

MOVES2010 Errata/Information Sheet

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Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

MOVES2010 Errata/Information Sheet
May 15, 2010

This document lists substantive errors and concerns that have been identified for MOVES2010. Some of the items listed here are errors for which we have solutions. Others are areas where MOVES users should exercise caution in selecting MOVES inputs and in interpreting MOVES results. This document fully replaces the December 22, 2009 MOVES2010 Errata/Information Sheet.

If you find problems with MOVES that are not on this list, please let us know by emailing the MOVES team at mobile@epa.gov. We will update this list as needed. Thank you for helping us improve the MOVES model.

Data Errors Fixed With May 15, 2010 Database

EPA has developed a replacement default database to be used with the previously released MOVES2010 code. The May 15, 2010 database and instructions for its use are available on the MOVES web page: <http://www.epa.gov/otaq/models/moves/index.htm>.

Error in 12212009 Default Database	Repair in 05152010 Default Database	Implications
1. The ratios used to compute nitrogen oxide (NO) and nitrogen dioxide (NO ₂) from NO _x are incorrect. NO _x emission rates are not affected by this error.	The replacement database includes correct NO and NO ₂ fractions.	NO and NO ₂ results generated with previous versions of the database should be discarded. New runs should use the revised default database MOVES2010 NO _x results required for ozone State Implementation Plans and ozone conformity determinations are unaffected. The greenhouse gas nitrous oxide (N ₂ O) also is unaffected.
2. In some cases, when more than one sourcetype is requested, evaporative permeation emissions may be overestimated by a few percent. The error affects HC species and most air toxics.	The replacement database includes tank temperature inputs by individual source type.	Averaged over a 24-hour day, the impact of this error is quite small. However, users investigating evaporative emissions as a function of hour of the day may wish to re-run existing results with the revised database. New runs should use the revised default database

3. Fuel effects for diesel air toxics and VOC emissions have some inaccuracies in calendar years 1999 through 2006.	The replacement database includes updated diesel fuel effects and HC speciation for these years	<p>Users who have modeled calendar year 1999-2006 VOC and air toxics from diesel vehicles should discard these results. New runs should use the revised default database.</p> <p>When using the fuel importer, users should choose an existing fuelformulationid with the desired fuelsubtypeid (which for gasoline fuels is mainly dependent on ethanol volume). They may modify the fuel properties to match the fuel they wish to model.</p>
4. In some cases, results for hydrocarbons and related species in calendar years 1999-2004 are incorrect for gasolines containing ethanol.	The replacement database assigns the correct fuel subtype to all ethanol blends.	<p>Users who have modeled THC or other hydrocarbons/air toxics from gasoline vehicles for calendar years 1999-2004 should discard these results. New runs should use the revised default database.</p> <p>When using the fuel importer, users should choose an existing fuelformulationid with the desired fuelsubtypeid (which for gasoline fuels is mainly dependent on ethanol volume). They may modify the fuel properties to match the fuel they wish to model.</p>
5. Elemental carbon (EC) and organic carbon (OC) start emissions for light duty diesel cars, passenger trucks and commercial trucks of model year 2021-and-later are not correct.	The replacement default database includes a new emission rate table with the correct diesel emission rates.	Light-duty diesels generally are a small part of the fleet, but users modeling calendar years 2021-and-later may wish to re-run existing results with the revised database. New runs should use the revised default database.
6. Check boxes to select Ethanol and MTBE for “extended idle exhaust” and “crankcase extended idle exhaust” are extraneous.	The replacement default database removes these check boxes.	MOVES calculates extended idle only from diesel vehicles. MTBE & Ethanol are not emitted by diesel vehicles.

Input/Data Completeness Issues Requiring User Caution

Issue	Implications
7. Importing data from spreadsheets using the County Data Manager or the Project Level Data Manager occasionally does not result in a green check in the graphical user interface, even though there appear to be no problems with the imported data and MOVES runs successfully.	Users should remain cautious when using databases that indicate a red “X” for any of the input tabs, since other problems, such as incomplete data, will also prevent a green check from appearing. If necessary, users can export the imported data or examine the user database tables directly using the MySQL Query Browser to assure that the data in the database is appropriate and complete.
8. When using the Project Level Data Manager, misleading results may occur when entering an Operating Mode Distribution if the Links information is not correct.	Users should make sure the Links tab is green. When filling out a run specification make sure all of the chosen road types are present in the Project Level.
9. If Custom Domain is chosen, the Zone Road Activity tab in the County Data Manager may have an erroneous green check even though no data has been imported.	Users should check this tab to make sure that it includes correct data. For Custom Domains, the ZoneRoadActivity table should have a SHOAllocFactor equal to one for each Road Type.
10. When importing user information on fuels with the FuelFormulation importer (available through the CountyDataManager, ProjectDomainManager, and Data Importer) the user has the option to enter new fuelformulationids. If this is done, MOVES incorrectly uses the market shares for both the default fuels and the new fuels, which can incorrectly increase emissions by 100%.	<p>Until a fix is available, users should not create new fuelformulationids. Instead, they should choose an existing fuelformulationid with the desired fuelsubtypeid (which for gasoline fuels is mainly dependent on ethanol volume). They may modify the fuel properties to match the fuel they wish to model.</p> <p>Users who have used default fuelformulationids are unaffected by this error. Users who have created new own fuelformulationids should rerun MOVES2010 using the approach suggested here.</p>
11. When creating a retrofit parameter file to import with the On Road Retrofit Strategies panel, do not use the PollutantID, ProcessID, FuelTypeID or SourceTypeID numbers. Use the text names for these parameters.	See user guide for detailed instructions.

Output Issues Requiring User Caution

Issue	Implications
12. MOVES does not produce output for acrolein, benzene, 1,3 butadiene, and formaldehyde for diesel vehicles if you request processes other than the running exhaust process. This problem does not affect gasoline vehicles.	<p>If you require toxic emissions output, you will need to do a separate run that only includes the running exhaust process.</p> <p>Note, MOVES does not currently model the diesel vehicle emissions of these pollutants from processes other than running exhaust. See also Issue 14 below.</p>
13. When computing emission rates, the portion of evaporative emissions that occur while vehicles are running is only reported in the RatePerDistance table if a running exhaust process is also selected.	When computing emission rates for evaporative processes, always select at least one Exhaust Running emission process.
14. The Extended Idle process does not produce records for Benzene, Formaldehyde, 1,3-Butadiene, Acetaldehyde or Acrolein even though there are check boxes for these pollutants in the Pollutants and Processes Panel.	If the user requires results for these pollutants for the extended idle emission process, the user will need to calculate these pollutants manually using the results for Total Gaseous Hydrocarbons and Methane.
15. In the Summary Reporter, if the output data is disaggregated by day or hour, the output database will contain results for only two days in each month - a weekday (dayID 5) and a weekend-day (dayID 2)	In this case, Summary Reporter should not be used to display results for a month or year, since the current reporter code erroneously simply sums these two days together. The user should either do a MOVES run requesting output by month or distinguish by dayID in the report and then externally weight the result according to the type of day to see meaningful result for a month (e.g. 22 weekdays and 9 weekend-days in a 31-day month) or year (e.g. 261 weekdays and 104 weekend-days in a 365-day year).
16. The post-processing MySQL script. "DecodeMOVESOutput.sql" generates an error message and fails when run on output files that include certain pollutants	EPA has created a revised script that fixes this problem. The script is available on the MOVES web site, along with installation instructions.