**DRINKING WATER ASSESSMENTS (DWAs) in the**
**Office of Pesticide Programs**
June 2014

Drinking water assessments are completed to support OPP regulatory actions including: new chemicals, new uses, special local needs, emergency exemptions, as well as registration review.

Drinking water assessments provide a reasonable upper bound exposure concentration for surface water and groundwater. Both monitoring data and modeling are utilized in a tiered assessment approach.

  - Lower tiers are easy to use, fast, and provide for simple input and output
  - Higher tiers are more geographically-specific, require additional data, and provide more complex and detailed output
  - If level of concern is not exceeded using screening exposure estimate, high confidence of low risk
  - If level of concern is exceeded, there could be risk, or it may be the result of overestimating exposure – refinements considered
- Monitoring data
  - Data sources include federal, state, academic, registrant, etc. and provide information on what is happening under current use practices (not necessarily maximum label rates) and under specific conditions (may not be in vulnerable areas)
  - Monitoring data are interpreted based on ancillary data (*e.g.*, use, site, program design, etc.) and may be used qualitatively and quantitatively
- Mathematical Models
  - Provide a method for quickly estimating pesticide concentrations in surface water and groundwater for a wide range of pesticides, use scenarios, hydrologic conditions, etc., and permit the use of pesticide specific environmental fate data including consideration of transformation products quantitatively
  - Modeling can estimate maximum label practices, impact of new uses and model inputs can be adjusted to reflect data uncertainties
  - Modeling characterizes exposure distribution in time and can aid in interpreting available monitoring data
  - *Models used:*
    - SWCC (Surface Water Concentration Calculator)
      - Is the interface that couples the PRZM (Pesticide Root Zone Model) and the VVWM (Variable Volume Water Model)
      - Upgraded version of the PRZM (PRZM 5)
      - Exposure Analysis Modeling System (EXAMS) was replaced by the VVWM to permit use of alternative water bodies including flowing systems
    - SCI-GROW (Screening Concentration in Groundwater)
      - Regression model that relates pesticide concentration to persistence and mobility; regression was developed based on the 90-day average high concentration from 13 prospective groundwater monitoring studies
      - Provides a single output value and cannot be refined
    - PRZM-GW (groundwater)
      - New model used to estimate pesticide concentrations in vulnerable groundwater supplies (shallow unconfined aquifers below agricultural fields that may be used as source drinking water)
      - Developed as part of a NAFTA agreement to harmonize groundwater modeling approaches between OPP and PMRA

- Permits site specific analysis, has time series data allowing for exposure estimates to be customized and also has refinement capabilities. In addition, PRZM-GW also considers multiple years of pesticide application.

- Tier 1 Rice Model
  - Instantaneous partitioning model – doesn't consider transformation or dilution following water release from rice paddy or flooded field

For further information see our models web page at:

http://www.epa.gov/oppefed1/models/water/