New Source Review (NSR) Reform Update

Amy Marshall

CIBO Quarterly Meeting

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EPA Air Priorities

December 7, 2017

MEMORANDUM

SUBJECT: New Source Review Preconstruction Permitting Requirements: Enforceability and Use of the Actual-to-Projected-Actual Applicability Test in Determining Major Modification Applicability

FROM: E. Scott Pruitt

TO: Regional Administrators

- **NSR Reform**
- Ozone and NAAQS Implementation
- Clean Power Plan – ANPRM, proposal, final
- MATS - can EPA take credit for benefits of non-regulated pollutants?
- Mid-term evaluation of GHG standards for autos by April 1
- Oil and Gas Methane rule – technical amendments and policy package

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NSR Reform – Top Air Priority

– Singles and doubles – small bites instead of one big reform rule.

– Have to be careful about memos being considered legislation through guidance without notice and comment.

– Monthly deliverables

1. Pruitt “DTE” memo on projected actuals (actual data controls the day)
2. Once in, Always in reversal (to be followed by rulemaking)
3. Imminent: Project Emissions Accounting (netting in Step 1, Step 2)
4. Project aggregation and debottlenecking – dust off 2006 rules
5. Source aggregation – guidance and applicability determination as example
6. Ambient Air
7. Others in queue, modeling reforms other than ambient air are also needed

NSR Reform Actions

- EPA memos are effective immediately as EPA's current interpretation
- Air office wants to take over doing applicability determinations (instead of OECA)
- Aspirational goal to update the 1990 puzzle book eventually, make it web-based
- How to make PSD applicability easier? Maybe hourly test like NSPS – would be harder to finalize than the other items.

NSR Reform Round 1
https://www.epa.gov/nsr/nsr-regulatory-actions#nsrreform

December 2002 Improvements

- Final Rule (signed 11/22/02, published 12/31/02)
  - Press Release Nov 22, 2002
  - Final NSR Improvement Rule - Federal Register, December 31, 2002 (67 FR 8016)
  - Myths and Facts About NSR (PDF) (4 pp, 73 K, About PDF)
  - Summary of Supplemental Environmental Analysis of the NSR Final Rule (PDF) (2 pp, 79 K, About PDF)
  - Supplemental Environmental Analysis of the NSR Final Rule (PDF) (182 pp, 2 MB, Ab
  - Response to Comments for the NSR Final Rule (PDF) (518 pp, 8 MB, About PDF)
- Proposed
  - Press Release - June 13, 2002
  - Fact Sheet (PDF) (4 pp, 26 K, About PDF)
  - Questions & Answers (PDF) (3 pp, 22 K, About PDF)
  - NSR Reform Examples (PDF) (2 pp, 15 K, About PDF)

Certain Improvements Did Not Go Forward

- RMRR – routine equipment replacement rule
- Aggregation and netting improvements
- Pollution control projects
- Clean unit exclusion

Potential Major NSR Improvements for Current Administration

- Ambient Air
- Modeling Reform
- PAL Implementation
- Project Emissions Accounting – Step 1 and Step 2 Netting
- Pre-Permit Activities
- Project Aggregation
- Routine Maintenance, Repair and Replacement (RMRR)
- BACT
- GHG SER

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Ambient Air

Ambient Air Definition Issue

- The major NSR rules rely on the definition of “ambient air” to determine where a major source must model to determine whether the emissions increase from a project will result in an adverse air quality impact (e.g., exceed a PSD increment or NAAQS).

- Neither the NSR regulations nor the modeling guidelines define “ambient air,” but instead use the definition in 40 CFR 50.1(e) – “that portion of the atmosphere, external to buildings, to which the general public has access.”

- Historically, EPA defined “access” as the right or ability to enter, and the “general public” to be the “community at large” in implementing its ambient air definition. In more than 40 years of implementation, EPA has issued guidance through numerous memoranda, permit determinations, and comments that expanded the original interpretation of general public and restricted its original interpretation of access.

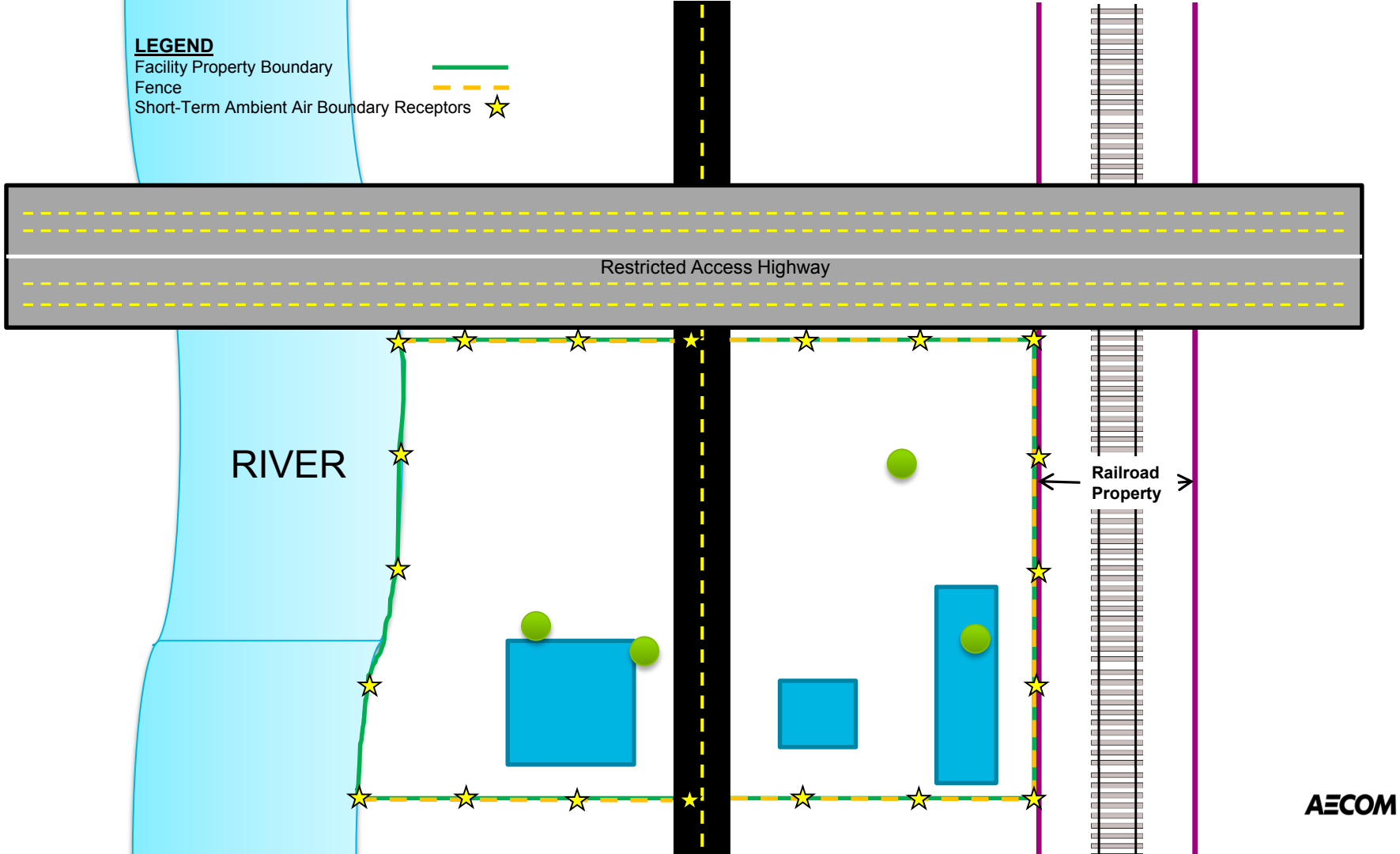
- EPA’s form for the NAAQS are now based on a probabilistic approach, which is not considered within the existing ambient air definition or EPA’s modeling guideline.

Ambient Air and Receptors

Problem: EPA's modeling guidelines, based on EPA's ambient air policy, are excessively conservative because they require industry to evaluate impacts anywhere that any person could theoretically access (even by illegally trespassing) rather than considering only locations to which the general public legitimately and realistically has access.

Solution: Exclude receptors where public is not exposed over the averaging period (e.g., railways, roads, easements, area between fence and property line, uninhabitable/inaccessible areas).

EPA should issue new guidance to update its policies for air quality modeling to embrace the following concept: "Site-specific circumstances may be taken into account and receptors need not be placed to simulate air pollutant concentrations in areas where natural, man-made, or jurisdictional barriers or hazards preclude the potential for general public exposure at a given location with the frequency or averaging time specified for the NAAQS or PSD increment that is under evaluation."


LEGEND
Facility Property Boundary
Fence
Short-Term Ambient Air Boundary Receptors
Restricted Access Highway
RIVER
Railroad Property
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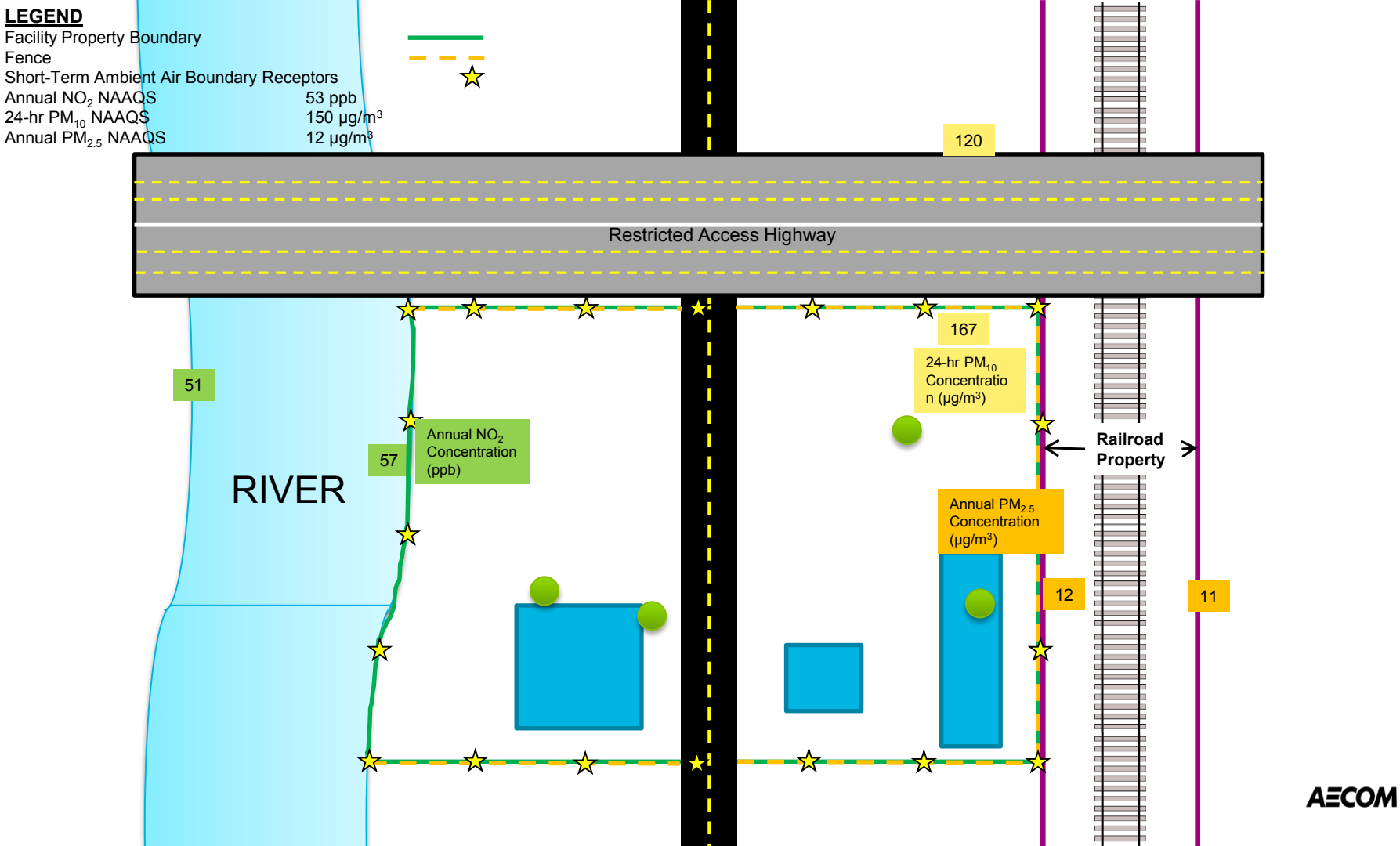
LEGEND
Facility Property Boundary
Fence
Short-Term Ambient Air Boundary Receptors
Annual NO_2 NAAQS 53 ppb
24-hr PM_{10} NAAQS 150 µg/m³
Annual $PM_{2.5}$ NAAQS 12 µg/m³
120
Restricted Access Highway
167
24-hr PM_{10} Concentration (µg/m³)
51
Annual NO_2 Concentration (ppb)
57
RIVER
Railroad Property
Annual $PM_{2.5}$ Concentration (µg/m³)
12
11
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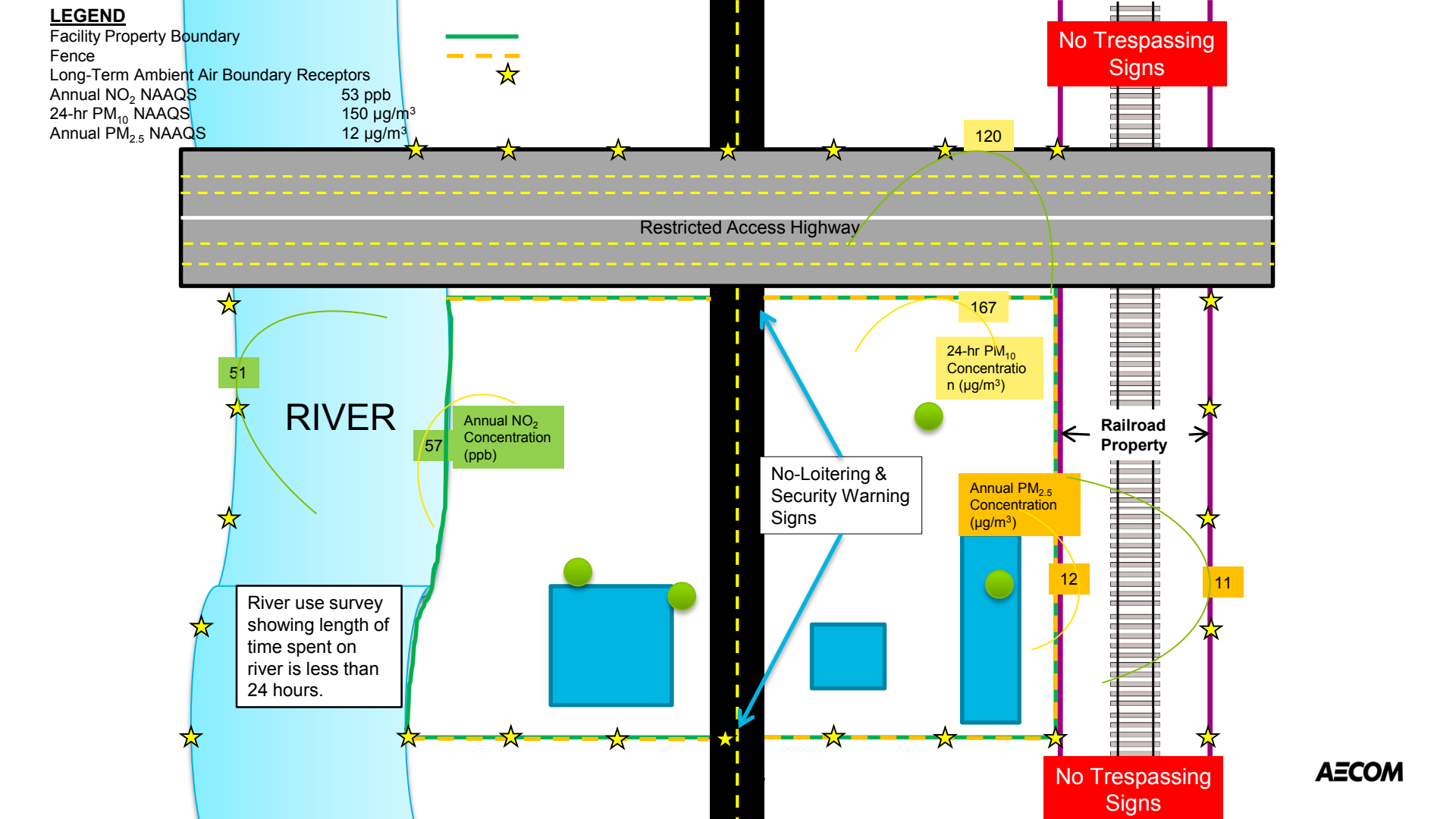
LEGEND
Facility Property Boundary
Fence
Long-Term Ambient Air Boundary Receptors
Annual NO_2 NAAQS 53 ppb
24-hr PM_{10} NAAQS 150 µg/m³
Annual $PM_{2.5}$ NAAQS 12 µg/m³
No Trespassing Signs
120
Restricted Access Highway
167
24-hr PM_{10} Concentration (µg/m³)
51
RIVER
57
Annual NO_2 Concentration (ppb)
Railroad Property
No-Loitering & Security Warning Signs
Annual $PM_{2.5}$ Concentration (µg/m³)
12
11
River use survey showing length of time spent on river is less than 24 hours.
No Trespassing Signs
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Ambient Air Asks

EPA has formed an Ambient Air Review Team at OAQPS but new policies are needed to effect meaningful change.

– Allow receptor grid to change based on averaging period, based on a reasonable interpretation of access and the form of the standard.

– Categorically exclude receptors on facility property and do not require surveillance.

– Categorically exclude receptors on railroads/roadways/waterways when surrounded by the facility's private property for NAAQS with *annual* averaging periods. For NAAQS with less than *daily* averaging periods, case-by-case demonstrations could be made.

– Beyond a facility's fence line/property line, receptors should not be placed in areas that are demonstrably not accessible to the general public (consistent with the averaging period and form of each standard) – even when not under the control of the facility/applicant.

Modeling Reform

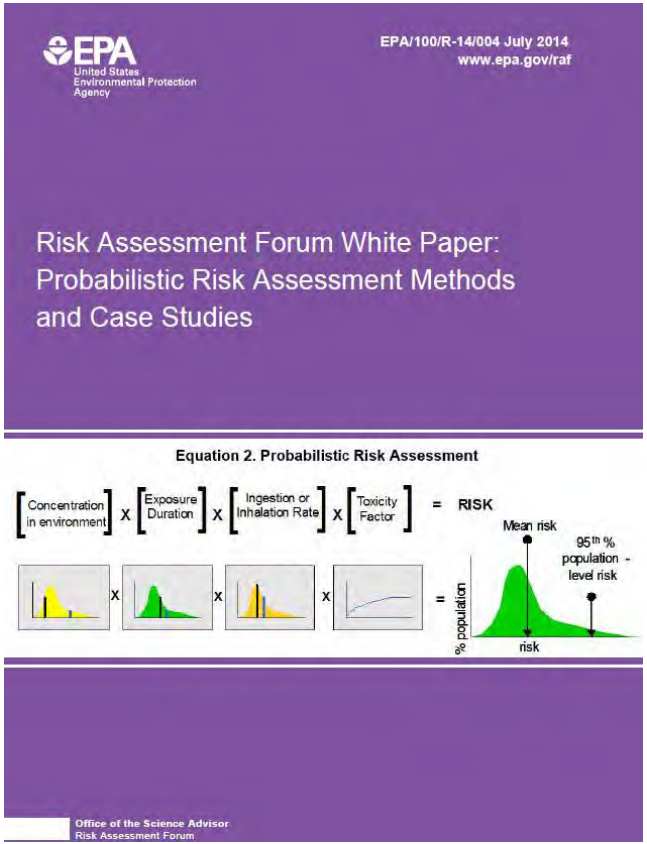
Modeling Reform

– EPA's current approach to modeling grossly overestimates a project's potential air quality impact because it uses highly conservative assumptions in conducting modeling. For example, the model will assume that all nearby sources are simultaneous operating at maximum operations.

– EPA needs to refine its modeling approaches to allow for more realistic conditions that are representative of expected conditions; e.g. allow actual emissions estimates; appropriately adjust background concentrations.

– Probabilistic modeling is one option that could be used to model more realistic conditions and estimate the reliability of a model in a given circumstance.

Probabilistic Risk Assessment



- Data-driven probabilistic methods have been embraced in other EPA programs and are equally applicable to air quality compliance demonstrations and for selecting appropriate background concentrations
- 2014 Report - EPA's assessment of probabilistic methods to address data, model and scenario uncertainty and variability
- Dozens of recommendations directly applicable to regulatory dispersion modeling and simulation of highly variable emission rates, background concentrations, and environmental exposures

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Emissions Variability

Problem: Limited consideration given to actual emissions or emissions variability. Actual emissions often are far below allowable emissions, especially for longer averaging periods.

Solution: EPA should use techniques to factor in emissions variability instead of using maximum, worst-case emission rates. EPA should expand approved approaches to include probabilistic modeling techniques such as EMVAP or "randomly reassigned emissions" to formulate realistic emissions inputs that conservatively account for emissions variability of new or modified sources. Implementation of these concepts into air quality compliance demonstrations for permitting can be done through changes in guidance or a revision/clarification to Appendix W.

Background

Problem: Over-estimation of background air quality reducing project “increment”

Solutions:

- EPA should update regulations concerning the treatment of background pollutant concentrations in permitting, and rely on actual conditions rather than peak background levels that are assumed to occur continuously.
- Guidance should be issued stating that background concentrations – based on monitors representative of sources being modeled – may be paired in time with the meteorological conditions that produced them, and used for modeling.
- EPA should work to exclude international transport as exceptional events and use section 179B provisions for evaluating international transport beyond just border regions.
- EPA should consider the achievability of potential standards during the NAAQS review process in light of international transport and background emissions.

Intermittent Sources

- Problem: Sources that are infrequent emitters drive modeling outcomes due to lack of adjustments to duration of emissions.
- Solution: Sources that operate no more than 500 hours per year should be exempt from being required to conduct air dispersion modeling.

PM Emissions

Problem: small sources of PM drive increment analysis beyond their true contributions

Solutions:

- EPA should reinstate the PM_{10} Surrogacy Policy until test methods for all types of PM are validated.
- EPA should allow applicants to exclude fugitive and area sources with minimal potential to generate $PM_{2.5}$ emissions from NAAQS assessments (Easier).
- EPA should exclude CPM from $PM_{2.5}$ and PM_{10} definitions until CPM measurement method issues are resolved

Frequency of Model and Guidance Updates

Problem: EPA is slow to adopt new dispersion modeling tools that are superior to existing approaches for low wind conditions, building downwash, complex terrain, intermittent/variable sources, and other challenges. Modeling techniques and implementation guidance have frequently not been available at the time new air quality standards and regulatory requirements become effective.

Solutions:

- Requirements to model ozone and $PM_{2.5}$ precursors should be deferred for 3 years to allow for development of adequate tools, screening techniques, and guidance.
- Improved dispersion modeling techniques should be adopted quickly into Model Clearinghouse.
- EPA should make improved modeling tools a higher priority, including through allocating more funding for model development.

Model Improvements

- EPA should make any necessary technical changes to LOWWIND3 and expedite its approval through the Model Clearinghouse.
- EPA should incorporate the NO to NO_2 conversion limitation into AERMOD.
- Modeling should not include emission units with allowable or potential emissions below the “practical quantitation limit” (PQL) or at least some fraction of the “maximum detection limit” (MDL).
- AERMOD’s performance needs to be reevaluated in light of recent modifications, as well as for its performance of 1-hour concentrations.

SILs and MERPs

Problem: Need tools to prevent projects with minimal impacts from triggering full impact analysis or photochemical modeling.

Solutions:

- EPA should more fully develop and finalize tools such as SILs and MERPs that facilities can use to perform screening level analyses and avoid the time and expense of single source photochemical modeling for projects with significant emissions increases of ozone and $PM_{2.5}$ precursors. The modeling thresholds should be set at a sufficiently high level to exclude projects with minimal impacts.
- EPA should utilize a higher confidence interval in its SIL or utilize a more transparent and straight-forward approach like the 4% of the NAAQS.
- The form of the SIL, which is currently the highest concentration, should be adjusted to be consistent with the form of the pollutant NAAQS (e.g., 4th highest 8-hour average for ozone).

State Discretion

Problem: States are limited in their ability to use alternative models. State agencies are reluctant to adopt new approaches given EPA's history of second guessing decisions.

Solutions:

– When EPA finds that it cannot identify a broadly-applicable model for use, it should allow the state involved to determine the model used.

– Permitting decisions made by state agencies that are based on reasonable data and sound analytical techniques should be respected without being second guessed by EPA.

Plantwide Applicability Limit (PAL) Changes

Plantwide Applicability Limitation (PAL)

- A PAL is a pollutant-specific, major-source-wide emissions limitation that applies to all the emissions units at the major source.
- In 2002, EPA added authority for major sources to use PALs to avoid triggering major NSR for changes at the major source which do not cause emissions to exceed a PAL.
- In practice, few major sources are using the PAL provisions; and, there is general agreement that the some provisions such as requiring the major source to re-evaluate the PAL every 10 years discourages participation in the program.
- A comprehensive review of the PAL provisions, along with other flexible permit options (advanced approvals; partial-PALs) could improve PAL implementation and the environmental benefits of the major NSR program.

Problems with PAL Provisions

- Concern exists that PAL caps can be re-opened and reduced at any time, which creates huge uncertainty for sources.
- The PAL expiration and PAL renewal provisions have prevented facilities from greater utilization of PALs.
- Some states issue separate PAL permits instead of incorporating PAL provisions into the Title V permit and harmonizing monitoring requirements.
- Some states have not revised their minor source permitting programs to match the federal PAL rule, requiring minor source permitting for changes made under the PAL.
- Current debottlenecking policies limit the benefits and flexibility of the PAL program for sources to adopt innovative and creative emission cap scenarios.

Suggested Changes to PAL Provisions

– The PAL provisions have survived legal review, unlike other NSR reforms. Thus there is great risk to changing the underlying regulations. Improvements to the PAL concept and program can be accomplished through guidance.

– Issue guidance to bring more certainty and clarity to encourage greater use of PALs:
  - No lowering of PAL cap at renewal simply because emissions are well below PAL (<80%)
  - No penalties for termination
  - Limit PAL reopeners and cap adjustments
  - No minor source permitting required for changes under PAL – match state and Federal PAL elements.
  - Incorporate PAL into Title V and require renewal with every other TV renewal.

Questions before we go on to Part 2 of the presentation?

Amy Marshall, PE

919-461-1251

Amy.Marshall@AECOM.com

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