Instructions for using the MOVES3 ONI Tool

Introduction

This document provides instructions for using the MOVES3 ONI Tool to generate off-network idle (ONI) activity, in terms of hours, based on a user's County Scale input database. This tool is only needed when using MOVES at the County Scale in Emission Rates mode, and only when users do not have their own ONI activity that is granular enough to use with the MOVES rates output (such as by hour of day).

ONI is defined in MOVES as time during which a vehicle engine is running idle and the vehicle is somewhere other than on the road, such as in a parking lot or driveway. This engine activity contributes to total mobile source emissions but does not take place on the road network. Examples of ONI activity include:

- light duty passenger vehicles idling while waiting to pick up children at school or to pick up passengers at the airport or train station,
- single unit and combination trucks idling while loading or unloading cargo or making deliveries, and
- vehicles idling at drive-through restaurants.

Note that ONI does not include idling that occurs on the road, such as idling at traffic signals, stop signs, and in traffic—these emissions are included as part of the running and crankcase running exhaust processes on the other road types. ONI also does not include hotelling/extended idle activity, as that type of long duration idling is accounted for in other processes in MOVES.

ONI rates are written to a MOVES output database in the *rateperdistance* table, represented as running activity (processID 1) on the off-network road type (roadTypeID 1). Despite the rates being written in the *rateperdistance* table, the rate itself is an emission rate per hour of idle engine operation. Therefore, to use these ONI emission rates, users must have total engine on activity, in hours, for off-network idling by hour of day and any other level of detail selected in the RunSpec (e.g., source type). For an example of data sources that may be used to determine off-network idling activity, see Section 10 of Population and Activity of Onroad Vehicles in MOVES3 (EPA-420-R-20-023).

When users do not have these data, the ONI Tool should be used to develop ONI activity equivalent to that which MOVES would calculate when running in Inventory mode. Note that the ONI activity data developed with this tool are different from the optional Idle input in the County Data Manager (CDM). The Idle Tab allows users to specify local total idle fractions, which include both driving and off network idling. Users that have local total idle fractions should supply these data using the CDM before running the ONI Tool, so that the resulting hours of ONI activity are equivalent to the activity that MOVES would calculate when running in Inventory mode with these optional inputs.

Inventory mode users do not need to use this tool, as MOVES will calculate hours of ONI activity during runtime in this mode. For reference, in Inventory mode, MOVES will save the calculated ONI activity to the *movesactivityoutput* table of the output database, as Source Hours Operating (SHO, activityTypeID

4) on the off-network road type (roadTypeID 1), as long as **Source Hours Operating** is selected on the General Output Panel and **Road Type** is selected on the Output Emissions Detail Panel.

Instructions

The ONI Tool can be run from the Tools section of the MOVES GUI, once users have created a complete County Scale input database (with all "green checks"). This input database should be populated with data consistent with the MOVES Technical Guidance (EPA-420-B-20-052) for all required inputs (e.g. VMT and road type distribution). The tool can be run before or after MOVES is run, as long as the input database is the same. The tool will create an Excel file with ONI activity in hours, as well as ONI activity rates in terms of ONI hours per onroad SHO (source hours operating) and ONI hours per VMT (vehicle miles travelled).

- The ONI activity in hours can be used with the ONI emission rates found in the MOVES Rates mode output *rateperdistance* table for processID 1 and roadTypeID 1. Users may need to allocate this activity to further levels of detail, depending on the output choices in the RunSpec. For example, if **Fuel Type** and **Model Year** are selected on the Output Emissions Detail Panel, the user will need to allocate the ONI activity to the different fuel types using data in the AVFT table and to different model years using the SourceTypeAgeDistribution table.
- Alternatively, the user can calculate ONI hours as a product of the ONI activity rates (ONI/SHO or ONI/VMT) and either the SHO or VMT activity data used with the MOVES Emission Rates results to calculate the inventory. These hours can then be used with the ONI emission rates.

Steps to run the ONI Tool

1. Open MOVES and create a RunSpec for the current analysis. In the Output Emissions Detail Panel, be sure to check output by **Source Type**.
2. Ensure that the County Scale Input database is complete by looking for all "green checks" in the County Data Manager.
3. Open the ONI Tool from the MOVES Tools menu.
4. Provide a file name for the ONI Tool output. The file should be either an .xls or .xlsx file for use with Excel, or a .csv file otherwise. MOVES will save the ONI Tool output to this file.
5. Select the input database which should be used to run the ONI Tool. It should be the same database that was created in Steps 1 and 2.
6. Click "Run ONI Tool". Depending on the nature of the run, it may take several minutes to complete.