

HEM version 4.2 (January 2, 2023)

Bug Fixes

Item	Modification	HEM4 Sections Affected
1	Fixed reset_index bug in MaxRisk.py on line 42. The blocksummary_df data frame index was being reset but the inplace=True option was not set so the index remained the same. This caused a problem further down in the code where rows are dropped if the population is 0. Blocksummary_df could have duplicate indexes and one of the duplicates may have a population of 0.	Run HEM4
2	Corrected bug that prevented start/end meteorology times from having the same YMD but different hours. The function that constructed the date/time variable was not including hour.	Run HEM4 - Selection of Facility List Options file
3	Adjusted the Alternate Receptor versions of the summary programs to utilize the new "receptor type" column in the All Inner and All Outer Receptor files to correct missing index errors.	Summarize Risks
4	Altered the KMLWriter code to display and identify all user supplied receptors in the facility KMZ file, for every receptor type.	Run HEM4

Enhancements

Item	Modification	HEM4 Sections Affected
1	Incorporated Aermod v22112.	Run HEM4
2	Incorporated the use of the 2020 Decennial Census block population.	Run HEM4
3	Incorporated the use of the five year averages from the 2016-2020 American Community Survey demographic data in the Demographic Assessment module.	Demographic Assessment
4	Added message to warn user not to enter too long of a path name in the filename entry box of the Demographic Assessment module.	
5	Added the "Above Twice the Poverty Level" demographic to the Demographic Assessment summaries.	
6	Changed footnotes in Demographic Assessment summaries to reflect use of 2020 Census and 2016-2020 ACS data.	
7	Changed "Minority" to "People of Color" in all Demographic Assessment summaries, in keeping with EJSCREEN.	
8	Changed the method of block group defaulting in the Demographic Assessment module from using county demographics to instead using the demographics of the nearest block group, via a default ACS file.	

9	Changed the name of the “missing” block group file to the “defaulted” block group file in the Demographic Assessment module.	
10	Excluded blocks with zero population from the defaulted block group list in the Demographic Assessment module.	
11	Implemented use of the Great Circle distance to find blocks within the maximum modeling distance, and to identify blocks in the Chronic Block Summary within a specified radius in the Demographic Assessment module.	Run HEM4
12	Changed “Minority” to “People of Color” in all EJ Dash windows.	Analyze Outputs
13	Added the “Above Twice the Poverty Level” demographic to the EJ Dash windows.	
14	Updated the Emissions Variation template input files to reflect the HEM requirement that temporal factors (scalars) must average to 1 to maintain the user’s tons per year (TPY) of emissions in the HAP Emissions input file. Note: This is not an AERMOD requirement, only a HEM requirement.	Run HEM4 - Selection of Emission Variation input file
15	Changed “Community Assessment” to “Demographic Assessment”.	Demographic Assessment
16	Default urban/rural setting is determined by computing the population density within 3km of the facility center. If density > 750 people/km ² then urban, otherwise rural. If facility is urban, then the urban population is computed by summing all block populations within 20km of the facility center.	Run HEM4
17	EJ module records facilities that are skipped because their facility folders are empty. The list is written out to “Skipped EJ facilities.xlsx”.	Demographic Assessment
18	Enabled the “receptor type” field to be used in helping determine whether a receptor can be the MIR or max TOSHI location. This required adding a “receptor type” column to the Block Summary Chronic, All Inner Receptors, and All Outer Receptors output files.	Run HEM4
19	Left padded user receptor ID’s with 0’s to make them 10 characters long and consistent with the format of the Census block ID.	Run HEM4