

# Ohio River Spill Modeling

*Informational Item*

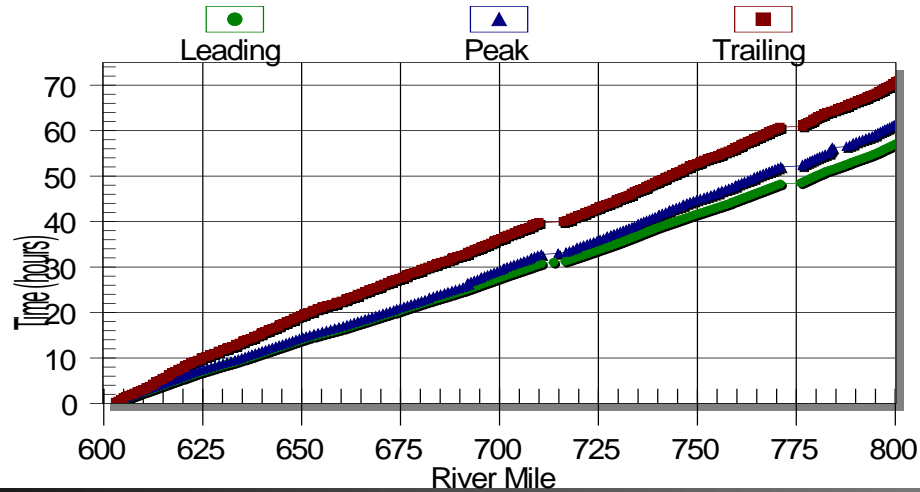
Technical Committee Meeting  
February 12–13, 2015

# Background

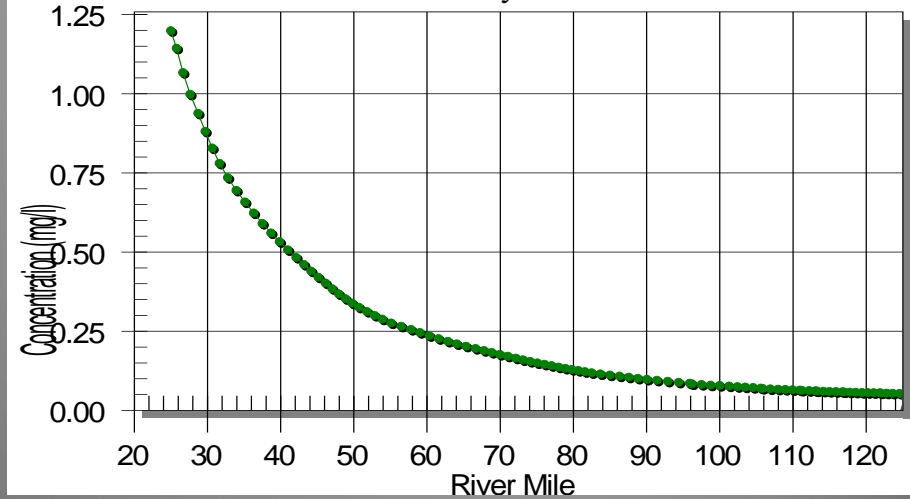
- ▶ Ohio River Spill Modeling System
  - Developed in 2001
  - Based on USGS BLTM model
  - Uses USACE CASCADE flows
- ▶ Predicts plume time-of-travel
  - Leading edge; peak; trailing edge
- ▶ Estimates pollutant concentration
- ▶ Utilized to:
  - Inform water utilities and others of spill location
  - Inform sampling crews where to monitor
- ▶ Recent Elk River spill highlighted issues

# Example Outputs

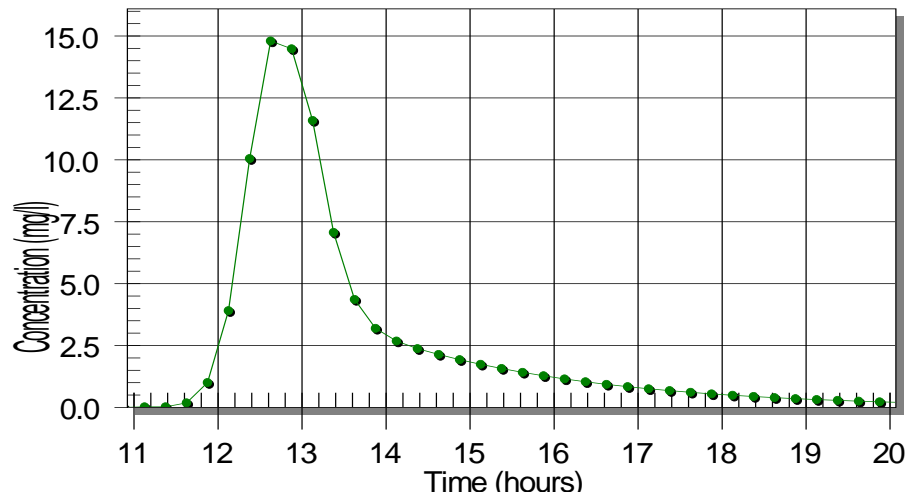
Urea barge spill at McAlpine (375,000 gal) C:\RSMS\urea4.ctl  
Leading Edge, Peak, Trailing Edge



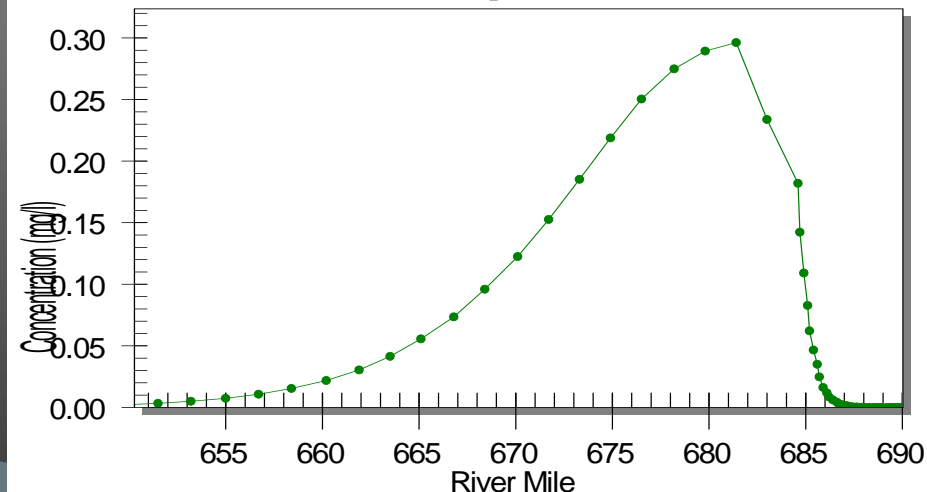
Train derailment on Beaver River C:\RSMS\ethanol\_train\_10-20-06.ctl  
Peak Concentration By River Mile



Cumene barge spill - 200,000 gal River Mile 960 C:\RSMS\Cumene2-27-07B.ctl



Diesel spill at McAlpine Dam Hour: 24 C:\RSMS\DieselMcAlpine1-26-06.ctl



# Modeling Issues/Needs

- ▶ CASCADE model being phased out
- ▶ Model has several bugs which must be worked around
- ▶ Limited spatial extent of model runs
  - Only models 50 river segments per run
  - Does not include tributaries
- ▶ Handling of model inputs/outputs cumbersome
  - Slows down modeling time
- ▶ Limited trained users



# Proposed Model Improvements

1. Transition to HEC-RAS flow model input

2. Fix bugs

- Correct timing issue
- Correct model projections for lower river

3. Improve handling of inputs/outputs

- Automate flow input
- Modify data outputs for improved data sharing

4. Increase distance modeled per run

5. Expand model to include tributaries

# Upgrading the Spill Model

- ▶ Consulted with USACE and original designers of current model
- ▶ Designers believe BLTM is still best model available
- ▶ US EPA is providing funding for model upgrade
  - Additional funding in FY16 available for spill response decision support tool
- ▶ Meeting with HEC-RAS Community Modeling Team, US EPA, and modeling contractors
- ▶ Model upgrade
  - Get results faster
  - Improved ease of use and data dissemination
  - Expanded spatial scale
  - Allows for additional users to be trained