EPA Permit Modeling Updates

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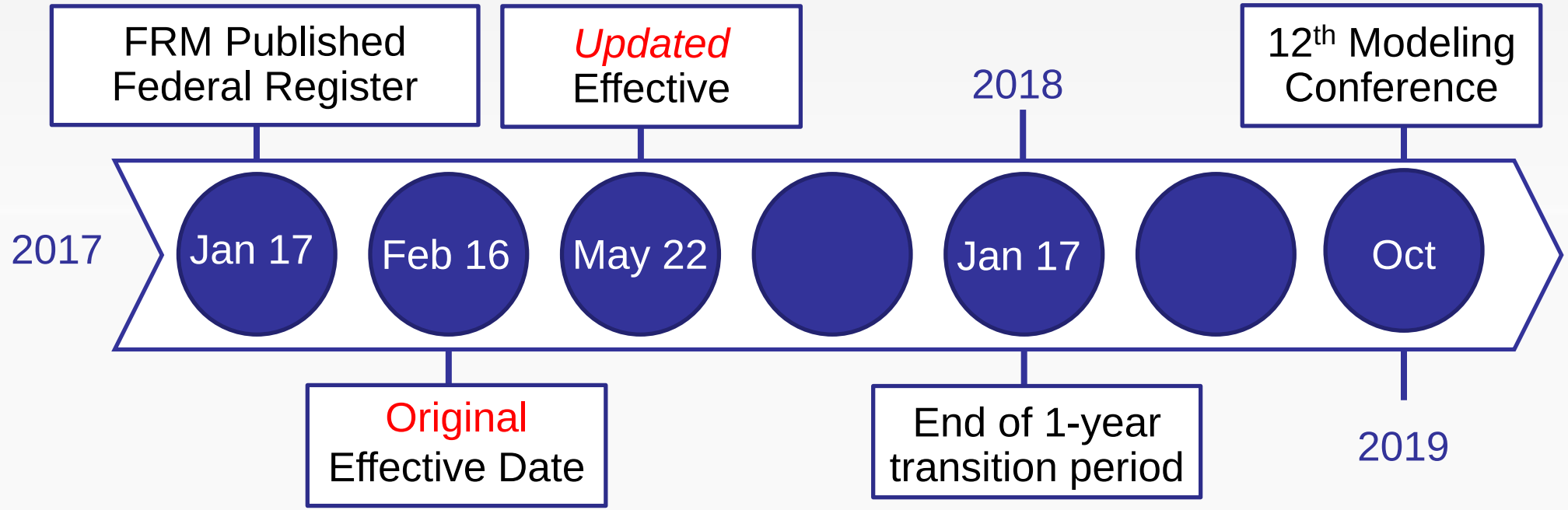
Permit Modeling Topics

- Revisions to EPA's *Guideline*
- AERMOD Development Plan
- AERSURFACE update
- IG Report
- Model Clearinghouse LEAN Event
- AERMOD Training Courses
- Guidance Updates

Final Rule to Revise the *Guideline on Air Quality Models* (Appendix W to 40 CFR Part 51)



Appendix W Revisions

- The final rule was published in the Federal Register on January 17, 2017.
  - Rule Docket (ID No. EPA-HQ-OAR-2015-0310).
  - Federal Register Version of Final Rule is available on SCRAM.
  - Response to Comments Document can be found in the rule docket.
- 2017 Appendix W final rule information and supporting material / documentation is available via EPA's SCRAM website:
  - https://www3.epa.gov/ttn/scram/appendix_w-2016.htm
- At publication, the effective date for the final rule was February 16, 2017.
  - Per Presidential directives, the effective date for the Appendix W final rule was delayed until May 22, 2017.
  - Transition period for NSR/PSD ended on January 17, 2018
  - Transition period for transportation conformity ends January 17, 2020
- 12th Conference on Air Quality Modeling currently scheduled for Fall 2019

Regulatory version of AERMOD

- Final revisions to Guideline updated the regulatory versions of the AERMOD dispersion model and AERMET meteorological processor;
  - AERMET updated to v16216, with Model Change Bulletin (MCB) MCB 7.
  - AERMOD updated to v16216r, with MCB 12.
- On April 24, 2018, EPA released updated regulatory versions of the AERMOD Modeling system (18081)
  - Bug fixes & enhancements
  - Implemented new “alpha” and “beta” option approach
  - New LOW_WIND alpha option, now a series of “knobs” that can adjust several model parameters previously set by LOWWIND1-3

AERMOD Development Priorities

- September 2017, EPA released a series of ‘White Papers” identifying planned areas of science updates to AERMOD Modeling System:
  - Treatment of Low Wind Conditions
  - NO_2 Modeling Techniques
  - Downwash Algorithms
  - Mobile Source Modeling
  - Overwater Modeling
  - Saturated Plumes
- Success depends upon interactions (communication, coordination, and collaboration) with the stakeholder community so that potential updates can be presented at the 12th Conference on Air Quality Models.

AERMOD Development and Update Plan

- Description of the history of AERMOD development
- Explanation of model development process
  - How does something become an alpha?
  - How does an alpha become a beta?
- Describes EPA's evaluation and update protocols
- Outlines science updates to the AERMOD Modeling System that the EPA is considering
  - Major science updates that ultimately require rulemaking to adopt as part of EPA preferred version
  - White papers incorporated into the document
- Expected release early 2019.

AERSURFACE Update

- AERSURFACE is a preprocessor for AERMOD
  - Not an “Appendix A” model, updates to Appendix W not required to update AERSURFACE
- EPA plans to release a draft version of AERSURFACE in December 2018
  - New method for determining surface roughness
  - Processes more recent surface data (adds NLCD 2001, 2006, and 2011, 2016 may be added next year)
- Draft release is intended for testing and feedback from the community
  - Testing and evaluation of new vs old method
  - Consequence analyses of new land surface data on project concentrations
  - Expect to release final version in 2019 with next release of AERMOD, ~2 month “comment period”

Inspector General Audit of EPA's Approval Process for Air Quality Dispersion Models

- In June 2017, the Office of Inspector General (OIG) informed OAR of plans to begin preliminary research
  - "*assess the effectiveness of EPA's process for reviewing and approving air quality dispersion models it recommends for use by state, local and tribal air pollution control agencies*."
- Final report released September 5, 2018
  - Report made 4 recommendations related to OAQPS/AQMG adherence to EPA Quality System with focus on developing SOPs, QAPPs, updating OAQPS's QMP, and additional training
  - OAR provided corrective actions and timeline for each recommendation.
  - OIG report states: "All recommendations are resolved and no final response to this report is required."
  - https://www.epa.gov/office-inspector-general/report-epa-can-strengthen-its-process-revising-air-quality-dispersion

Model Clearinghouse LEAN Event

- EPA hosted a MCH LEAN event at RTP, NC on April 24-27, 2018
  - 2 State/local agency, 4 EPA Regional Office, and 2 EPA OAQPS participants… all with recent alternative model approval experiences
- Goal: Streamline alternative model approval process
- Mapped out “current state” and then developed a “future state” intended to:
  - Facilitate early & improved communication
  - Provide transparency to all participates including applicants, states, and Regional Offices
  - Reduce time and effort MCH staff and applicants spend on the process
- Key implementation steps:
  - Revision of MCH Operational Plan to more full describe and emphasize the roles / responsibilities between the EPA Regional Offices and the State/local permitting authorities
  - Development of new training materials and infrastructure to facilitate communication and tracking
  - Establish early joint coordination between all parties to explore possible solutions short of alternative model
  - Emphasis of the new alpha and beta options in AERMOD and education though the Development and Update Plan

AERMOD Training Opportunities

- EPA's Air Pollution Training Institute (APTI) released an update to the APTI 423 course in the summer of 2014
  - "Air Pollution Dispersion Models – Applications"
  - Effectively an AERMOD training course, covering all aspects of setting up and running AERMOD
  - https://www.apti-learn.net/LMS/EPAPlanPage.aspx?c=6&t=APTI%20423
- 3.5-day in-person course, but all materials can be downloaded with extensive course notes and hands-on activities
  - SESARM & MARAMA offered course in June & July 2018, respectively
- EPA currently in the process of updating for new version of AERMOD
- Considering EPA-lead classes and/or webinars, with recoded sessions

Updates to Technical Guidance

- Guidance for PM2.5 Permit Modeling (EPA–454/B–14–001 - May 2014)
  - Guidance for Ozone and PM2.5 Permit Modeling (*Projected for Draft / Comment Release in early 2019*)
- Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program (April 17, 2018)
- Guidance on the Use of Models for Assessing the Impacts of Emissions from Single Sources on the Secondarily Formed Pollutants: Ozone and PM2.5 (EPA-454/R-16-005 - December 2016)
- Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and PM2.5 under the PSD Permitting Program (EPA-454/R-16-006 - December 2016)
  - Updated MERPs Guidance & PM2.5 Precursor Demonstration Guidance (*Cleared OMB review*)

MERPs as a Tier 1 Demonstration Tool

- December 2016, EPA provided draft technical guidance that provided a framework for development of Tier 1 demonstration tools under Appendix W for PSD permitting.
- The framework addressed how to arrive at values for MERPs based on existing relevant modeling or newly developed area specific modeling that source/states can utilize in their PSD compliance demonstrations.
  - The guidance does not endorse a specific MERP value for each precursor.
  - Public comments made available on SCRAM on May 26, 2017
- Completing updated version for EPA management review that addresses public comments with emphasis on:
  - Added Executive Summary
  - Extended EPA modeling of hypothetical sources
  - More clarity on use of MERPs at national, regional and local level with more detail in the examples provided in the guidance