# PUBLIC AGENDA
# FIFRA SCIENTIFIC ADVISORY PANEL (SAP)
# OPEN MEETING
# October 25-26, 2011

**FIFRA SAP WEB SITE http://www.epa.gov/scipoly/sap/**
**OPP Docket Telephone: (703) 305-5805**
**Docket Number: EPA-HQ- OPP-2011-0582**

**U.S. Environmental Protection Agency**
**Conference Center Lobby Level**
**One Potomac Yard (South Bldg.)**
**2777 S. Crystal Drive, Arlington, VA 22202**

## The Two-dimensional Exposure Rainfall-Runoff Assessment (TERRA) Watershed Model and its Use in the FIFRA Ecological Risk Assessment for Antimicrobial Uses of Copper

**Please note that all times are approximate (see note at end of Agenda).**

**Tuesday, October 25, 2011**

**9:00 A.M.** **Opening of Meeting and Administrative Procedures**
Dr. Fred Jenkins, Designated Federal Official, Office of Science Coordination and Policy (OSCP, EPA)

**9:05 A.M.** **Introduction and Identification of Panel Members**
Dr. Kenneth Portier, Chair, FIFRA Scientific Advisory Panel

**9:15 A.M.** **Welcome and Opening Remarks**
Dr. Steven Bradbury, Director, Office of Pesticide Programs (OPP, EPA)

**9:30 A.M.** **Introduction to the Office of Pesticide Program's Environmental Exposure Modeling and Assessment**
Dr. James Hetrick and Dr. Siroos Mostaghimi (OPP, EPA)

**10:30 A.M.** **Break**

**10:40 A.M.** **Overview of the Two-dimensional Exposure Rainfall-Runoff Assessment (TERRA) Model**
Dr. Mark Velleux, American Chemical Council (ACC)

**12:10 P.M.** **Lunch**

**1:10 P.M.** **Overview of the Two-dimensional Exposure Rainfall-Runoff Assessment (TERRA) Model (Cont'd)**

**1:30 P.M.** **TERRA Model as Applied to the Antimicrobial Copper Risk Assessment**
Dr. Mark Velleux (ACC)

**2:50 P.M.** **Break**

**3:05 P.M.** **EPA's Review of TERRA Model as Applied to the Antimicrobial Copper Risk Assessment**
Dr. Stephen Wente (OPP, EPA)

**3:30 P.M.** **Public Comment**

**4:30 P.M.** **Presentation of Charge Questions**
Donna Randall (OPP, EPA)

**Discussion of Charge Questions**

**Charge Question 1**

The three most prevalent antimicrobial uses of copper include antifoulant paints, roofing shingles and wood preservatives. The Antimicrobials Division used a basic field scale modeling approach, including maximum use rates, realistic heavy rainfall events, the assumption of high leaching rates, and storm-water conveyance via impervious surfaces, to estimate potential high end aquatic exposure from copper's use as an antimicrobial pesticide in roofing shingles and treated wood. The American Chemistry Council (ACC) has proposed the TERRA Model as an alternative and more refined way to assess aquatic exposure due to the two major urban antimicrobial uses of copper, in wood preservatives and in roofing shingles, on a watershed scale level.

a) What does the Panel believe are the advantages and/or limitations of assessing antimicrobial uses of copper from roofing shingles and wood preservatives with TERRA, a spatially-explicit, watershed scale model? Are there other models that the Panel feels should be considered for use by OPP in estimating exposure to copper from its use as an antimicrobial pesticide, specifically in roofing shingles and wood preservative?

b) In the opinion of the Panel, what attributes of an urban watershed model are the most critical and why does the Panel regard these attributes as critical? Does the TERRA model possess these attributes?

**5:30 P.M.** **ADJOURN**

**Wednesday, October 26, 2011**

**9:00 A.M.** **Opening of Meeting and Administrative Procedures**
Dr. Fred Jenkins, Designated Federal Official, Office of Science Coordination and Policy, EPA

**9:05 A.M.** **Introduction and Identification of Panel Members**
Dr. Kenneth Portier, Chair, FIFRA Scientific Advisory Panel

**9:15 A.M.** **Discussion of Charge Questions**

**Charge Question 1 (Cont'd)**

c) Please discuss whether TERRA has the modeling capabilities necessary for it to be applied to other urban metal exposure assessments for antimicrobial pesticides as well as what modifications, if any, would be needed to assess exposure to other metals used as pesticides.

d) In the opinion of the Panel what further development and/or assessment is necessary to prepare the TERRA model for use as an exposure assessment tool by the EPA?

**11:00 A.M.** **Break**

**11:10 A.M.** **Discussion of Charge Questions (Cont'd)**

**Charge Question 2**

EPA employs a tiered strategy to assess aquatic exposure. The first tier facilitates the rapid screening of pesticide uses for potential risk issues, while the second tier refines exposure estimates by utilizing a field scale model and site specific properties. This process is designed to incorporate additional data (e.g., site specific properties) for each progressive tier. EPA has historically employed field scale models to assess aquatic exposure in support of national pesticide registrations. The TERRA model, unlike other models used by OPP, is a fully distributed, spatially-explicit watershed model. It has model capabilities of distributing differences in hydrology, meteorology, soil properties, and pesticide uses across a watershed. These model capabilities require consideration in terms of the proper scale of the exposure assessment.

a) Are the appropriate pathways (e.g. engineered water conveyance structures) for modeling urban antimicrobial uses of copper within the Goodwin Creek scenario currently included in the framework of the TERRA model? What, if any, additional pathways are necessary to appropriately estimate exposure concentrations?

**12:00 P.M. Lunch**

**1:00 P.M. Discussion of Charge Questions (Cont'd)**

**Charge Question 2 (Cont'd)**

b) What are the most important attributes to consider when selecting and designing an urban watershed modeling *scenario*? In the opinion of the Panel, where does the Goodwin Creek watershed fall within a distribution of the nation's urban watersheds? Also, given that the model does not account for storm drains, how does this compare to watersheds nationwide?

**1:45 P.M. Discussion of Charge Questions (Cont'd)**

**Charge Question 3**

Watershed-scale models require calibration to account for complex watershed-dependent hydrology and environmental fate processes. Model calibrations have been conducted by altering saturated hydraulic conductivity, Mannings N, soil erodibility factors, land cover factors, and chemical partitioning coefficients. In contrast, the OPP field-scale models such as PRZM/EXAMS are not calibrated for site-specific hydrology, *etc*.
The TERRA model utilizes a simulated urban watershed that was calibrated to the hydrology and sediment loads of Goodwin Creek. Because the Goodwin Creek watershed is a predominately pastured/forested watershed, the EPA has concerns that the calibration processes may not adequately represent urban hydrologic and chemical transport processes.

a) Please discuss the implications of watershed land use patterns on model calibration. What types of impacts could these have on the estimated exposure concentrations of copper?

**3:15 P.M. Break**

**3:30 P.M. Discussion of Charge Questions (Cont'd)**

**Charge Question 3 (Cont'd)**

b) Please indicate any unique calibration issues that should be considered when simulating an urban, residential watershed.

**5:00 P.M. ADJOURN**

Please be advised that agenda times are approximate; when the discussion for one topic is completed, discussions for the next topic will begin. For further information, please contact the Designated Federal Official for this meeting, Dr. Fred Jenkins, via telephone: (202) 564-3327; fax: (202) 564-8382; or email: jenkins.fred@epa.gov.