

How Do Missouri Monitoring Network Data Impact the Ability of a Source to Obtain a Permit?

2015 Missouri Air Compliance Seminar

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Monitoring data impact on permit issuance in Missouri

- Missouri Revised Statutes §643.075.3
 - Before issuing a construction permit to build or modify an air contaminant source, the director shall determine if the ambient air quality standards in the vicinity of the source are being exceeded and shall determine the impact on the ambient air quality standards from the source. The director may deny a construction permit if the source will appreciably affect the air quality or the air quality standards are being substantially exceeded.

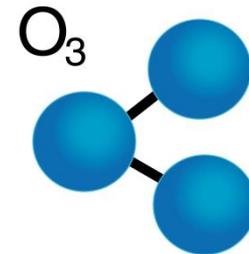
Nonattainment area identification

- Monitoring data has been used historically to identify areas that do not comply with the National Ambient Air Quality Standards (NAAQS)

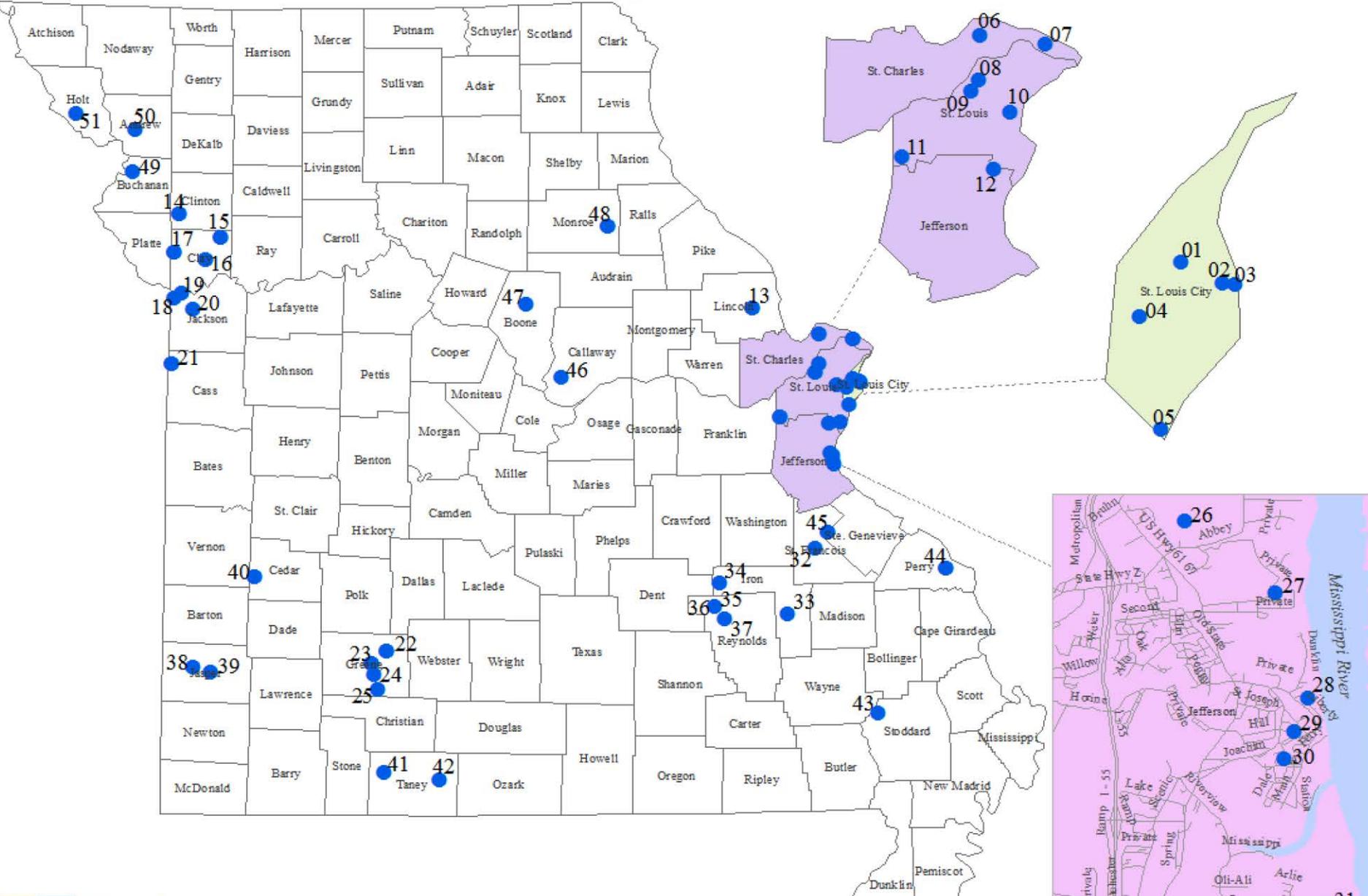


Nonattainment area permitting

- If your source location is inside a designated nonattainment area and your emission increase is large enough to be “significant”, nonattainment area permitting is required
- Very rigorous and stringent
 - Lowest Achievable Emission Rate technology
 - Emission offsets
- Current / upcoming NAAQS that could be problematic in Missouri
 - PM_{2.5} annual
 - 1-hour NO₂ and SO₂
 - **Ozone NAAQS → proposed 65 – 70 ppb**



2014 Missouri Ambient Air Monitoring Network



Impact on attainment area permit projects

- Most project proposer's experience with ambient air quality monitoring data has occurred as part of a NAAQS modeling demonstration (i.e., PSD or minor source permits)
- Air quality monitors provide background concentrations that are used in conjunction with modeling of project sources and other nearby sources



Attainment area permitting

- 40 CFR Part 51, Appendix W – Section 8.2.1a
“Background air quality includes pollutant concentrations due to:
 - (1) natural sources;
 - (2) nearby sources other than the one(s) currently under consideration; and
 - (3) unidentified sources.”



“Representative” background concentrations

- Many project proposers have been faced with additional permit limits or restrictions due to the complex set of collective decisions made by an agency regarding which site is “representative” along with the number of non-facility sources to include in the modeling



“Representative” site issues

- Lack of background monitoring sites nationwide for some pollutants
 - especially PM_{10} , SO_2 , and NO_2
- How far away is too far to be representative?
- How old can data be?
- How many years of data do you need?
- What can you do if your “representative” site has concentrations very near the NAAQS?

Background site availability

- Problem exists because all agencies have limited funds for collection of monitoring data
- This lack of funding has caused many agencies to eliminate collection of data in areas that can be characterized as “background”

Mark Twain State Park
proposed as a rural
national core site by
MDNR/APCP



So, is there any good news for permittees?

- EPA has issued new guidance documents in recent years for the revised NO₂, SO₂, and PM_{2.5} NAAQS modeling that encouraged permitting authorities to use less conservative “background” approaches.
- http://www.epa.gov/ttn/scram/guidance/guide/Guidance_for_PM25_Permit_Modeling.pdf
- http://www.epa.gov/region7/air/nsr/nsrmemos/appwno2_2.pdf
- http://www.epa.gov/ttn/scram/guidance/clarification/NO2_Clarification_Memo-20140930.pdf

Good news

- These guidance documents encourage agencies to:
 - minimize the number of external sources and distance for non-project source inclusion (i.e., <10 km),
 - use the design value form of the NAAQS as the default (not the single highest monitored value), and
 - consider using different background monitors for conditions based on different meteorological, diurnal, and seasonal monitoring conditions as part of the modeling analysis.

Interesting News

- Also, within the SO₂ designation modeling guidance from EPA, additional consideration has been provided for the use of actual emissions in modeling analyses (not just potential to emit).
- **DISCLAIMER:** In keeping with current EPA guidance on permit modeling, MDNR/APCP does not allow the use of actual emissions in permit modeling.

Background monitoring choices

- What if my project still can't move forward with my regulatory agency's choice of representative monitoring data and nearby source inclusion?
- Next topic ...

Overall impact of monitoring data

- Monitoring data is one determining factor into the level of permit each project will need
 - Nonattainment vs. attainment
- If cumulative modeling is required for any project, then representative background monitoring data will be included

Pros and Cons of Setting Up Your Own Monitoring Station(s)

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Cons of conducting air quality monitoring

- Cost of monitoring is not trivial
 - \$100K to start (includes pollutants of interest and meteorological data to help determine culpability)
 - Multiple sites may be necessary to obtain required level of information
 - Site-specific quality assurance project plan (QAPP) is necessary to move forward with any monitoring program that will need to be accepted by the permitting authority
 - Worst-case scenario is to collect data and have it invalidated because it did not follow necessary QA or did not meet siting criteria



Cons (continued)

- Timing of sampling
 - Minimum one year is required to obtain seasonal information before analyses can be completed
 - Sampling can only begin after the acceptance of the QAPP by the agency including site approval



Cons (continued)

- Risk of monitored concentrations over the NAAQS
- Risk of monitored concentrations above the monitor selected as background to include in modeling analyses
- “High” concentrations have been used in the past to require post-project sampling by agencies

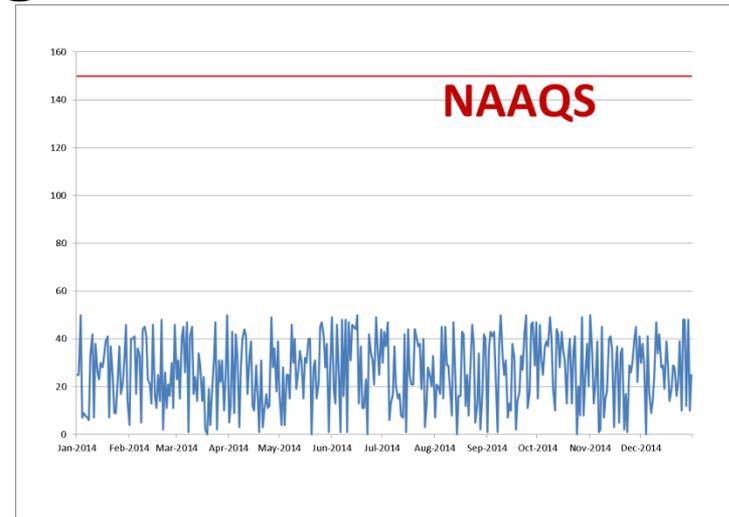
Pros of conducting air quality monitoring

- On the ground monitoring data = LEVERAGE
- It is difficult (but not impossible) to argue against real-world monitoring data with a *simulation* (i.e., modeling)



Pros (continued)

- Most often, monitoring data provides a very positive picture of actual air quality (i.e., low concentrations) that can be used by permit applicants to help bring additional confidence to permit issuance



Pros (continued)

- Monitoring data can be collected in a non-ambient location to obtain background concentration data (i.e., on your property) providing mitigation to potential NAAQS exceedances
- Monitoring data have been used to help validate modeled concentrations
 - think mitigation of over-prediction of existing or nearby source impacts

Something to consider...

- Within the May 2014 PM_{2.5} modeling guidance, EPA specifically highlights that collection of monitoring data could be used instead of modeling in some circumstances.
 - “Section 10.2.2 of Appendix W could potentially be given consideration in select situations. The provisions of Section 10.2.2 acknowledge that there are circumstances where there is no applicable model for a particular NAAQS compliance demonstration and that data from an array of ambient monitors surrounding the facility to be permitted could be used in lieu of modeling if appropriately justified.”

[http://www.epa.gov/ttn/scram/guidance/guide/Guidance for PM25 Permit Modeling.pdf](http://www.epa.gov/ttn/scram/guidance/guide/Guidance%20for%20PM25%20Permit%20Modeling.pdf)
(Pages 10-11)

Positive outcomes from monitoring

- Conducting site-specific monitoring can provide favorable results given a sufficient investment of time and resources:
 - less restrictive permit limits based on real-world data
 - reduced background concentrations
 - refinements to modeling analyses
 - community involvement
 - data can be used in discussions with your community to provide increased confidence that your plant's operation is within air quality standards

Summary

- Site-specific monitoring provides real-world information
- The cost of monitoring along with the time and effort it takes to collect the information and coordinate with regulatory agencies may be prohibitive
- Monitoring data can be very useful when trying to permit projects in “difficult” circumstances
 - Another tool in the tool box



Questions

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