



Floodplain Sampling

CAG Meeting

July 22, 2004

Why Sample the Floodplains?

- Floodplain soils were documented to contain PCBs (e.g., Rogers Island, NOAA Floodplain Investigation, etc.)
 - Soil concentrations tend to decrease as you move away from the river and downstream.
- 2002 ROD requires investigation of floodplains.
- Determine if any additional sampling is warranted.

Why Sample Now?

- EPA focused its efforts on sediment contamination during the Reassessment RI/FS.
- EPA evaluated known floodplain contamination on a case by case basis through its removal program.
- At request of New York State, EPA agreed to perform an assessment of the floodplains for potential residential and ecological exposures during the remedial design.

2002 ROD Language

- “In the Upper Hudson River area, limited data also show low PCB uptake in forage crops, non-detect PCB levels in cow milk, and minimal risks via ingestion of foods other than Hudson River Fish.”
- “Concerns related to possible exposure of residents and ecological receptors to PCB contamination in the floodplains would be further evaluated concurrent with the design phase of the project.”

2000 Risk Assessment of Cow's Milk

- NYS Department of Agriculture and Markets analyzed more than 18,200 samples statewide of cow's milk and had not found any detection of PCBs above the detection limit of 0.6 ppm – fat basis (the detection limit is less than the FDA limit of 1.5 ppm – fat basis.)
- A representative of the NYSDOH confirmed that the samples represent individual farms, not composite samples from more than one farm.

2000 Risk Assessment of Crops

- In the 1980's, the Boyce Thompson Institute at Cornell University collected data on PCBs in forage crops (corn and hay) grown in an area with PCB contaminated soil.
- Levels of PCBs on these crops (sources of animal food) were below the USDA regulatory level of 0.2 mg/kg (ppm) for forage crops.

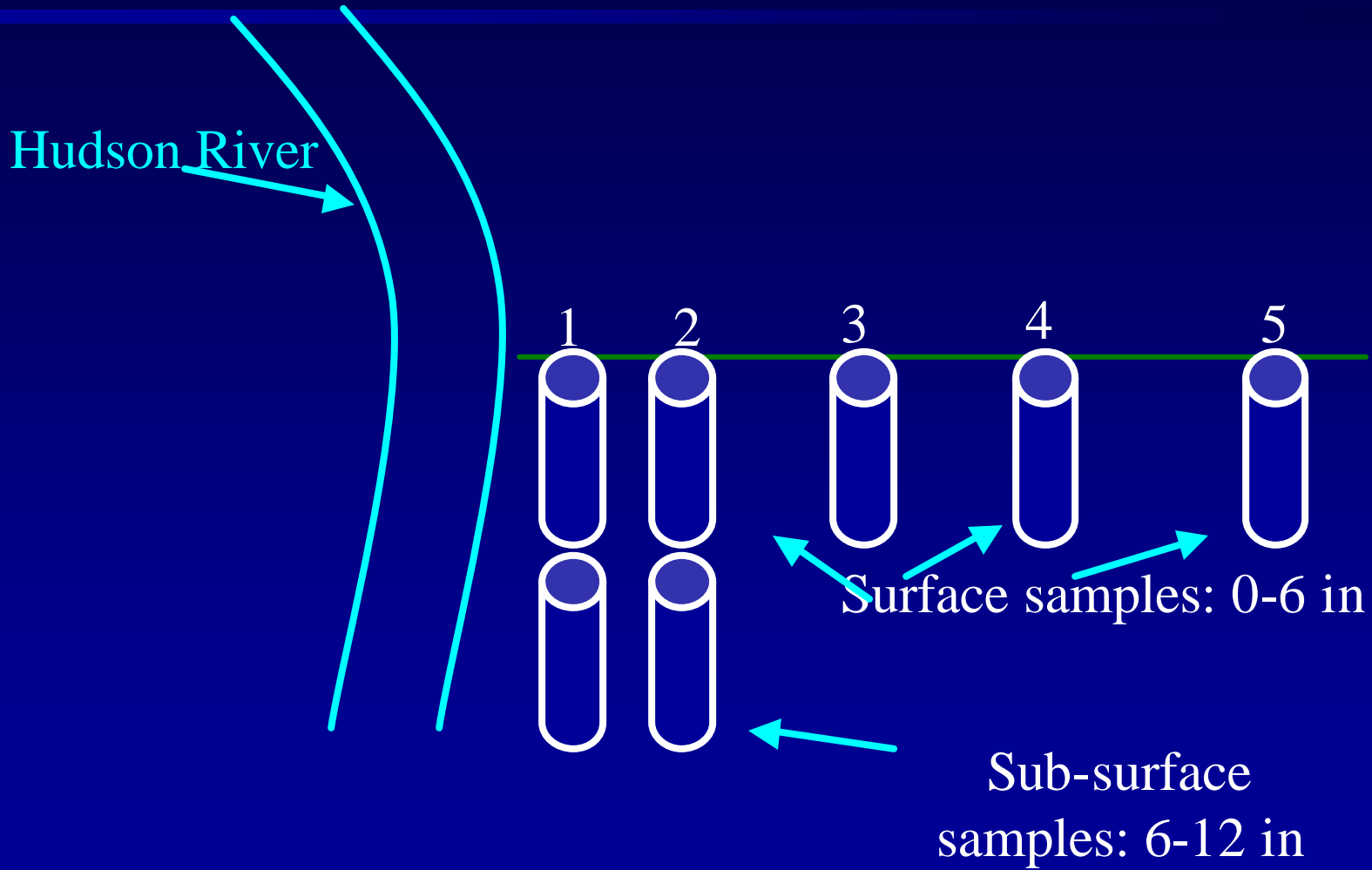
Current Assessment

- Review of current literature supports ROD and Risk Assessment conclusions.
- Engineering Performance Standards, Quality of Life Performance Standards and Community Health and Safety Plan will ensure protection of human health and the environment.

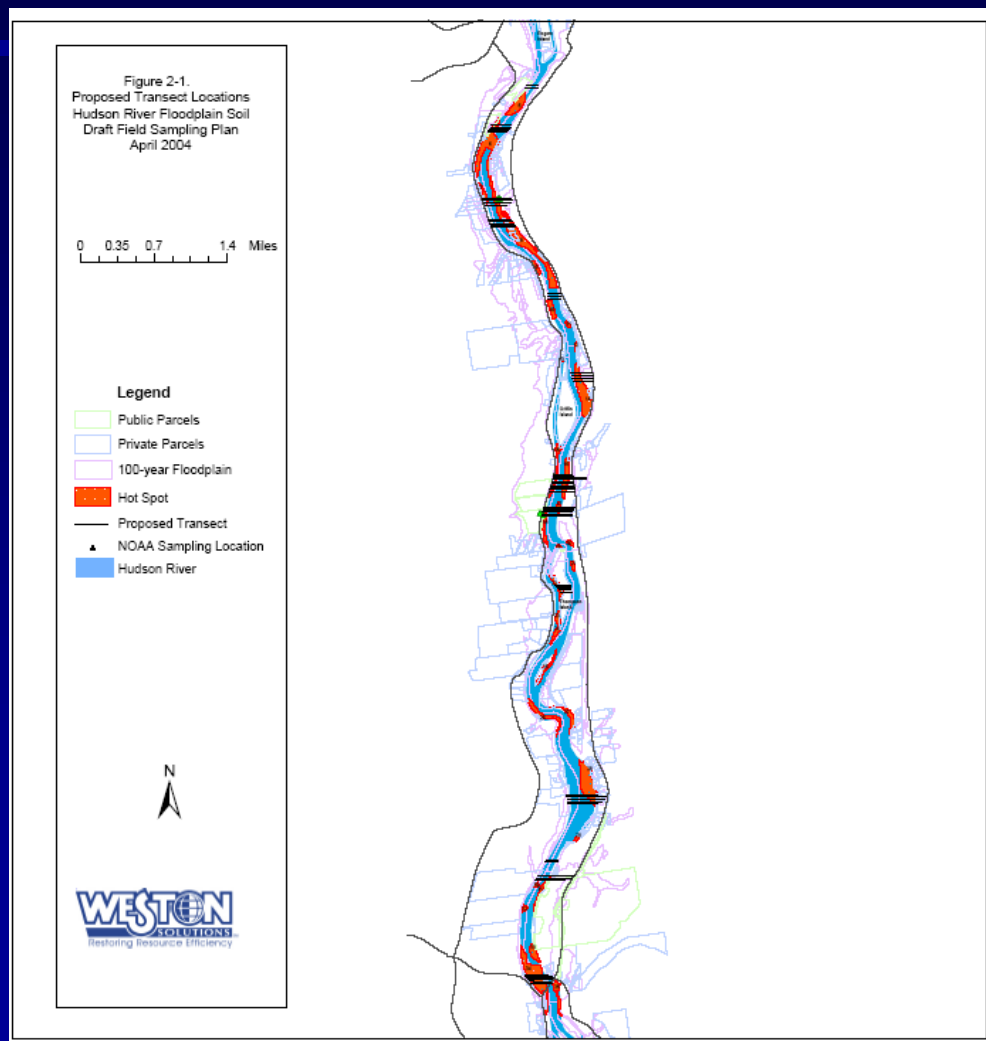
Next Steps/Schedule

- Additional public outreach
- Obtain access for sampling
- Sampling in early Fall 2004
- Data results in Winter 2004/2005
- Report in Summer 2005

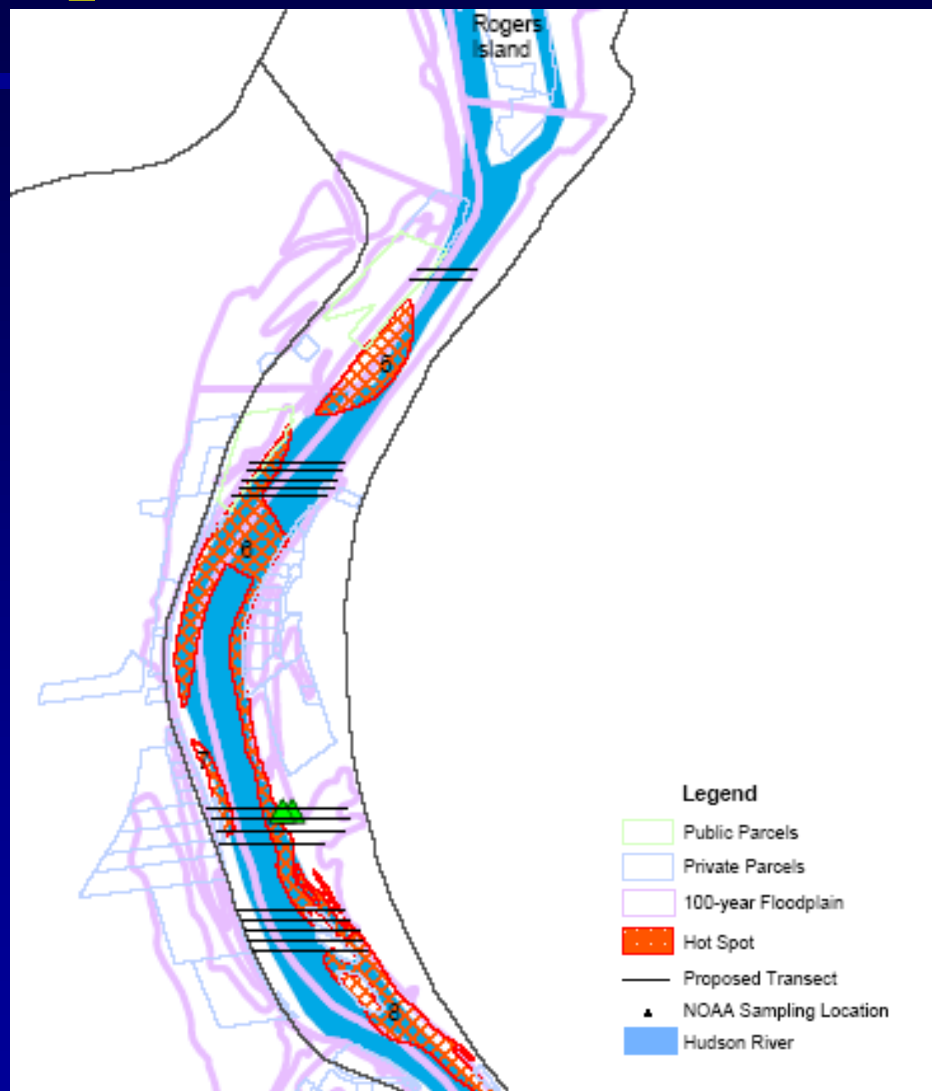
Surface and Subsurface Sampling



Proposed Transect Locations



Proposed Transect Locations



Sampling Design

- Ten sample locations per transect.
- Surface soils will be collected at a depth of 0 to 6 inches at all locations.
- Subsurface soil samples will be collected at the first locations at a depth of 6 to 12 inches.

Sampling Design (cont'd)

- Minimum 720 samples
- All samples will be analyzed for total PCBs.

Sources of Exposure - Child

- Young Child
 - 0 to 6 Years, exposed 350 days/year
 - Ingestion
 - Hand-to-mouth activities
 - Dermal Exposure
 - Young child may be exposed on hands, feet, arms, etc.
 - PCBs may be absorbed through skin
- Exposures averaged over exposure unit

Mechanisms of Transfer to Plants

- Deposition of particle-phase contaminants on or sorption of vapor-phase contaminants to above ground vegetation.
- Partitioning from contaminated soil to below ground vegetation.
- Mechanisms include:
 - Chemical and physical properties
 - Environmental conditions
 - Plant characteristics
 - Crop management

PCB Uptake In Plants

- No evidence of translocation of PCBs directly from soil to animal feed crops.
- Concentrations associated with deposition of soil dust on plants and adsorption of vapor phase contaminated to plant surfaces.

Cattle Exposures

- Ingestion of grass, hay and corn grown in floodplain.
- Ingestion of flood plain soil while grazing.
- Other vegetation grown in flood plain.
- Exposures averaged over exposure unit – dependent on the size of the floodplain compared to the remainder of the farm land.
- Other exposures not considered significant include inhalation of compounds volatilized from soil and dermal absorption when lying on contaminated soil.

Potential Exposures for Grazing Animals

- Fraction of year that animals are on pasture
- Amount of forage available for each animal
- Fraction of diet that consists of feed grown on the floodplain
- Whether animals are offered feeds other than pasture
- Age of animal
- Soil – Vapor/Particulate – Plan – Animal -- Product

Volatilization Issue

- Siting of landfill in early 90's ; much different than dredging
- Landfill was to contain 50 acre (approximately 2,178,000 square feet) open slurry ponds; impact is continual.
- Potential impact of dredging is short term; standards are in place to protect.
- Barges are approximately – 1000 cu yds? Water interface?
- Dewatering facility will have engineering controls to protect workers in addition to the Q of L standards.