

EPA Model Clearinghouse 2009 – 2010 Report Out

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Summary of EPA Model Clearinghouse Actions

- May 2009 – Memo from EPA Region 8 to Model Clearinghouse regarding proposed 1 km CALMET windfields in Big Stone I BART modeling protocol.
- August 2009 – Clarification on preferred CALMET switch settings resulting from Big Stone I Clearinghouse Memorandum
- November 2009 – Memo from EPA Region 4 to Model Clearinghouse regarding use of non-default radius for determining surface roughness length in AERMET for Kentucky Natural Gas

Summary of EPA Model Clearinghouse Actions

- January 2010 – Model Clearinghouse review of Shell OCS permit documentation
- February 2010 – EPA Region 6 memo to Model Clearinghouse regarding PM_{2.5} modeling procedures for Nucor iron facility in Louisiana.

Big Stone I

- Background: Subject-to-BART modeling protocol for SD EGU proposed use of 1 km CALMET windfields for source-receptor distances of over 400 km. Protocol also proposed use of CMAQ derived ammonia values for ammonia limiting method post-processing (MNITRATE=2).
- R8 Issue: Is a 1 km grid resolution justified for source-receptor distances of 400 km and area of fairly homogenous terrain and landuse characteristics? Should model derived values be allowed for CALPUFF chemical post-processing?

Big Stone I

- Clearinghouse Response on Grid Resolution: Available published literature does not support the notion that high resolution wind fields are necessary to properly characterize source-receptor relationships with distances greater than 400 km. Most necessary is to properly characterize synoptic meteorological patterns that govern long range transport patterns and influence source-receptor relationships. Insufficient justification for use of 1 km grid resolution in this particular application.
- Clearinghouse Response of Ammonia Limiting Method: Model Clearinghouse defers to FLM and EPA Regional Office judgment for determining appropriate post-processing options for CALPUFF results.

KY New Gas

- Background: Analysis conducted of the variation of surface roughness as a function of study radius by wind direction sector for each NWS location based on AERSURFACE as evidence to support proposed use of non-default radii of 2.4km for BWG and 1.8km at KYNG.
- R4 Issue: Sought Clearinghouse concurrence on conclusion of site-specific radius of 1.6km as appropriate for both sites

KY New Gas

- Clearinghouse Response: Cited lack of technical rationale based on the physics of boundary layer modeling to justify proposed use of a non-default radius for determining surface roughness so could not concur with Region 4's position here.
- OAQPS provided preliminary results from comparisons of AERSURFACE roughness estimates with the Gust Factor Method [Wieringa (1993)] showing objective support for the appropriateness of the current recommended default radius of 1 kilometer for determining surface roughness.

Nucor Pig Iron Facility

- Background: R10 requested applicant to complete full PM2.5 analysis for proposed PSD permit for Nucor iron facility in Louisiana to properly address requirements of existing EPA surrogacy policy. Protocol proposed constructing 98th percentile monitoring data using only two years of data (eliminate 2006 due to fires) and use highest of 8th highs from 5-year record to compare against NAAQS.
- Issues: How to derive background monitor values for area? How to use model concentrations and background monitor values to compute total air quality concentration to compare against 24-hour PM2.5 NAAQS?

Nucor Pig Iron Facility

- Clearinghouse Response on Background Monitor Data: Compute 98th percentile consistent with procedures outlined in Appendix N to 40 CFR Part 50. No elimination of monitoring data from consideration unless it has been formally excluded from consideration under exceptional events requirements.
- Clearinghouse Response on Use of Highest, 8th High Concentration: More appropriate to use 5-year average of the highest 24-hour values at each of the receptors and combine with the 98th percentile background to compute total air quality concentration.

Shell Oil OCS Permits

- Background: Use of the non-guideline model ISC3-PRIME for use in the Shell OCS permits. Used screening meteorology similar to SCREEN3 meteorological matrix due to lack of onsite (overwater) data.
- Issue: R10 advised public of use of non-guideline model in public notice of permits. Adverse comments received on use of alternative model.
- R10 Issue: Did EPA follow appropriate regulatory procedures in approving use of non-guideline model? Should notice of alternative model precede public notice of permit?

Shell OCS Permits

- Clearinghouse: ISC3-PRIME was used as a screening model for the OCS applications,
 - Development and application of screening techniques for modeling is not governed under Section 3.2 of Appendix W.
 - Section 3.2 only applies to the development and application of alternative **refined** models and techniques, not screening techniques discussed in Section 4.2.1 of Appendix W.
- Clearinghouse: Use of ISC3-PRIME not subject to either the documentation requirements of Section 3.2 of Appendix W nor the public comment requirements of 40 CFR 52.21 (l)(2) in this action.