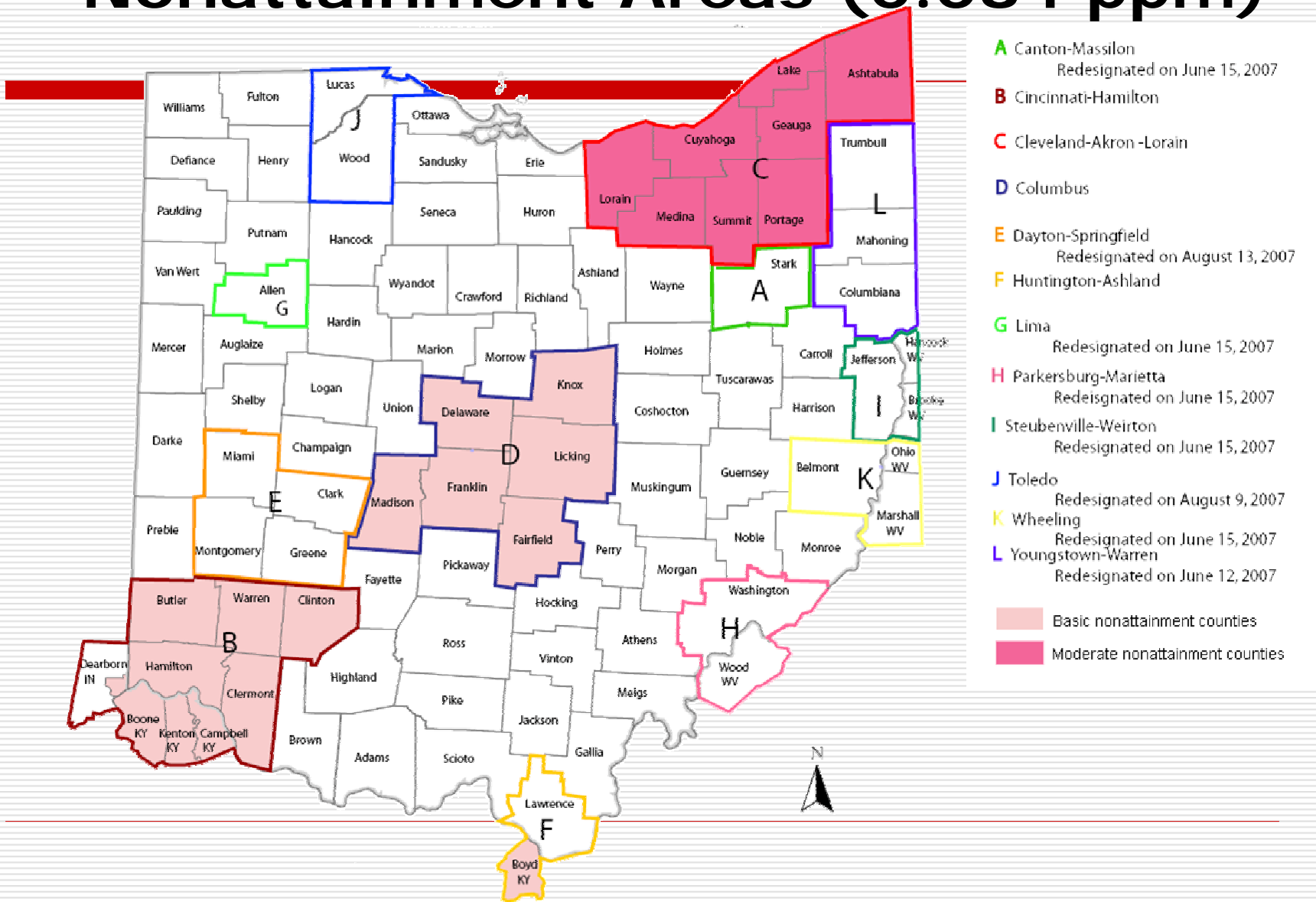
Ozone Air Quality Standard

- ❑ New Standard – 0.075 ppm average of fourth highest concentration measured over a three year period.
 - ❑ Old standard - 0.084 ppm – average of the fourth highest concentration measured over a three year period.
 - ❑ Old, Old standard – 0.125 ppm not to be exceeded more than four times in a three year period
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Ozone Exceedances by Year (through October 1, 2008)

Year	0.125 ppm 1-hr	0.08 ppm 8-hr	0.075 ppm 8-hr
2000	1	135	326
2001	2	250	738
2002	22	801	1436
2003	22	204	458
2004	None	25	178
2005	5	192	688
2006	None	39	236
2007	None	110	541
2008	none	30	171

Eight-Hour Ozone Nonattainment Areas (0.084 ppm)



Important Dates – Eight-Hour Ozone Standard (0.08 ppm)

- ❑ June 14, 2004 – Nonattainment areas become effective for the eight-hour ozone standard
 - ❑ December 2007 – Legislature extends the e-check program in the Cleveland area for through at least June 30, 2009
 - ❑ June 15, 2007 – Ozone SIPs were due for all areas
 - ❑ June 2009 – Attainment date for all areas (except Cleveland)
 - ❑ June 2010 – Attainment date for Cleveland area
 - ❑ June 2013 – Attainment date for Serious areas
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What did we do?

- ❑ Initial modeling showed attainment by deadline in most areas – Columbus – OK; Cincinnati – close; Cleveland – not there
 - ❑ Worked with other mid-western states to redo entire SIP modeling with 2005 baseline for Cleveland, Cincinnati
 - ❑ Moved forward with some rules – consumer products, AIM coatings, portable fuel containers
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What did we do?

- ❑ Received a “Findings Letter” for failure to submit RACT rules on time
 - ❑ Ohio EPA completed rules and submitted rules to Region V – sanction clock no longer running
 - ❑ Modeling shows we just meet attainment of 0.084 ppm standard for Cleveland, Cincinnati
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What happens next for ozone?

- ❑ Ohio EPA has submitted initial SIP based on 2005 base year – includes CAIR
 - ❑ Examining what options are available to obtain emission reductions knowing that there is a new standard in place
 - ❑ Modeling is not the only data reviewed as part of SIP submittal – monitoring data is also examined
 - ❑ US EPA uses a “weigh of evidence” approach and will look at both modeling and monitoring.
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How close are we to attainment?

- 2005-2008 Air Quality Data –
Average of fourth high over 3 year
period
 - Cincinnati – 0.085 ppm
 - Columbus – 0.084 ppm
 - Cleveland - 0.084 ppm
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Next Step

- ❑ Finalized SIP submittal for Cleveland
 - ❑ Looking at whether additional controls are needed/possible to reduce ozone concentrations
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“New” Ozone standard

- On March 13, 2008, U. S. EPA announced a revised ozone standard of 0.075 ppm, average of the fourth highest concentration over a three year period.
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What will be the impact of the new standard?

- ❑ We do not know – it depends on US EPA implementation rules
 - ❑ Just as with the “old” eight-hour standard, the key is how much time we will have to attain
 - ❑ Our preliminary projections would indicate that we would meet the new standard around 2018 (except one monitor in Lake County)
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What will be the impact of the new standard?

- ❑ But will US EPA grant us until 2018 or will that require us to be “serious” or even “severe” nonattainment?
 - ❑ We will not know until US EPA publishes the implementation rule – maybe a year from now, maybe longer
 - ❑ The new rule does not impact the requirements under the old eight-hour standard. We still need to go forward and attain by the deadlines identified by US EPA.
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Projected nonattainment of the "new" ozone standard



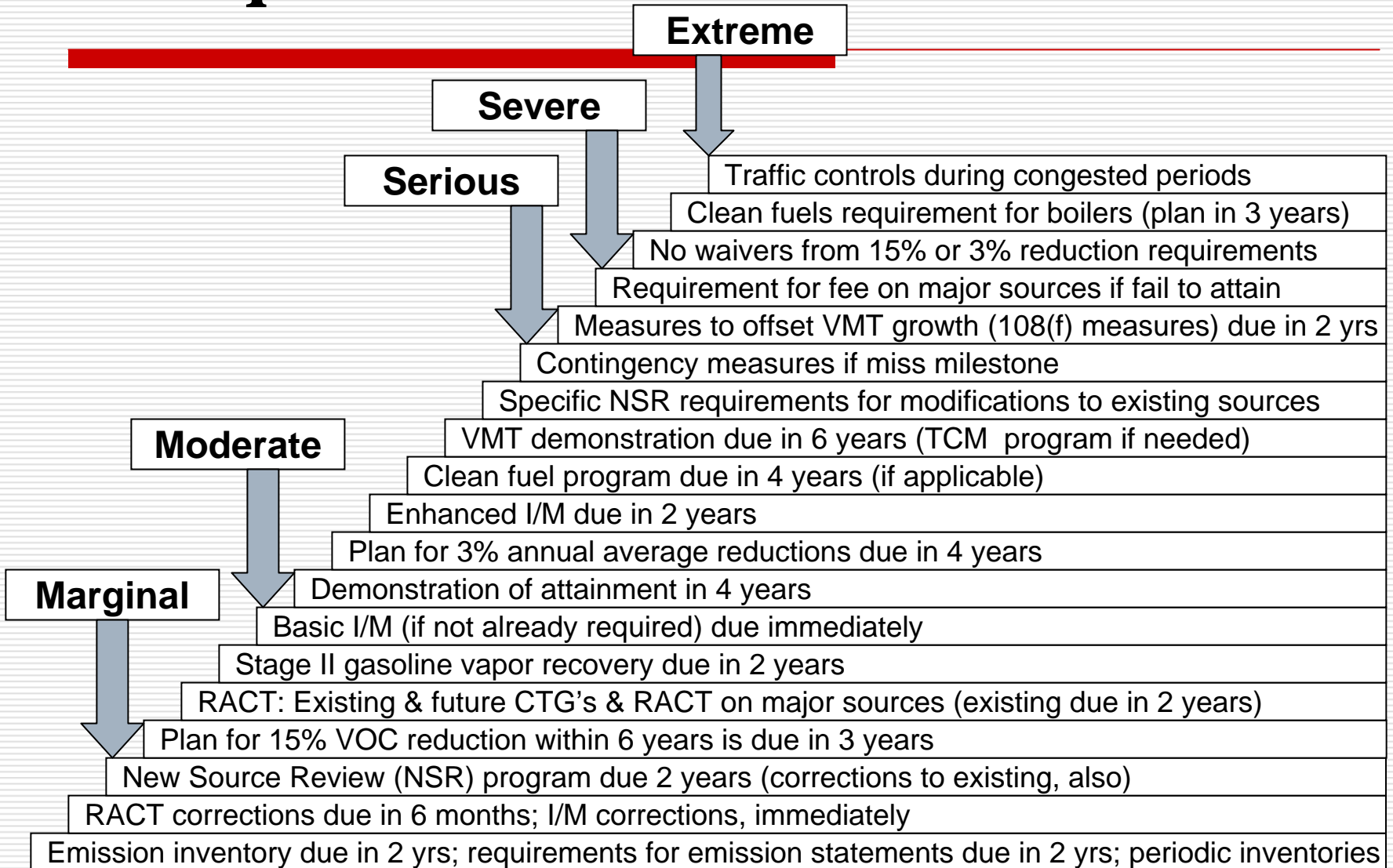
Projected nonattainment of the “new” ozone standard

- ❑ What will be the schedule for the “new” eight-hour standard?
 - ❑ March 2008 – Standard promulgated
 - ❑ March 2009 – State recommends nonattainment areas
 - ❑ March 2010 – US EPA finalizes nonattainment designations
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Projected nonattainment of the “new” ozone standard

- ❑ March 2013 – State Implementation Plan submittals due
 - ❑ March 2013 – Attainment date for marginal areas?
 - ❑ March 2016 – Attainment date for moderate areas?
 - ❑ March 2019 – Attainment date for serious areas?
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Requirements for Ozone Areas - CAA



What will be the impact of the new standard?

- ❑ Other issues – Air Quality Index rules also changed – expect a lot more “air quality advisories”
 - ❑ For example – there were 110 exceedances of the “old” eight-hour standard during 2007 - 467 of the revised ozone standard.
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What happens if the SIP is not approved?

- ❑ US EPA is required to begin the “sanctions” process.
 - ❑ A sanctions letter is issued to the state that provides up to 18 months to fix problem
 - ❑ After 18 months, two for one offsets are required in nonattainment area
 - ❑ After 6 months, US EPA will stop federal highway money from going to the nonattainment area.
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PM2.5 Air Quality Standard

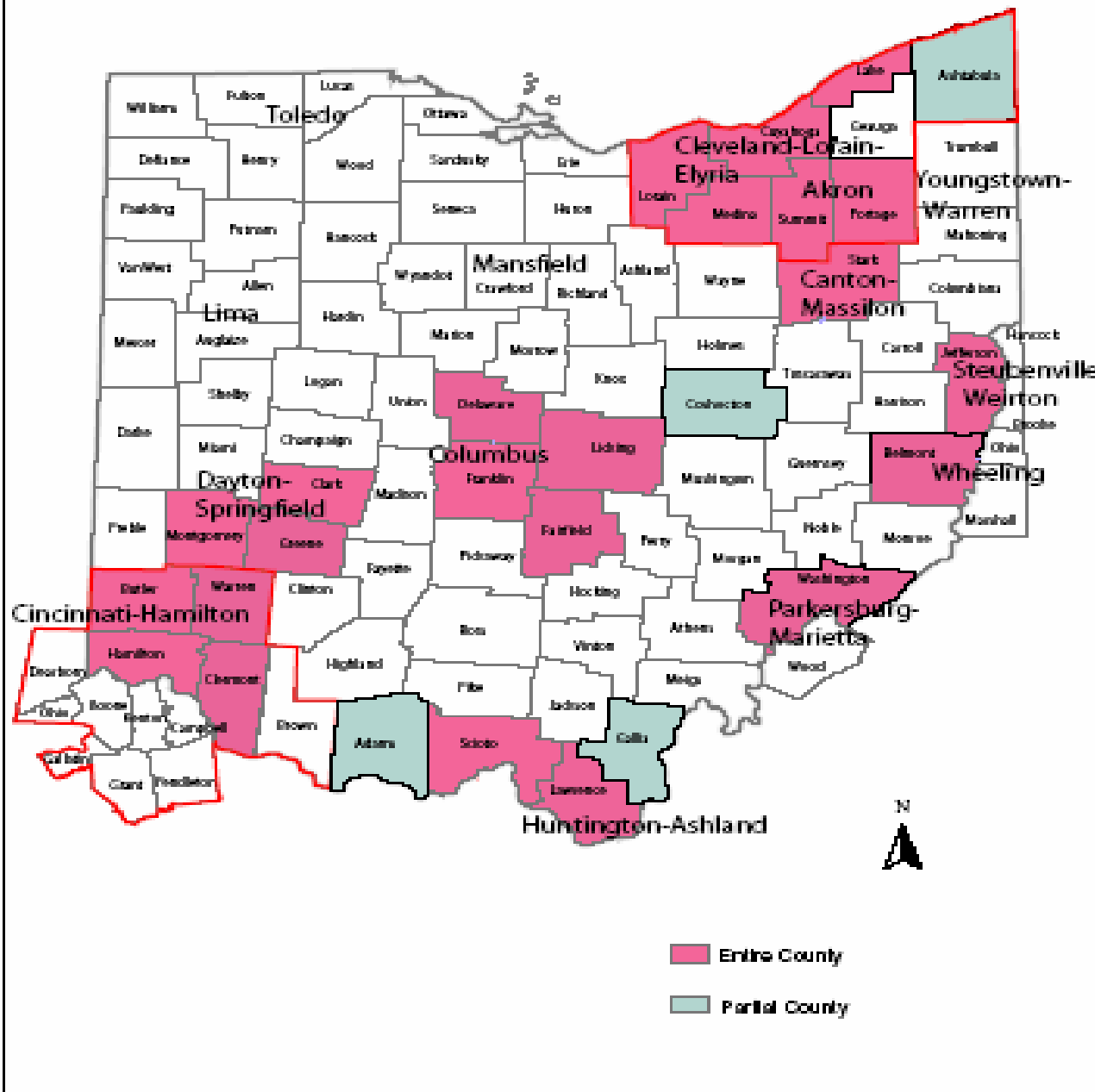
- Annual standard – 15 ug/m³, averaged over a three year period
 - 24 hour standard- 65 ug/m³ (old), 35 ug/m³ (new)
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PM2.5 in Ohio - annual (2003-2005, 2004-2006, 2005-2007)

- ❑ Cleveland/Akron: 18.1 ug/m³, 17.2 ug/m³, 16.6 ug/m³
 - ❑ Cincinnati: 17.9 ug/m³, 17.43 ug/m³, 17.2 ug/m³
 - ❑ Columbus: 15.97 ug/m³, 15.03 ug/m³, 15.1 ug/m³
 - ❑ Youngstown: 15.53 ug/m³, 15.03 ug/m³, 14.8 ug/m³
 - ❑ Toledo: 14.67 ug/m³, 14.07 ug/m³, 14.1 ug/m³
 - ❑ Dayton: 15.93 ug/m³, 15.17 ug/m³, 15.3 ug/m³
 - ❑ Canton: 16.77 ug/m³, 16.03 ug/m³, 16.1 ug/m³
 - ❑ Steubenville: 17.20 ug/m³, 16.3 ug/m³, 15.9 ug/m³
 - ❑ Cleanest monitor is near Athens –12.33 ug/m³, 12.17 ug/m³, 12.5 ug/m³
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PM 2.5 Nonattainment

04/12/05



Addressing PM2.5

- PM2.5 attainment demonstrations follow the same process as ozone.
 - Ohio EPA is finalizing plan to show how areas will be brought into attainment by late 2010. Submittal in July of 2008.
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	Previous Standards		2006 Standards	
	Annual	24-hour	Annual	24-hour
PM_{2.5} (Fine Particles)	15 ug/m³ Annual arithmetic mean, averaged over 3 years (established in 1997)	65 ug/m³ 24-hour average, 98 th percentile, averaged over 3 years (established in 1997)	15 ug/m³ Annual arithmetic mean, averaged over 3 years	35 ug/m³ 24-hour average, 98 th percentile, averaged over 3 years
PM₁₀ (Coarse Particles)	50 ug/m ³ Annual average (established in 1987)	150 ug/m ³ 24-hr average, not to be exceeded more than once per year on average over a 3-year period (established in 1987)	Revoked	150 ug/m ³ 24-hr average, not to be exceeded more than once per year on average over a 3-year period (established in 1987)

Expected Timeline for Revised PM_{2.5} NAAQS

Milestone	1997 PM_{2.5} Primary NAAQS	2006 PM_{2.5} Primary NAAQS
Promulgation of Standard	July 1997	Sept. 2006
State Recommendations to EPA	Feb. 2004 (based on 2001-2003 monitoring data)	Dec. 2007 (based on 2004-2006 monitoring data)
Final Designations Signature	Dec. 2004	Dec. 2009
Effective Date of Designations	April 2005	April 2010
SIPs Due	April 2008	April 2013
Attainment Date	April 2010 (based on 2007-2009 monitoring data)	April 2015 (based on 2012-2014 monitoring data)
Attainment Date with Extension	Up to April 2015	April 2020

PM2.5 in Ohio – 24 Hour (2005-2007) – New Standard

- ❑ Cleveland/Akron: 42.3 ug/m³
 - ❑ Cincinnati: 41.3 ug/m³
 - ❑ Columbus: 38.2 ug/m³
 - ❑ Youngstown: 36.7 ug/m³
 - ❑ Toledo: 35.2 ug/m³
 - ❑ Dayton: 37.2 ug/m³
 - ❑ Canton: 39.2 ug/m³
 - ❑ Steubenville: 40.0 ug/m³
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PM_{2.5} Activity

- ❑ Ohio EPA is still putting together the pieces of the SIP. Modeling indicates that the “flats” area in Cleveland will remain nonattainment
 - ❑ Will be looking at ways to obtain localized controls to attain standard.
 - ❑ We will be starting to work on short-term PM_{2.5} standard – may have to look at different strategies that annual standard
 - ❑ New nonattainment areas will be coming out before end of 2008
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Clean Air Interstate Rule (CAIR)

- ❑ US EPA developed rules called Clean Air Interstate Rules (CAIR) to reduce emissions of nitrogen oxides (NO_x) and sulfur dioxide (SO₂) from power plants in the eastern US
 - ❑ Ohio has many coal-fired power plants and is a large emitter of NO_x and SO₂
 - ❑ CAIR was going to require substantial emission reductions across eastern US and Ohio
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Clean Air Interstate Rule (CAIR)

□ Ohio emissions with CAIR(tons):

□ NO_x – 2003 – 355,000

2009 – 93,000

2015 – 83,000

□ SO₂ – 2003 – 1,176,000

2010 – 298,000

2015 – 208,000

CAIR would produce substantial emission reductions in Ohio

Clean Air Interstate Rule (CAIR)

- ❑ On July 11, 2008, D.C. Circuit Court of Appeals vacated CAIR rules
 - ❑ Decision was very broad reaching – no way to do a quick fix-up
 - ❑ Means that the CAIR reductions will not take place
 - ❑ Leaves a large emission reductions “gap” that must be filled
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Clean Air Interstate Rule (CAIR)

- ❑ But, other activities will help fill part of the gap
 - ❑ CAIR helps reduce ozone and PM and reduces visibility impairment
 - ❑ Ohio has the “NO_x SIP Call” rules in place to reduce emissions of NO_x from power plants during the ozone season
 - ❑ Although the CAIR rules replace the NO_x SIP Call rules, Ohio did not rescind the NO_x SIP call rules
 - ❑ Ohio is ready for NO_x SIP Call in 2009
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Clean Air Interstate Rule (CAIR)

- ❑ First Energy and American Electric Power have signed consent decrees with US EPA to install controls
 - ❑ First Energy – will put controls on: Sammis plant – will reduce SO₂ by 134,500 tpy, 28,567 tpy
Burger Plant – will reduce NO_x emissions by 1400 tpy and 25,000 tpy
Eastlake Plant – will reduce NO_x by 11,000 tpy
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Clean Air Interstate Rule (CAIR)

- American Electric Power –
systemwide numbers

NO_x reductions of 159,000 tons per
year

SO₂ reductions of 654,000 tons per
year

Clean Air Interstate Rule (CAIR)

- Dayton Power & Light – Stuart Plant (2400 MW) - Will be under a consent decree to run SCR year long and operate SO₂ scrubber
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Clean Air Interstate Rule (CAIR)

- Need to see if we can work with the remaining facilities to fill emission reduction gap
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Lead Standard

- ❑ In May of 2008, U.S.EPA proposed changes to ambient air quality standard for lead.
 - ❑ Typical U.S. EPA proposal, with wide range of possible standards.
 - ❑ Current standard is 1.5 ug/m³ – quarterly average.
 - ❑ Proposal is 0.10 to 0.30 ug/m³ quarterly average, or 0.10 to 0.50 ug/m³ monthly average.
 - ❑ “High” sites in Ohio are in the range of 0.15 ug/m³ quarterly average.
 - ❑ Final standard expected October 15, 2008
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