MOVES2014 October Release

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

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As many of you are aware, we released MOVES2014 in July of 2014. We would like to thank the user community for the early feedback. We received some positive feedback, and some suggestions for improvement. Since the release, users have identified a number of suspected problems in the model. The EPA MOVES team has been investigating these concerns and, as necessary, working to improve the model.

We have now posted an updated version of the MOVES2014 Installation Suite that fixes a significant error in the new nonroad portion of MOVES2014. We also took this opportunity to address a number of minor issues with the onroad portion of MOVES2014. This update also improves the installation process and includes small performance improvements. Finally, we have fixed an error in the spreadsheet that some states use to estimate evaporative emissions from vehicles meeting California Zero Emission Vehicle (ZEV) standards.

We are referring to this update as the MOVES2014 October Release. All MOVES2014 users should install the MOVES2014 October Release as soon as possible. The new code and database are now available on the MOVES website: www.epa.gov/otaq/models/moves/. The new ZEV spreadsheet is available at http://www.epa.gov/otaq/models/moves/tools.htm .

All MOVES2014 guidance, as well as the contents of the Federal Register Notice of Availability for MOVES2014 (www.gpo.gov/fdsys/pkg/FR-2014-10-07/pdf/2014-23258.pdf), apply to the MOVES2014 October Release.

Below is a list of the improvements in the MOVES2014 October Release. Note that if you did any previous runs with the July version of MOVES2014 which did not include nonroad output and are not affected by any of the onroad issues listed below, you may continue to use that output. However, you should still install the MOVES2014 October Release for all future work with MOVES.

Thanks,

The MOVES Team

Change	Impact on Criteria Pollutants	Details	Notes
Repair to Nonroad emission error	High	Nonroad emissions will increase by factor of about 30 with the fix.	NONROAD2008 can continue to be used as well.

Change	Impact on Criteria Pollutants	Details	Notes
Repair to Nonroad population problems	High for users calculating Nonroad rates from activity output. None for users of Nonroad inventory results.	No impact on direct emissions output from MOVES2014, but some post-processing scripts calculated incorrect rates because of artificially inflated population and activity output. In addition, some scripts incorrectly handled population when multiple days and months were selected.	Equipment population and source hours in MOVES activity output will drop by a factor of two with the fix. Rates calculated by the post-processing scripts will drop by a factor of two or more, depending on the number of days and months selected.
A fix for a problem with the emission rate-per-hour emissions for Auxiliary Power Units (APUs).	Low	Corrects an error in rates that occurs only when "model year" was not checked in the output detail pane. This error does not affect inventory output or output to other rates tables.	
The addition of missing pollutants to the RatePerDistance, RatePerHour and RatePerProfile output tables. RatePerDistance was missing NO and HONO. RatePerHour was missing NO, HONO and all emissions for Crankcase Extended Idle Exhaust. RatePerProfile was missing the CB05 chemical species	Low	These emissions are important for users preparing lookup tables for use in air quality modeling. This does not affect inventory output or output for other pollutants.	

Change	Impact on Criteria Pollutants	Details	Notes
A change to the SampleVehiclePopulation table that repairs an error in the sourcetype fractions for long-haul single unit trucks and short-haul combination trucks (SourceTypes 53 and 61)	Low	This error sometimes caused incorrect results when using the Alternative Vehicle and Fuel Technologies (AVFT) importer to change the fuel mix for these sourcetypes. Users not importing local AVFT tables are unaffected.	
A change to the PollutantProcessAssoc table so MOVES now correctly requires users to model PM2.5 running processes whenever requesting output of brakewear emissions	Low	Without this fix, some runs where users requested brake wear lacked these emissions. Users requesting brake wear emissions plus PM2.5 running emissions are unaffected.	
A code change that does not allow separate ramp output for "rates" runs.	Low	Emission rates (per - vehicle, per-profile) were incorrect in runs that requested output specifying "ramp" roadtypes. Rate runs that did not request "ramps" as separate output were unaffected. Inventory runs were unaffected.	With the fix, users may not request separate ramp output in "rates" runs. Separate ramp output continues to function for inventory mode.
A change to allow output Chemical Mechanism CBO5 pollutants for crankcase extended idle, crankcase start exhaust and crankcase running exhaust emissions.	Low	These emissions are very small and are relevant only for users preparing output for use in air quality modeling.	There was no output for these pollutant/process combinations before the fix.

Change	Impact on Criteria Pollutants	Details	Notes
A fix to a divide-by-zero error for Nonroad runs of the 1990, 1999 and 2000 calendar years.	Low	Incorrect emissions were produced when a user modeled calendar year 1990, 1999 or 2000 and did not select all pollutants.	Before the fix, the model also logged an error in the error output table.
Diesel refueling displacement vapor loss set to zero.	Low	Diesel refueling displacement vapor loss was incorrectly reported. It is now correctly set to zero.	
Change in fuel supply to correctly increase RVP of E15 fuels in RVP control areas without E10 waivers.	Low	The change increases evaporative emissions from E15 fuels in affected areas. It also causes very minor changes in exhaust emissions.	
An improvement to the default fuel supply to assure that every county has a default Compressed Natural Gas (CNG) fuel.	None	--	This will prevent a "red X" in the Fuels Importer if the user chooses CNG in the Runspec and imports the default fuel supply.
A code change so that users running MOVES from the command line do not get an error when using the "-rl" command to automate the running of a list of runspecs.	None	--	The change allows the use of –rl in command line runs.
A change to the DataSource table to remove zeros.	None	--	The change prevents an error message during actions such as server-to-server copying.

Change	Impact on Criteria Pollutants	Details	Notes
An improvement to the Nonroad post-processing scripts.	None	--	The change clarifies the unit labeling and fixed a bug that occasionally reported false errors after a post-processing script successfully completed.
A change to the message provided when users open the MOVES2010b converter that clarifies that additional work is required before using converter output with MOVES2014.	None	--	Provides clearer instructions for using the MOVES2010b converter.
Change to I/M database to give unique program-IDs to alternative fuels.	None	--	This change has no impact on emissions but reduces the chance of confusion.
Improvement to increase speed for processing large runs.	None	--	Very large runs with many worker "bundles" now run more quickly.
Installation Suite—change to manyworkers.txt	None	--	The change repairs an error that caused failures when trying to run multiple workers.

Change	Impact on Criteria Pollutants	Details	Notes
MOVES2014 tools: Change to ZEV_AVFT_MOVES2014 spreadsheet.	None		With MOVES2014, EPA provided a tool to help model emissions in states that adopted California Low Emission Vehicle (LEV) standards. This included a spreadsheet (ZEV_AVFT_MOVES2014.xlsx) to help estimate evaporative emissions from Zero Emission Vehicles (ZEVs). A problem with the spreadsheet led to an error when users attempted to import data from the sheet. It has been fixed. The new spreadsheet is not part of the October Release installation suite. It is available with the other LEV tools at http://www.epa.gov/otaq/models/moves/tools.htm
Installation Suite— change to installation path.	None	--	The old path caused failures when running Nonroad in MOVES with the Windows XP operating system.
Installation Suite-- Updated links for several MOVES2014 web documents.	None	--	Note that the MOVES2014 Software Development Reference Manual document is not available at this time, therefore you may still see a "page not found" error for this report.
Improved installation instructions and added a new troubleshooting message screen	None	--	The new instructions should help users resolve firewall issue on computers that sometimes block MySQL installation