

## AERMOD System Bugs, Errata, and Related Guidance

This document identifies recent significant bugs reported and verified in the current regulatory version of the EPA AERMOD Modeling System that are available on the EPA's Support Center for Regulatory Atmospheric Modeling (SCRAM) website (<https://www.epa.gov/scram>). System bugs and related guidance will be provided for each AERMOD system component (*i.e.*, AERMOD, AERMET, AERMAP), when applicable.

### AERMOD v.21112

#### 1. NO<sub>2</sub> Background Concentrations with PVMRM (7/26/2021)

A coding bug was discovered in AERMOD version 21112 when providing background concentrations of NO<sub>2</sub> when using the Tier 3 Plume Volume Molar Ratio Method (PVMRM) for NO<sub>2</sub> conversion. In this case, the background concentrations of NO<sub>2</sub> provided via the AERMOD input control file are added to the internal modeled concentrations twice, resulting in final modeled concentrations that are too high. When using the PVMRM option to model NO<sub>2</sub> concentrations, users should input background concentrations of NO<sub>2</sub> that are one-half of the amount of the actual background concentration. This bug does not affect any of the other NO<sub>2</sub> conversion options (*i.e.*, ARM2, OLM, GRSM, or TTRM). Actual NO<sub>2</sub> background concentrations should be entered when using any of these other NO<sub>2</sub> conversion options.

#### 2. BUOYLINE Source Types and BLPGROUP (7/26/2021)

A coding bug was discovered in AERMOD version 21112 related to error handling which in some circumstances AERMOD will complete processing without an error but concentrations for BUOYLINE source types will not be generated. This can occur when one or more BUOYLINE sources are defined and the required BLPINPUT keyword is omitted, as well as the BLPGROUP keyword. When all BUOYLINE source types defined in the input control file are considered part of a single BLPGROUP, the BLPGROUP keyword is not required, and the BLPGrpID is an optional parameter for the BLPINPUT keyword. However, the BLPINPUT keyword is required. If the BLPINPUT keyword is also omitted, AERMOD will appear to complete successfully, but concentrations will not be generated for the BUOYLINE source types since the BUOYLINE source characteristics have not been specified via the BLPINPUT keyword and parameters.

When modeling BUOYLINE source types, EPA recommends that the user include the BLPGrpID with the BLPINPUT keyword even when all BUOYLINE source types are modeled as a single BLPGROUP, and assign each BUOYLINE source type to a BLPGROUP via the BLPGrpID parameter with the BLPGROUP keyword.