NPS Protocols for Class I and Class II Analyses

PRE APPLICATION CALL/MEETING

- NPS & FWS ARE ALWAYS AVAILABLE FOR A PRE-APPLICATION CALL.
- Information prior to call or meeting always helps to move the process more quickly
- Contact the FLMs early and often is best for the applicant, permitting authority, & FLMs

SCREENING OUT OF A CLASS I AIR QUALITY RELATED ANALYSIS PER CLASS I AREA

- EMISSIONS / DISTANCE TO EACH CLASS I AREA(S)
- EMISSIONS = MAXIMUM 24 HOUR EMISSION LIMITS FOR:
- SO_2 + SO_4 + NO_X + PMC + PMF + SOA + EC X 8760 / 2000 = TPY
- DISTANCE TO EACH CLASS I AREA IN KILOMETERS
- IS Q/D ≤ 10 PER CLASS I AREA ?

Modeling Domain

- The modeling protocol should identify the modeling domain, including the domain coordinates, as well as verify that the domain will extend at least 50 km beyond each class I area included in the analysis.

CALMET

- We currently recommend the use of the VISTAS or WRAP or other CALMET data generated for BART analyses as these CALMET runs have recently been “reapproved” by EPA for use in NSR and PSD applications.

Receptor Grids

- We request that applicants the use receptor grids FOR ALL 156 Class I areas available on NPS website, and recommend that the modeling protocol verify this. http://www.nature.nps.gov/air/Maps/Receptors/index.cfm

Background Ozone and NH_3 Values

- The protocol should discuss what background NH_3 and ozone values will be used. We recommend that you use monitored background ozone data for sites in the modeling domain, and identify what value you will use to substitute missing hours. For NH_3, we generally accept the use the IWAQM numbers (or a weighted average of the IWAQM numbers based on the land use trajectory between the facility and the Class I area of concern).

Other data inputs

- The protocol should include a discussion of other data inputs such as the terrain grid, ozone monitor locations etc., as well as a discussion of any "switches" that will be used other than the default options in CALPUFF. Sample input files for CALMET, CALPUFF, POSTUTIL for VISIBILITY, and DEPOSITION, CALPOST for VISIBILITY, DEPOSITION & CONCENTRATIONS.

EMISSIONS

- Emission rates & source parameters – Provide information on the source parameters and associated emission rates that will be used for each of the various analyses.
- Use the appropriate emissions averaging period for each analysis (i.e. 24-hr rates for the visibility analysis and 24-hr increments, 3-hr for the 3-hr SO2 increment and annual for the deposition analysis and annual increments).

PM speciation

- We request that applicants provide PM speciation profiles identifying how PM emissions will be input for the visibility analysis, i.e. % of PM fraction that is condensable (inorganic and organic emissions) and filterable (coarse, fine soil and elemental carbon), as well as ensure use of the appropriate extinction coefficient for each category. Sample speciation profiles for various industries and boiler configurations are available on our website at: http://www.nature.nps.gov/air/permits/ect/index.cfm.

Visibility Analysis

- The applicant should provide a description of the visibility analysis methods that will be used. As you may be aware, the current FLAG document (FLAG 2000) recommends use of "method 2" in CALPOST.
- Include the use of "method 8" in CALPOST.

Visibility Analysis

- While we are still requesting that applicants follow the current approved version of FLAG (2000), in the interim you may also provide an analysis using the methodology presented in the proposed revisions (i.e. Method 8). Additionally, we would like the protocol to identify the natural background conditions that will be used for the visibility analysis, to ensure that they are the appropriate values for each Class I area to be modeled (natural background condition values can be found in our FLAG Guidance: http://www.nature.nps.gov/air/permits/flag/index.cfm.

CALPOST v6.221 Method 8 Mode 5

INPUT GROUP: 2 -- Visibility Parameters (ASPEC = VISIB)

Test visibility options specified to see
if they conform to FLAG 2008 configuration?
(MVISCHECK) -- Default: 1 ! MVISCHECK = 1 !

0 = NO checks are made
1 = Technical options must conform to FLAG 2008 visibility guidance
ASPEC = VISIB
LVNO2 = T
NO2CALC = 1
RNO2NOX = 1.0
MVISBK = 8
M8_MODE = 5

Some of the data entered for use with the FLAG 2008 configuration
are specific to the Class I area being evaluated. These values can
be checked within the CALPOST user interface when the name of the
Class I area is provided.

Name of Class I Area (used for QA purposes only)
(AREANAME) -- Default: User ! **AREANAME =Great Smoky MTS NP** !

Deposition Analysis

- Included concern thresholds, pollutant exposures, and deposition analysis thresholds (DATs) for sulfur and nitrogen deposition
- EAST-Total Sulfur; Total Nitrogen=0.01 Kg/HA/Yr
- WEST-Total Sulfur; Total Nitrogen=0.005 Kg/HA/Yr
- Expanded discussion of “Critical Loads” to reflect developments since FLAG 2000
- Replaced dated deposition maps with reference to NADP website for current trends data

Increment analysis

- Please briefly discuss the potential need for a cumulative increment analysis, and how this will be handled if necessary (i.e. project exceeds the Class I SIL).
- Cumulative increment inventory centers around the Class I area, NOT THE SOURCE.
- Include some minor sources < 50 km from the Class I areas.
- Since there may be several Class I areas in different locations of the modeling domain, cumulative increment inventories may be different for the different Class I areas, especially true for the minor source inventories.

ANALYSES FOR SOURCES < 50 KM

- AERMOD ANALYSES USUALLY FOLLOWS THE REQUIREMENTS OF THE PERMITTING AUTHORITY FOR INCREMENT.
- START-UP & SHUT-DOWN MAY BE REQUIRED/ CASE-BY-CASE
- VISIBILITY ANALYSES < 50 KM USE VISCREEN &/OR PLUVUE
- ***PLUVUE ANALYSES REQUIRE A SEPARATE MODELING PROTOCOL***

PLUME ANALYSES

- VISCREEN , < 50KM
- PLUVUE , < 50 KM - 5 years NWS data
- Required for Class I and Class II
- Class II “PSD Additional Impact Analysis for visibility, vegetation, and soils”
- Use annual Natural background visual ranges from FLAG 2010 Table V.1-6
- Class II use representative nearby Class I area

SOURCES BOTH < & > THAN 50 KM FROM A CLASS I AREA

- < 50 KM USE AERMOD FOR INCREMENT
- USE VISCREEN/PLUVUE FOR VISIBILITY
- > 50 KM USE CALPUFF FOR CONCENTRATION AND VISIBLE HAZE.
- USE CALPUFF FOR DEPOSITION FOR ALL DISTANCES IN THE CLASS I AREA

NPS Permitting Contacts

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