

South River Science Team Human Exposure Pathways Evaluation

Activities Update
July 21, 2009

Human Exposure Evaluation

The key objectives:

- **better identify potential exposure,**
- **define potential risks and uncertainties,**
- **communicate information to the public.**

Human Exposure Evaluation

Exposure Team Members

DEQ: Don Kain, Calvin Jordan, Bill Hayden

EPA: Betty Ann Quinn

VDH: Doug Larsen, Jonathan Falk, Ram Tripathi, Dwight Flammia

New Member: Julia Murphy (Thanks to Cate McManus has left VDH)

DGIF: Steve Reeser, Paul Bugus

New Member: Cale Godfrey (?)

DuPont: Mike Liberati, Ralph Stahl, Annette Guiseppi-Elie, Tim Ireland

DACS: David Brown

Human Exposure Evaluation

Exposure scenarios to be evaluated

- √ Fish Consumption
- √ Recreational Use of River
- √ Contact with soils on the floodplain
- √ Potential Drinking Water exposures
 - Potential dietary exposures
 - Domestic consumption, e.g., Garden crops, Beef, Poultry
 - Hunting consumption, e.g., waterfowl, small game

Communicating to public on these issues

Human Exposure Evaluation

Fact Sheets

- √ Initial fact sheets in final review
 - √ Fact Sheet 1: General Introduction
 - *About the South River Science Team*
 - Fact Sheet 2: Exposure Summary
 - *People, Mercury, and the River*
- Other Fact Sheets, as warranted
 - Potential for 2009
 - Soil sampling results (as relevant to human exposure)
 - Wildlife

Human Exposure Evaluation

Floodplain soils

- Potential exposure evaluated:
 - √ direct contact (soil sampling);
 - √ ingestion of garden crops (2-year garden study);
 - √ ambient air (2 rounds of ambient air sampling)
- Next steps – communicating results
 - √ General conclusions included in fact sheet,
 - Developing letters to landowners,
 - Specific results on soil samples
 - General conclusions
 - Evaluating other “direct” communication options
 - Fact sheet on soil sampling
 - Peer review publication of garden crop study

Human Exposure Evaluation

Potential dietary exposures

- Domestic consumption, e.g., Beef, Poultry
- Hunting consumption, e.g., waterfowl, small game
- √ Literature review of tissue levels completed
 - Includes domestic & game animals, total and methyl mercury
 - In general, results consistent with expectations
- √ Waterfowl samples results available
 - 10 Canada geese, 10 Mallards, 2 Wood ducks
 - In general, results consistent with expectations
- √ Results of small game analysis
 - Muskrats, squirrels available
- Meeting of the Task Team June 3
 - Evaluate need & options for additional investigation, if warranted
 - Use results of literature as well as sampling to inform

Human Exposure Evaluation

Potential dietary exposures

- For livestock evaluation, sampling plan for cattle that graze on the floodplain based on likely exposure scenarios will be developed. Considerations for developing the plan include:
 - How cattle are used and consumed
 - How milk from cattle is used/consumed
 - Defining which cattle actually graze on the floodplain
 - Use of the VDACS post-mortem facilities for determining general background levels as well as potential floodplain animals
 - Incorporating background levels in supermarket beef products
 - Rationale for choosing cattle (versus goats, sheep, pigs, poultry)
- A sub-team (Jordan, Quinn, Guiseppi-Elie, and Brown) will draft plan over next two – three months to share with rest of the team.

Human Exposure Evaluation

Potential dietary exposures

- For wildlife evaluation, sampling plan for deer that graze on the floodplain based on likely exposure scenarios will be developed. Considerations for developing the plan include:
 - Rationale for choosing deer (versus, for example, raccoons, mourning doves, opossum, turkey, etc)
 - Potential supplemental sampling of Wood ducks.
 - Results of prior wildlife (waterfowl, squirrels, muskrats, snapping turtles)
- A sub-team (Jordan, Quinn, Guiseppi-Elie, and Bugas) will draft plan over next two – three months to share with rest of the team. Study to take place in the next six months.

Human Exposure Evaluation

Health survey at local clinics

- √ Local physicians (explicitly made aware of issue) have not reported any signs/symptoms
- √ Local health clinics have been provided literature (in both Spanish and English)
- Health survey to address effectiveness of consumption advisories (in progress)

Human Exposure Evaluation

Communication

- Disseminate information to the public
- Opportunities:
 - √ Fish advisory signs/information kiosks
 - √ Information to local health clinics
 - √ Information to local physicians
 - Fact Sheets (2 near completion)
 - Communications to landowners (in progress)
 - Meetings with local officials
 - Community advisory panel (in progress)