

# South River Science Team Human Exposure Pathways Evaluation

South River Expert Panel Meeting  
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BettyAnn Quinn  
Annette Guiseppi-Elie

# Exposure Evaluation Team

**Exposure Team started in August 2008**

**Members:**

DEQ:

Don Kain, Calvin Jordan, Bill Hayden

EPA

Betty Ann Quinn

VDH

Michele Monti, Doug Larsen, Allen Gutshall, Khizar Wasti

DGIF

Steve Reeser, Paul Bugus

DuPont

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

# Human Exposure Evaluation

## **The key objectives:**

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

# Human Exposure Evaluation

## Exposure scenarios to be evaluated

- Fish Consumption
- Recreational Use of River
- Contact with soils on the floodplain
- 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

- Fish Consumption
  - Fish advisory in place about 30 years
  - Addresses potential fish ingestion
  - Enforced primarily using signs (both in English & Spanish)
  - Ongoing oversight by VADEQ/VDH
  - Continued efforts to ensure advisory is being effective, e.g.,
    - information kiosks at boat ramps,
    - literature at health clinics,
    - fact sheet
    - community advisory panel (CAP)
- Recreational Use of the River
  - No advisory on recreational use
  - Exposure expected to be limited; concentrations are low
  - Provide assurances, if questions arise; include information on fact sheet

# Human Exposure Evaluation

## Floodplain soils

- Potential exposure via:
  - direct contact
  - ingestion of garden crops
  - ambient air
    - inhalation of gaseous & particulates
    - deposition on garden crops

# Human Exposure Evaluation

## Floodplain soils

- Potential exposure via:
  - Direct contact
    - Evaluated close to 2000 floodplain samples
      - Collected under SRST efforts (600+ in 2008)
    - 90% below residential screening levels
    - Others located in industrial sites, parks and agricultural areas
    - No imminent threat
    - Next steps – communicating results
      - Developing letters to landowners,
      - more general fact sheet,
      - possible meeting via CAP or other means

# Human Exposure Evaluation

## Floodplain soils

- Potential exposure via:
  - Ingestion of garden crops grown on floodplain
    - Scientific literature: crops not a significant exposure potential
    - Confirmed with local garden crop study
      - Two growing seasons
      - 17 different crops in test and reference gardens
      - Test garden: concentrations above residential screening levels
    - Monograph prepared; Peer-review publication in progress
    - Information to be included in fact sheet

# Human Exposure Evaluation

## Floodplain soils

- Potential exposure via:
  - Ambient air:
    - inhalation of gaseous & particulates
    - deposition on garden crops
    - Air monitoring study over two summers
      - Two sample locations; located near the garden study: one close, one distal added in 2<sup>nd</sup> year
      - All measured values below global background; does not appear to affect crop concentrations above screening levels
    - Monograph prepared
    - Information to be included in fact sheet.

# Human Exposure Evaluation

## Potential dietary exposures

- Domestic consumption, e.g., Garden crops, Beef, Poultry
- Hunting consumption, e.g., waterfowl, small game

# Human Exposure Evaluation

## Potential dietary exposures

- Domestic consumption, e.g., Garden crops, Beef, Poultry
  - Crops grown on local floodplain soils do not present a significant source of mercury exposure
  - Less known about livestock
    - Mercury was not detected in two samples in beef in 1980s
    - Literature review in progress to learn what is known
    - Will be used to inform any potential sampling of local livestock

# Human Exposure Evaluation

## Potential dietary exposures

- Hunting consumption, e.g., waterfowl, small game
  - Much less is known about wildlife versus fish
  - Studies underway for wildlife effects
    - Plan to use any tissue data generated
  - In process of collecting some waterfowl (ducks & geese) as well as muskrats tissue for exposure evaluation

# Human Exposure Evaluation

## Other Potential Exposure

- Exploring a 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 would be design to gather information on any potential exposure not covered explicitly by previous studies

# Human Exposure Evaluation

## Communication

- Disseminate information to the public
- Opportunities:
  - Fish advisory signs/information kiosks
  - Information to local health clinics
  - Information to local physicians
  - Communications to landowners
  - Meetings with local officials
  - Community advisory panel