South River Science Team Human Exposure Pathways Evaluation

Activities Update
October 24, 2012

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, Dwight Flammia, Karen Gruszynski

DGIF: Paul Bugas

DACS: David Brown

DuPont: Mike Liberati, Ralph Stahl, Annette Guiseppi-Elie, Roberto Nelson

Human Exposure Evaluation

Exposure scenarios evaluated

- √ Fish Consumption
- √ Recreational Use of River
- √ Potential Drinking Water exposures
- √ 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

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)
  - – Communicating results
    - √ General conclusions included in fact sheet,
    - √ Letters to landowners sent, follow up phone calls
    - • Some additional soil sampling at specific locations, including ponds
      - – Letters in review
    - √ Peer Review publication of garden crop study (HERA, in press)

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, Brown, Gruszynski & Guiseppi-Elie)
  - Draft plan in review
  - Implementation late 2012/2012

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
- √ Results for waterfowl, deer, turtles, muskrats, squirrels samples available
- Fact sheet on wildlife consumption in progress
- Platform presentation at SETAC 2012

Human Exposure Evaluation

Fact Sheets

- √ Fact sheets completed
  - √ Fact Sheet 1: General Introduction
    - – *About the South River Science Team*
  - √ Fact Sheet 2: Exposure Summary
    - – *People, Mercury, and the River*
  - √ Fact Sheet 3: Soil Sampling Results
    - – ***Summary of South River Floodplain Soil Survey***
  - √ Fact Sheet 5: Garden Study
    - – *Eating Vegetables Grown on the South River Floodplain*
- – Other Fact Sheets, as warranted
  - – Wildlife (in progress)

Human Exposure Evaluation

Health survey at local clinics

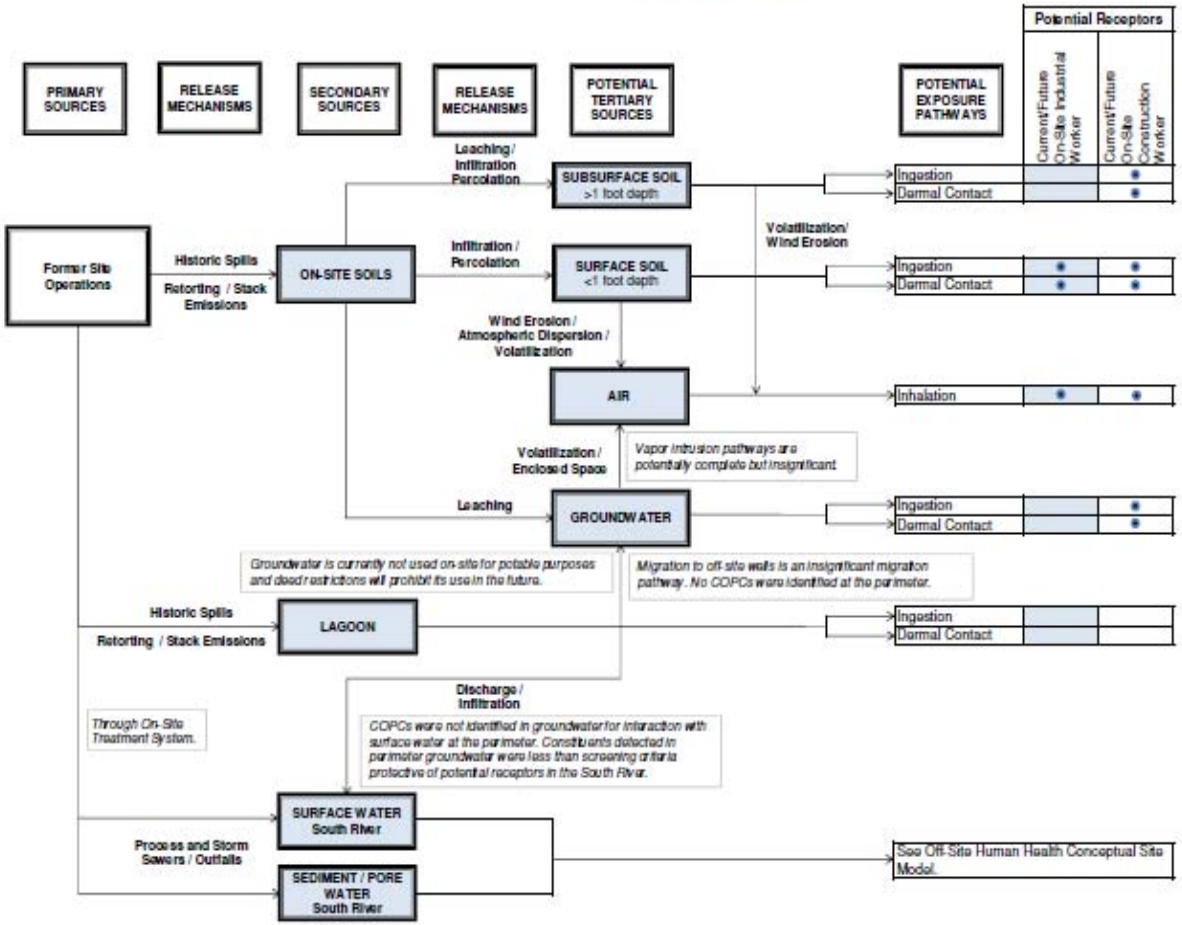
- √ Local physicians (explicitly made aware of issue) have not reported any signs/symptoms
- √ Local health clinics have been provided literature (in both Spanish and English)
- – Health survey to address effectiveness of consumption advisories

PIT Program

Other relevant activities

- Risk Report Former DuPont Waynesboro Facility
  - Evaluation of risk
  - On- and off-site for human and ecological receptors
- Team
  - EPA: Quinn, Montgomery and Suedel (USACE)
  - DuPont: Stahl and Guiseppi-Elie
  - URS: Mancini, Flanders, McCue, Badner
- Status: Preliminary Review Draft
  - Section 1, 2, 3 (partial), 4.1 in review

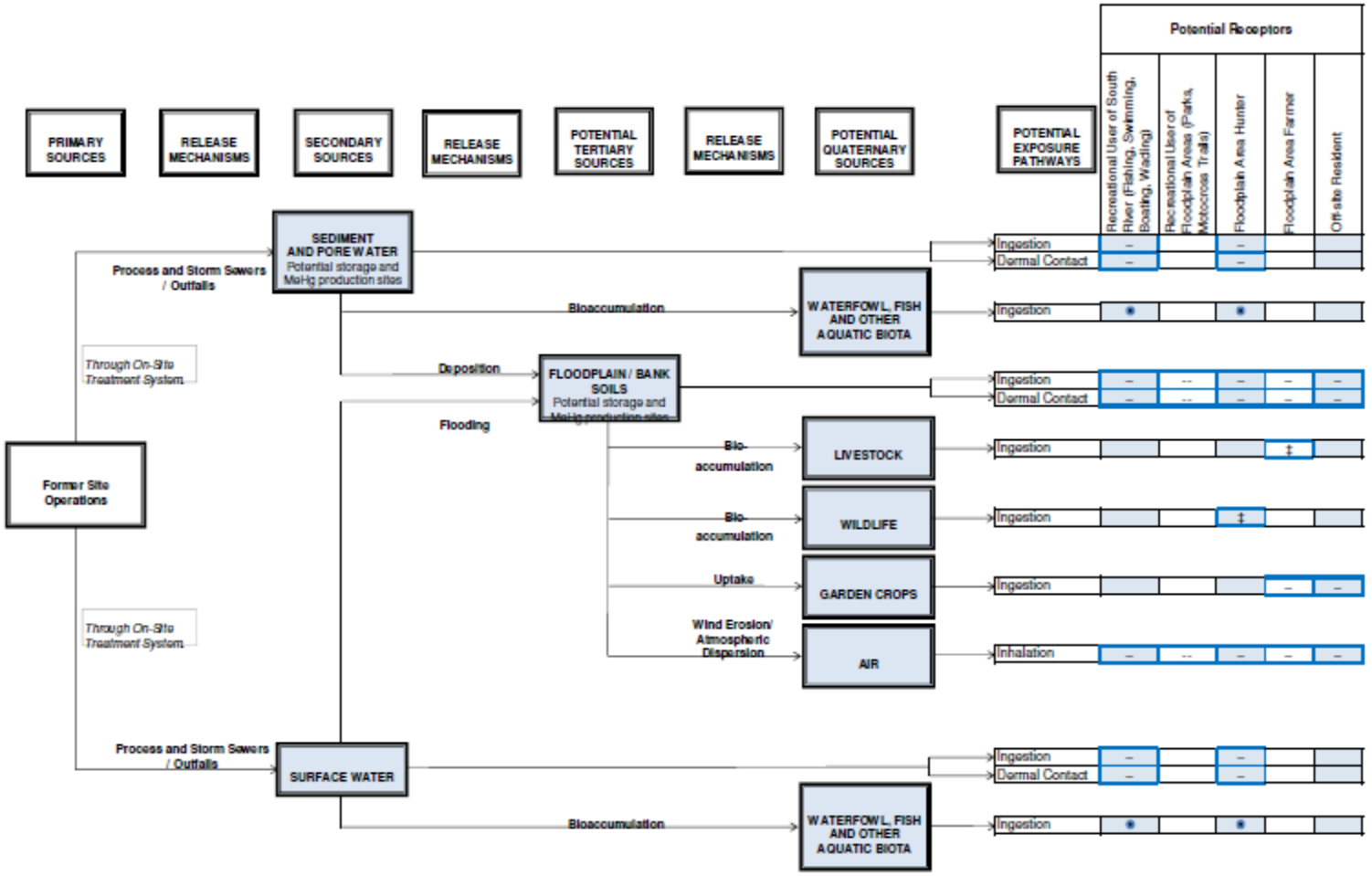
FIGURE ES-2
DRAFT HUMAN HEALTH CONCEPTUAL SITE MODEL
DuPont South River Project, Virginia
On-Site Human Health



Notes:
→ CONTAMINANT MIGRATION PATHWAY
⇢ LIMITED OR INSIGNIFICANT CONTAMINANT MIGRATION PATHWAY
● POTENTIALLY COMPLETE EXPOSURE PATHWAY
○ SECONDARY EXPOSURE PATHWAY
– EXPOSURE PATHWAY IS POTENTIALLY COMPLETE BUT INSIGNIFICANT
BLANK = INCOMPLETE EXPOSURE PATHWAY

ITEMS WITH BLUE OUTLINES ARE LINKS TO ACCESS THE CONCEPTUAL SITE MODEL REFERENCE LIBRARY

FIGURE ES-3
DRAFT HUMAN HEALTH CONCEPTUAL SITE MODEL
DuPont South River Project, Virginia
Off-Site Human Health



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