**Command Line Script Instructions**

**Subject:** Input data for the PM2.5 analysis completed using BenMAP-CE for the manuscript titled “PM2.5-Attributable Mortality Burden Variability in the Continental U.S.”

**Date:** October 13, 2023

EPA has placed into Science Hub files used in generating the EJ mortality burden analysis completed using BenMAP-CE for the manuscript titled “PM2.5-Attributable Mortality Burden Variability in the Continental U.S.”. The assessment was completed using BenMAP-CE version 1.5.8. Population-weighted exposure and mortality rate estimates can be reproduced either by performing individual parameterized runs for a given air quality scenario using the BenMAP graphical user interface (GUI) or performing batch runs using scripts. However, the latter method is recommended.

BenMAP runs were batch processed using command line and a written script. The full set of estimates can be reproduced using the automation script files available in the docket materials, which can be run from the command prompt using the input air quality surface files. See Appendix L of the BenMAP manual for additional details on running BenMAP through the command line and the Estimating PM2.5- and Ozone-Attributable Health Benefits Technical Support Document (TSD) for additional information of selection of health endpoints and concentration-response relationships.[[1]](#footnote-1)

Standard BenMAP folders are included in the docket materials, described below. Script files can be reviewed and modified in a text editor such as Notepad++ or Sublime Text, which includes comments preceded by “#”. One script files were used for this analysis.:

* “EJ and PM benefits command script.ctlx” produces the national-level aggregated results

Prior to running the script from the command line, several subdirectory pointers within the automation code must be set to where the user has placed the input files and results directories for outputs (e.g., “[INSERT FILE LOCATION]”). Imbedded notes within the automation code highlight the pointers which must be updated, which appear near the beginning of the script files. Once pointers have been updated and the required input files have been placed in the appropriate subdirectories (see below), then the script run is initiated with the below commands from the command prompt:

* Direct the command line prompt to the location where the BenMAP program is located (e.g., “cd\program files (x86)\BenMAP-CE”) and hit Enter
* Direct the command line prompt to the script file (e.g., start/wait "" "C:\program files (x86)\benmap-ce\benmap.exe" "C:\[INSERT FILE LOCATION}\ EJ and PM benefits command script.ctlx")

In order to run the automated scripts, make sure that the following subdirectories have been created, include the necessary input files, and the scripts have been edited to their location:

* “Inputs” Containing the air quality grid .csv (or .xlsx) files
* “AQG” Will be the location of output .aqgx air quality gridded surface files
* “CFG” Containing the BenMAP configuration file used as the basis for generating risk estimates, e.g., Unstratified\_2026\_12km.cfgx
* “APV” Contains BenMAP aggregation and pooling file which allows .apvx and .cfgrx reports containing the risk estimates to be generated, e.g., Unstratified\_2026\_12km.apvx
* “Reports” Will be the location of mortality output .csv files. Please add this folder to your intended file location.
* “Results” Will be the location of mortality output .cfgrx and .apvrx files. Please add this folder to your intended file location.

1. https://www.epa.gov/benmap/benmap-ce-manual-and-appendices and

   https://www.epa.gov/sites/default/files/2021-03/documents/estimating\_pm2.5-\_and\_ozone-attributable\_health\_benefits\_tsd.pdf [↑](#footnote-ref-1)