

MOVES Inputs for Inspection and Maintenance Programs

**Georgia Environmental
Protection Division**

**Virginia Department of
Environmental Quality**

**MARAMA MOVES Workgroup conference call
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Background

- **States prepare I/M inputs for MOVES2010a in a variety of different ways**
- **MOVES user guide is confusing**
- **Incorrectly prepared I/M inputs affect MOVES results**

User Guide Excerpt

MOVES2010a User Guide (page 64):

The preferred method for entering modified data is to enter a value of “N” for No in the “UseIMYN” field for all the default I/M programs for which the user will provide new data. Then the user should add to the file new entries with “Y”s in the “UseIMYN” field and new IMProgramID values; this approach ensures that all the default programs are accounted for and the user has full control of the new programs. Another method is to attempt to edit the default programs, but then the user runs a higher risk of creating programs with the same IMProgramID, but different test standards, frequencies, or model year ranges, and thus a higher likelihood of introducing errors.

What it really means...

- **I/M programs in default database (movesdb20100830) must be considered under all circumstances**
- **Default I/M programs are always switched on (i.e., UseIMyn flag is always Y in the default)**
- **Default programs must be disabled to avoid errors**
- **Two ways to disable:**
 - (1) the preferred method**
 - (2) editing default database**

Examples of UseMyn

Notation	Intended Effects	Actual Effects
Y/N blocks	state programs Y, default N	EPA preferred method
Y block only	state-supplied programs Y	I/M programs are double counted (incorrectly!)
N block only	default programs N	“true” blank
blank	none included	defaults could be counted (incorrectly!)

GA and VA have conducted experimental runs and confirmed that the alternative method (of editing default database) yields identical results to the preferred method

Effect of UseMyn on Emissions

2007 annual MOVES runs in inventory mode for a VA representative county (51153)

Pollutant	(1) moves2010a Y/N blocks	(2) moves2010a Y block only	(3) moves2010b Y/N blocks	(4) moves2010b Y block only
CO	173,714.18	174,706.17	173,714.17	154,079.38
NO_x	28,215.89	28,686.06	28,215.89	26,004.50
Total Gaseous Hydrocarbons	15,749.29	15,947.99	15,750.27	13,914.26
Non-Methane Hydrocarbons	15,030.33	15,219.59	15,030.33	13,285.80
VOC	15,693.49	15,884.95	15,693.49	13,899.58

 **preferred method**

- **NH₃, SO₂, and PM species (not shown) were identical in all 4 runs**
- **MOVES2010a and MOVES2010b with the preferred method yield nearly identical results**
- **MOVES2010a Y block is erroneous with higher emissions than the Y/N block. It's not clear exactly how MOVES2010a treats the Y block.**
- **MOVES2010b Y block has “corrected” the error, but essentially double counts the reductions from the I/M programs, applying both the default and the user-supplied programs.**

Correct Steps in Preparation

The preferred method

- **Pull default I/M programs from MySQL database (movesdb20100830) for the (representative) county**
- **Change UseMyn flag from Y to N for default programs**
- **Prepare state-supplied I/M programs with new ProgramID**
- **Mark UseMyn as Y for state-supplied programs**
- **Concatenate the two (Y and N) blocks**

Even if a county has no I/M programs, state still needs to check the defaults and include them (to form an N block), if the default database contains I/M for that county.

SESARM states

State	Problematic Rep County	Possible Problems
AL		
FL		
GA		
KY		
MS		
NC		
SC		
TN		
VA		
WV		

All known issues and problems with I/M inputs have been resolved

A coordinated effort involving state agencies and contractors has fixed the problems with the I/M inputs, and MOVES has been re-run for southeastern states

OTC/MARAMA states

State	Problematic Rep County	Possible Problems
CT		none, inputs prepared correctly
DC	11001	Y block only
DE	10001, 10003, 10005	N block insufficient, columns/header inconsistent
MA	25013, 25017	N block insufficient
MD	24003, 24009, 24043	N block insufficient
ME	23005	Y block only
NH	33011	Y block only
NJ		none, inputs prepared correctly
NY		Not yet examine due to too many representative counties
PA	42011, 42027, 42091, 42125	N block insufficient, IM of inventory group counties included
RI	44007	Y block only
VA		none, inputs prepared correctly
VT	50001, 50005	Y block only, IM in default but no IM in reality

- **Problems identified above should be confirmed and corrected**
- **Possible problems are for 2007 inputs. Inputs for 2020 may have additional problems.**
- **States which run inventory mode for conformity or other analyses should correct their I/M inputs**

Concluding Remarks

- **Incorrect I/M inputs affect results considerably**
- **I/M issue affects both emission rate mode and inventory mode**
- **Effect of ProgramID has not been thoroughly tested**
- **A mechanism overriding MOVES default is urgently needed and should be brought to OTAQ attention**