USEPA’s Future Role for the Storm Water Management Model (SWMM)

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United States Environmental Protection Agency
International Conference of Water Management Modeling
February 28, 2018
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Michelle Simon
Disclaimer

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Draft 2/8/2018
Michelle Simon
EPA Point of Contact for SWMM
New to SWMM (2010- present)
People Far More Experienced than Me

Bob Dickinson, Rob James, Mitch Heineman, Bill James, Lew Rossman, 2002
• History, evolution, success and use of SWMM
• EPA’s continued role in SWMM
• Why EPA established National Center for Infrastructure Modeling and Management (NCIMM)
• Conclusions
Why EPA Needs SWMM

- Design and sizing of drainage system components including detention facilities.
- Control of combined and sanitary sewer overflows.
- Modeling I&I in sanitary sewer systems.
- Generating non-point source pollutant loadings for waste load allocation studies.
- Evaluating BMPs and LIDs for sustainability goals.
- Flood plain mapping of natural channel systems.
History of EPA and SWMM

- SWMM I: 1971
- SWMM II: 1975
- SWMM 3: 1981
- SWMM 3.3: 1983
- SWMM 4: 1988
- SWMM Redevelopment Project: 2002
- SWMM 5.0: 2005
- SWMM 5.1: 2014
- SWMM 5.1.012 CAT: 3/30/2017

Draft 2/8/2018
# How did we get here

<table>
<thead>
<tr>
<th>Version</th>
<th>Year</th>
<th>Contributors</th>
<th>Comments</th>
</tr>
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<tbody>
<tr>
<td>SWMM I</td>
<td>1971</td>
<td>Metcalf and Eddy, Water Resources</td>
<td>Focus on CSO modeling, few of its methods still used today</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engineers, University of Florida</td>
<td></td>
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<tr>
<td>SWMM II</td>
<td>1975</td>
<td>University of Florida</td>
<td>First widely distributed version of SWMM</td>
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<tr>
<td>SWMM 3</td>
<td>1981</td>
<td>University of Florida, Camp Dresser</td>
<td>Full dynamic wave flow, Green-Ampt infiltration, snow melt, continuous</td>
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<tr>
<td></td>
<td></td>
<td>&amp; McKee</td>
<td>integration</td>
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<tr>
<td>SWMM 3.3</td>
<td>1983</td>
<td>US EPA</td>
<td>First PC version of SWMM</td>
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<tr>
<td>SWMM 4</td>
<td>1988</td>
<td>Oregon State University, Camp</td>
<td>Groundwater, RDII, irregular channel cross-sections, and other refinements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dresser &amp; McKee</td>
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<tr>
<td>SWMM 5</td>
<td>2005, 2010</td>
<td>USEPA, CDM-Smith</td>
<td>Complete re-write of SWMM engineer in C, improved algorithms, LID modules, more new features</td>
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Stakeholders: >25,000 Annual Downloads

Communities
Utilities
Consultants
Academia
https://www.openswmm.org/
Why EPA established NCIMM

Center for Infrastructure Modeling and Management

- Novel Research
- Community Support
- Model and Code Development

http://www.ncimm.org/
Major Change in EPA’s Approach

https://sourcecode.cio.gov/

Federal Source Code Policy

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M-16-21
MEMORANDUM FOR THE HEADS OF DEPARTMENTS AND AGENCIES

FROM:
Tony Scott
United States Chief Information Officer

Anne E. Rung
United States Chief Acquisition Officer

SUBJECT:

The U.S. Government is committed to improving the way Federal agencies buy, build, and deliver IT and software solutions to better support cost efficiency, mission effectiveness, and the consumer

https://github.com/USEPA/Stormwater-Management-Model
Draft 2/8/2018
EPA – Curator of SWMM Code

- Contribute to improving scientific aspects of SWMM
- Cooperate agreement with NCIMM
- Work with stakeholder community
- Assist where possible with testing and ground-truthing of SWMM’s numerical models
- Publish an official version of SWMM

https://www.epa.gov/water-research/storm-water-management-model-swmm
Thank You!

Michelle Simon
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