

# **Modeling Options for Conducting Dispersion Modeling in Western North Carolina.**

## SCREEN LEVEL MODELING OPTIONS

1. SCREEN3 - use mountain conversion factors (see NC Toxics Modeling Guide) to convert one hour concentrations to the applicable averaging period(s) of concern; combine maximum impacts from each source evaluated to determine overall facility impact for each pollutant for each averaging period of concern.
2. ISCST3 (Screening Mode) – ISCST3 ver 03035 may be used in a screening mode on a case-by-case basis with prior approval from the AQAB. The screening meteorological data to be used is available from the DAQ/AQAB web page. The SCREEN3 conversion factors of 1.0 (3-hr), 0.9 (8-hr), 0.6 (24-hr), and 0.1 (annual) should be used.
3. CTSCREEN – CTSCREEN is a screening version of the CTDMPLUS refined model designed for plume impaction assessments in complex terrain. This model may be used on a case-by-case basis with prior approval from the AQAB if SCREEN3 results indicate maximum impacts are predicted to occur on a nearby hill or mountain. The built in conversion factors of 0.7 (3-hr), 0.15 (24-hr), and 0.03 (annual) should be used.

## REFINED LEVEL MODELING OPTIONS

1. CALPUFF using 3 years of MM5 gridded meteorological data (4-km resolution) developed by VISTAS provided that a demonstration can be made the MM5 data yields sufficient resolution of terrain features within the modeling domain. Such a demonstration may include wind vector analyses that show how the CALMET-produced wind fields reflect flow around nearby terrain features; the VISTAS data is available upon request. If further refinement of the data resolution is required, the applicant must develop the data and submit to the AQAB for review before submitting the final modeling analysis.
2. CALPUFF or AERMOD using 5 years of representative NWS data or 1 to 5 years of locally collected meteorological data provided an argument or demonstration can be made that the data is representative of the proposed modeling domain. An applicable upper air site would need to be selected. Note: although few, there are facilities in western NC that have collected on-site meteorological data that may be representative. The applicant will need to research and work out the availability of this data. Contact the AQAB for additional information.

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