Appendix W Refresher

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9th Conference on Air Quality Modeling

October 9, 2008

Newsflash

- Promulgation of AERMOD Modeling System in November 2005
  - Federal Register notice published Dec 9, 2005
- As of December 9, 2006, AERMOD is fully promulgated as a replacement to ISC3, in accordance with Appendix W.
  - See SCRAM for more information at: http://www.epa.gov/scram001/dispersion_prefrec.htm

Outline

- Reflect back on . . .
  - 8th Modeling Conference
    - Vision and Essential Elements
  - RO call for improved support
- AERMOD Development & Maintenance
- CALPUFF Model Update Protocol
- R/S/L Workshops
- Modeling Clearinghouse
- Clarification Memos (Roger Brode)
- Importance of Process

Dispersion Modeling Futures: Vision Statement

"Lead and promote collaborative efforts on near-field air quality modeling to improve source culpability assessments"

First Essential Element

Foster a collaborative environment aimed at strengthening our technical expertise and working relationships across EPA, other Federal agencies, and the scientific community to regain our leadership role and promote use of best science and evaluation methods.

Fourth Essential Element

Promote a community approach to model development and acceptance that champions the use of best science, supports continual improvement in modeling science and data, and timely model acceptance for use in regulatory arena.

Need for Improved Modeling Support

- In May 2006, the ROs presented two recommendations to the Air Division Directors:
  - OAQPS needs to enhance its technical expertise regarding the “new generation” of near-field models
  - OAQPS needs to accelerate its reinstatement of an active and effective Model Clearinghouse to provide technical expertise for permitting and SIP applications
- OAQPS has responded and taken actions

AERMOD Modeling System: Development and Maintenance

- AERMOD Implementation Workgroup
  - Built upon initial AERMOD Implementation Group – April 2005 to April 2006 (See A. Cimorelli presentation at 8th Modeling Conf)
  - Inaugural AIWG Conference Call in January 2007 with Roger Brode and Randy Robinson as co-chairs
  - Composed of State, Local, EPA Regions, EPA HQ with 3 State led subgroups on MET issues, surface characteristics, and urban improvements.
  - Collaborative and inclusive process that relies on the experience and knowledge of model users in the states and regions to advise OAQPS on implementation issues and priorities for resources.
- Re-instituted AERMIC to guide OAQPS on science issues
  - AMS/EPA Regulatory Model Improvement Committee initially formed in 1991; charged to develop replacement for ISCST based on state-of-the-science; AERMOD promulgated Dec. 2006

New AERMIC

- New AERMIC committee met in RTP during March, 2008 and July, 2008

- Membership of “new” AERMIC committee:
  - Roger Brode, OAQPS, Co-chair
  - Jeff Weil, CIRES-NCAR, Co-chair
  - Akula Venkatram, UC-Riverside
  - Al Cimorelli, EPA Region 3
  - Bret Anderson, EPA Region 7
  - Vlad Isakov, EPA/ORD/AMD

CALPUFF Update Process

- Incumbent upon EPA to perform an independent assessment of CALPUFF when updating to new versions
- CALPUFF requires extensive assessment and understanding of changes made; approvals made by EPA, not developer
- CALPUFF Update Tool – Introduced at 8th Modeling Conference in Sept 2005

CALPUFF Update Tool

- Compares 2 CALPUFF versions; proposed (beta) vs. current version (base)
- Determines differences in results across 10 scenarios, including a range of domains, met inputs and sources
- Provides a standardized methodology for assessing consequences from changes in model codes
- EPA has successfully applied as part of updates:
  - Version 5.7 to 5.711a (Dec 2005)
  - Version 5.711a to 5.8 (June 2007)

Role of R/S/L Workshops

- Appendix W includes the following references to EPA regional workshops:
  - "Historically, three primary activities have provided direct input to revisions of the *Guideline*. The first is a series of annual EPA workshops conducted for the purpose of **ensuring consistency** and **providing clarification** in the application of models." [Preface, paragraph (b)]
  - "From time to time situations arise requiring **clarification of the intent of the guidance** on a specific topic. Periodic workshops are held with the headquarters, Regional Office, State, and local agency modeling representatives to **ensure consistency** in modeling guidance and to promote the use of more accurate air quality models and data bases. The workshops serve to provide further explanations of Guideline requirements to the Regional Offices and workshop reports are issued with this **clarifying information**." [Paragraph 1.0(f)]
  - "Two additional **sources of modeling guidance** are the Model Clearinghouse and periodic Regional/State/Local Modelers workshops." [Paragraph 3.0(a)]

History of R/S/L Workshops

- EPA's 2008 Regional/State/Local Modelers Workshop was held on June 10-12, 2008 in Denver, CO
- This was the 30th R/S/L Workshop, beginning with 1978 but skipping one year
- Attendance was limited to OAQPS & Regional Modeling Contacts in the beginning, but now includes State & local agencies
- 2008 attendance was about 90 total, including all 10 EPA Regional Offices, 29 States, 5 local agencies, and 5 FLMs
- Presentations since 2005 are available from SCRAM at:
  - http://www.epa.gov/scram001/conferenceindex.htm

Model Clearinghouse

- What is it?
  - A process and mechanism by which an EPA Regional Office can obtain EPA Headquarters concurrence on implementation issues related to air quality modeling.
- Statutory authority?
  - Appendix W, Section 3.3(b): "As appropriate, Regional Office may request assistance from the Model Clearinghouse after an initial evaluation and decision has been reached concerning the application of a model, analytical technique or data base in a particular regulatory action.

Model Clearinghouse Goals

- Provides national consistency in regulatory decisions
- Timely interpretation of guidance (as issues arise)
- Minimizes bad precedents:
  - Get in early on issues
  - Memoranda provide essential support to regions, states and locals
- Guidance development through consensus building

MC Operation

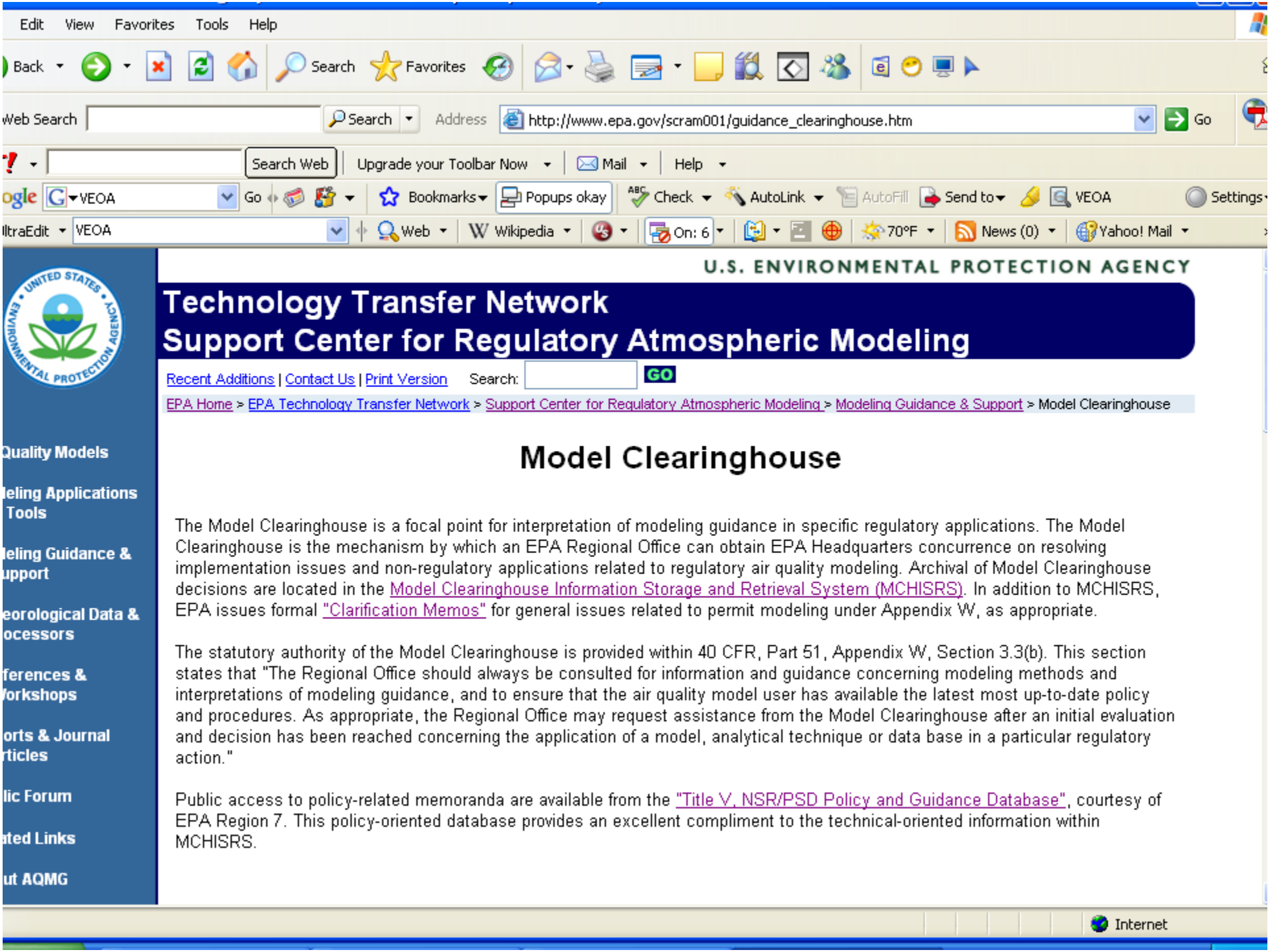
- Technical issues
  - Response provided by OAQPS/AQMG and other technical experts with review by policy staff
- Policy issues (if submitted to MC)
  - Referred to New Source Review Group
  - Response provided by OAQPS/Air Quality Policy Division (Bill Harnett, DD) with technical inputs as appropriate
- As appropriate, MC responses may be reviewed by OGC

Formal Clearinghouse Process

- State contacts Region
- Region writes memo to clearinghouse:
  - Statement of Issue
  - Desired approach
  - Justification
- Clearinghouse facilitates solutions and writes formal response
- Clearinghouse summarizes & archives decisions:
  - Searchable database (MCHISRS) via web access (SCRAM)
  - Present summary at annual Regional/State/Local workshop
  - Write annual report
- OAQPS develops guidance as appropriate:
  - Policy memo, EPA Report, Rule Making

Model Clearinghouse Information Storage and Retrieval System (MCISRS)

- Old MCHISRS system
  - Only searchable by those who have an “epa.gov” address
  - Formal memos and MCHISRS records are separated on SCRAM
- New MCHISRS system (as of 5/10/07)
  - Allows full public access so restriction to “epa.gov” eliminated
  - Links MCHISRS records to the formal MC memoranda
  - Searchable by topic, pollutant, RO, fiscal year, model, etc.
  - http://www.epa.gov/scram001/guidance_clearinghouse.htm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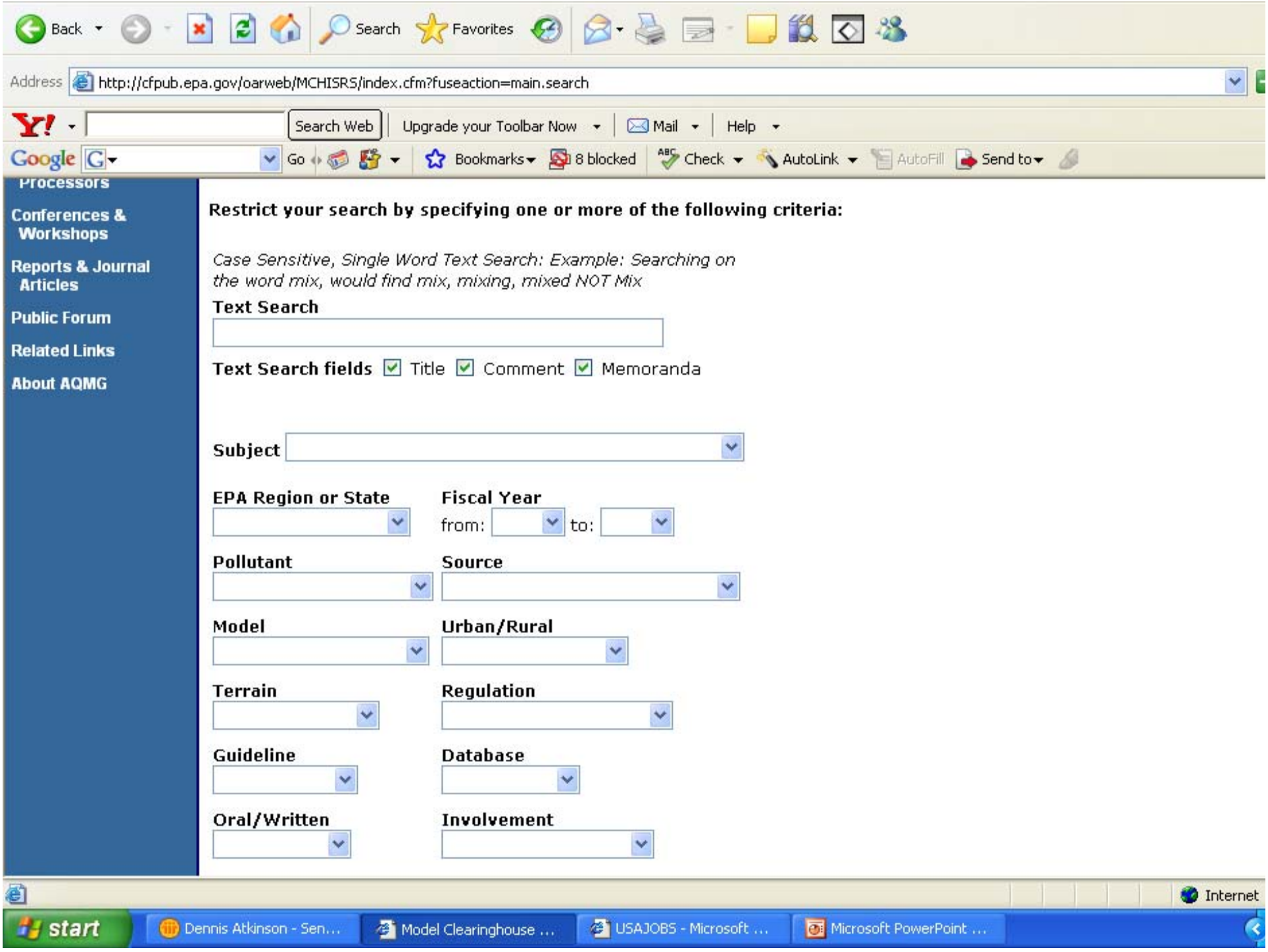
Model Clearinghouse
The Model Clearinghouse is a focal point for interpretation of modeling guidance in specific regulatory applications. The Model Clearinghouse is the mechanism by which an EPA Regional Office can obtain EPA Headquarters concurrence on resolving implementation issues and non-regulatory applications related to regulatory air quality modeling. Archival of Model Clearinghouse decisions are located in the Model Clearinghouse Information Storage and Retrieval System (MCHISRS). In addition to MCHISRS, EPA issues formal "Clarification Memos" for general issues related to permit modeling under Appendix W, as appropriate.
The statutory authority of the Model Clearinghouse is provided within 40 CFR, Part 51, Appendix W, Section 3.3(b). This section states that "The Regional Office should always be consulted for information and guidance concerning modeling methods and interpretations of modeling guidance, and to ensure that the air quality model user has available the latest most up-to-date policy and procedures. As appropriate, the Regional Office may request assistance from the Model Clearinghouse after an initial evaluation and decision has been reached concerning the application of a model, analytical technique or data base in a particular regulatory action."
Public access to policy-related memoranda are available from the "Title V, NSR/PSD Policy and Guidance Database", courtesy of EPA Region 7. This policy-oriented database provides an excellent compliment to the technical-oriented information within MCHISRS.
Internet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Importance of Process

- Importance of Model Clearinghouse process has been stressed recently, especially with promulgation of CALPUFF and AERMOD
  - Emphasis on formal process of Regional Office presenting issue to Model Clearinghouse, perhaps initiated at State level, with full background information and RO position
  - Informal contacts with OAQPS staff do not constitute "consulting with the Model Clearinghouse"
- Importance of "Modeling Protocols" to get review and input early in the process (EPA & FLMs)
- Respecting the roles of various parties/stakeholders
  - Applicant
  - Reviewing authority (RO or State)
  - OAQPS as needed, with both technical (AQMG) and policy (AQPD) perspectives
  - Public

Importance of Process

- Importance of consistency is stressed several places in Appendix W, including the very first sentence:
  - “Industry and control agencies have long expressed a need for consistency in the application of air quality models for regulatory purposes.”
- Clarify distinction between regulatory modeling applications, which fall under purview of Appendix W, and non-regulatory applications, such as risk assessments
  - “The Guideline recommends air quality modeling techniques that should be applied to State Implementation Plan (SIP) revisions for existing sources and to new source reviews (NSR), including prevention of significant deterioration (PSD). Applicable only to criteria air pollutants, it is intended for use by EPA Regional Offices in judging the adequacy of modeling analyses performed by EPA, State and local agencies and by industry.”