APPENDIX H

EPD GUIDELINE FOR CONDUCTING A CLASS I AREA MODELING ANALYSIS IN GEORGIA

GA EPD currently suggests the applicant prepare a 1-2 page long project abstract, including the net project emissions increase of each visibility-affecting pollutant (tpy) AND the distance, d (km) to each Class I area within 300 km of your project site. Visibility-affecting pollutants include SO_2, SO_4, NOx, and all forms of PM. **The emission rates should be worst-case 24-hr average emission rates.** Add all the visibility-affecting pollutant net project emissions to get a total, 'Q' (tpy), for the project. Divide the project Q by each of the Class I area distances to get a Q/d for each. Send the abstract and tabulated Q/d values to the responsible FLM(s) with a copy to GA EPD asking what, if any, requirements they may have for the project.

This may suffice for projects with Class I area(s) values of Q/d<10. If the Q/d>10, the FLM will likely want to see a complete analysis performed (including a preceding Class I Area Modeling Protocol developed by the applicant and approved by FLM) in accordance with the ***Federal Land Managers' Air Quality Related Values Workgroup (FLAG) Phase I Report,*** dated 2010, for that/those Class I areas.

It is recommended that the applicant request confirmation of the need to proceed from the respective FLM before proceeding with Air Quality Related Value (AQRV) analyses that are beyond the screening level (i.e., refined, or cumulative analyses). There may be area-specific or project-specific concerns that the FLM believes should be considered. There are specific, more stringent FLAG requirements if the site is within 50 km of a Class I area. There are also certain requirements of sources, locating within 10 km of a Class I area, the emissions of which may cause a 1 $\mu g/m^3$, or greater 24-hr average concentration of a criteria or non-criteria pollutant at the Class I area.

Class I Increment Analyses (GA EPD\US EPA purview):

Significance Screening (for projects farther than 50 km from any Class I area) - If the FLM(s) have confirmed no project AQRV analysis will be required, the applicant may assess Class I Significance via an acceptable screening technique, which should be described in the project Class II area modeling protocol. This will usually consist of adding all net project emissions of each pollutant (NO2, SO2, PM10), not including fugitives, and venting them using the lowest stack height of the project in the AERSCREEN model to a downwind receptor located at 50 km (if the project-to-Class I area is greater than 50 km) from the project. Adjust each pollutant's 1-hr concentration at this receptor by 0.8 to derive a 3-hr average concentration, by 0.2 to derive a 24-hr average concentration, and 0.06 to derive an annual concentration, as may be necessary. Compare the maximum impact of each pollutant for which an Increment has been promulgated, to the respective Class I significance levels proposed by EPA (FR Vol. 61, No. 142, page 38331, dated July 23, 1996).

If this approach is too conservative, repeat the modeling with five years of project Class II meteorological data using AERMOD to 20 1-km, or 1-degree, -spaced (polar) receptors located on an arc at 50 km from the project between the project and each Class I area. The design concentration for significance modeling is the maximum-modeled concentration. Compare the maximum impact of each pollutant for which an Increment has been promulgated, to the respective Class I significance levels proposed by EPA (FR Vol. 61, No. 142, page 38331, dated July 23, 1996).

If AERMOD screening at 50 km from the project is too conservative, and the Class I area is more than 50 km from the project site, Class I area significance must be assessed using the CALPUFF modeling system. In the event that no FLM requires an AQRV analysis with CALPUFF, such modeling should be described in detail in the Class II area modeling protocol, including the source of PM speciation profile data (if any), ambient air quality concentrations of O_3 and NH_3, and the optional settings of each model or utility program to be used.

Significance Modeling - If AQRV analysis of project impacts is required by an FLM, or if the project is within 50 km of a Class I area, then to assess Class I Increment consumption, first conduct a significance analysis with AERMOD (if $\leq$ 50 km to Class I area) or CALPUFF (if > 50 km to Class I area) to the FLM-tabulated receptors within the Class I area. Both AERMOD and CALPUFF are used to assess receptor concentrations if the Class I area has receptors both $\leq$ and > 50 km. Applicable guidance for (Significance) Increment-only assessments using the CALPUFF model is documented on pages 6-8 of the **IWAQM Phase II Summary Report and Recommendations for Modeling Long Range Transport Impacts**, EPA-454/R-98-019, 12/98.

Cumulative Class I Area Increment Analyses. For refined analyses conducted to satisfy FLAG Phase I Report (AQRV) requirements, cumulative analyses should include the emissions of sources within 300 km of the subject Class I area(s). This is also generally true of Class I Increment, which is a subject of GA EPD\US EPA purview. The applicant should submit a separate Class I Cumulative Analysis Modeling Protocol for projects which have been found to exceed Class I Increment Significance levels, or FLM AQRV screening thresholds. Such a cumulative modeling protocol should contain any proposed offsite emissions inventory screening techniques. It may also contain any discussion which the applicant considers to possibly mitigate the need for a cumulative analysis. The design concentration for cumulative increment modeling is the same as the design concentration for Class II increment modeling: maximum-modeled annual over five years for annual averages, and highest second-high for short-term averages.

Applicable guidance for Increment-only refined assessments using the CALPUFF model is documented on pages 9-10 of the **IWAQM Phase II Summary Report and Recommendations for Modeling Long Range Transport Impacts**, EPA-454/R-98-019, 12/98. Deviations from this guidance should be described for approval in the cumulative Increment modeling protocol. Following approval by GA EPD, proceed with the respective pollutant cumulative Increment consumption analyses using the Class I Increment levels tabulated at 40 CFR 52.21(c).

CALPUFF Meteorological Data - Use of the VISTAS-prepared CALMET 4-km grid meteorological data of 2001-2003 will expedite review of CALPUFF modeling of sites in the VISTAS area. The U.S. Fish & Wildlife Service, revised these data most recently in July, 2007 to be compatible with the EPA\FLM-approved CALPUFF 5.8 modeling system. Since the FLMs created these data, they are not likely to expedite review of geographically overlapping, and potentially older meteorological data sets prepared by others. The use of this data is an example of an acceptable deviation from the referenced guidance. The DOMAIN 4 meteorological data (2001-2003) prepared for VISTAS should be used for all CALPUFF modeling in GA. GA EPD prefers use of a computational grid which is the same as the entire DOMAIN 4 meteorological grid. GA EPD can provide these meteorological data if the potential modeler will send us a minimum 400 Mb portable hard drive with a postage-paid return address label.

If you have questions about AQRV issues, we suggest you pose the question to the appropriate FLM directly. GA EPD should be copied and/or involved on all FLM correspondence regarding project-permitting procedures. If your question is limited to Class I Increment consumption, please direct it to GA EPD.