Hudson River PCBs Superfund Site
Summary of the Preliminary Design Report

April 2004

Preliminary Design Report (PDR)

- Prepared by GE
- Approved by EPA
- Covers Phases 1 & 2
- Initial stage of design

➢ Conceptual Look at Project –
Describes But Does not Select Approach

PDR Presents the Following:

- Evaluation of existing dredging technologies
- Preliminary plans for removal
- Preliminary design of dewatering sites
- Options for transport and disposal
- Potential sources of backfill
- Habitat replacement efforts

Design Constrained by Various Requirements:

- No trucks for transport of dredged or dewatered material for disposal
- No trucks for transport of backfill
- Disposal outside Hudson Valley
- Engineering Standards
- Quality of Life Standards
- Water Quality Certification (from NYS)

Other Factors to Consider:

- Equipment and materials availability
- Local infrastructure
- Bridge heights, locks
- Rail Issues
- River access
- Dredging season
- River flow conditions

Additional Information Required for Intermediate Design

- Where to dredge
- Treatability study findings
- Final site(s) selection

Major Components of PDR

- Dredging (S-5)
- Resuspension Control Systems (S-6)
- Transport of Dredged Material (S-7)
- Sediment and Water Processing (S-8)
- Transport for Final Disposal or Beneficial Use (S-9)
- Final Disposal (S-10)
- Backfilling/Capping (S-11)
- Habitat Replacement and Reconstruction (S-12)

Dredging Component

Some Key Considerations Include:

- Production rate
- Horizontal and vertical dredging accuracy
- Sediment resuspension / Dredging residuals
- Movement of dredge to project area
- Movement of dredge during operation
- Availability of equipment
- Lessons learned from prior projects

➢ Describes relative capabilities and limitations of different types of dredges

Resuspension Control Systems

Must Meet EPA Resuspension Standard

Options Include:

- Operational Controls (No containment)
- Silt curtains - navigational areas, shallow areas and areas with low to moderate river flow
- Sheetpile walls - areas with faster river flow, where in-river structures may be impacted or where silt curtains may not be effective
- Other (king piles, caissons, air curtains, etc.)

Key Considerations Include:

- Availability of systems
- Lessons learned from prior projects
- Effectiveness, efficiency of systems
- Interaction with other operations (barging, sampling boats)
- Depth and location of boulders/bedrock (for driving piles)

Transport of Dredged Material to On-Shore Dewatering Site

Options Include:

- Multiple tugs/barges that navigate canal
- Hydraulic pipes/booster pumps

Key Considerations Include:

- Dredge type
- Availability of equipment
- Location of dewatering site
- Consistency of dredged material (% solids)
- Transport Capacity

Sediment and Water Processing at Dewatering Site(s)

Key Considerations Include:

- Physical, chemical characteristics of sediment
- Dredging methods – mechanical generates less water than hydraulic
- Transport methods to landfill – barge vs. rail
- Disposal requirements (Segregation of TSCA v. non-TSCA)

Sediment and Water Processing at Dewatering Site(s) (cont.)

Multiple Processing Steps:

- Sediment offloading at river
- Material staging (tanks, staging pads)
- Debris management
- Sediment dewatering and stabilization
- Processing to segregate TSCA v. non-TSCA
- Water treatment
- Staging of processed sediment
- Loading facilities for rail or barges

On-Shore Facility must have:

- Direct river access
- Direct rail access
- Sufficient size to accommodate rail yard and process facility

Transportation for Disposal or Beneficial Use

Options for Transporting Processed Material:

- Rail
- Barge

Options for Beneficial Use Materials:

- Rail
- Barge
- Truck

➢May have to move material from one mode to another (barge to truck, barge to rail, rail to truck)

Transportation for Disposal or Beneficial Use (cont.)

Key Considerations Include:

- Rate of processing at dewatering facility
- Physical, chemical characteristics of processed material
- Location of dewatering sites
- Location of rail yards
- Reliable availability of railcars, barges, trucks
- Number and location of final disposal locations

Final Selection of Transport Mode(s) Based On:

- Location of dewatering sites
- Location of final disposal sites
- Dredging production rates
- Feasibility of barging
- Ability of rail carriers to meet project objectives

Final Disposal

- Dispose of approx. 4 Million Tons of Dewatered Sediment
- May Use One or More Disposal Sites
- Cannot Be Located in Hudson Valley, per ROD
- Capacity to Receive up to 6,000 Tons per Day
- Beneficial Use Options are being explored

Final Disposal (cont.)

Key Considerations Include:

- Rail accessibility and unloading capacity
- Location
- Permit restrictions
- Compliance status

- Statements of Interest sent to commercial facilities in U.S., Canada
- 9 TSCA facilities in US; all responded
- Hundreds of non-TSCA facilities in U.S.

Backfilling/Capping

Goals:

- Isolate residuals
- Support habitat replacement and reconstruction

- ROD Estimated 850,000 cy of Backfill Placement
- 32 Sources of Backfill Identified
- Transported to Area by Rail/Barge
- Transported to Placement Location by Barge

Habitat Replacement and Reconstruction

Goal: Restore function of habitats impacted by operations

Key Consideration:

- Dredging may change river characteristics

Next Steps:

- Complete habitat delineation and assessment (HDA) activities
  - HDA activities initiated in 2003 and will continue through 2004
- Design details provided in Intermediate Design

Next Steps

Intermediate Design Report for Phase 1 Dredging, will Identify:

- Type of dredging
- Resuspension control systems
- Dewatering and treatment processes
- Habitat replacement and reconstruction conceptual designs
- Backfill requirements and identification of sources of backfill/capping materials
- Transport to final disposal locations

END