Phase 1 Dredge Area Delineation (DAD)

CAG Meeting

April 28, 2005

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Overview Phase 1 DAD

- Identification of targeted dredge areas
- Dredge area delineation process
- Maps showing dredge areas
- Use of DAD in design
- Next steps

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Determining Phase 1 Dredge Areas

Two key documents developed

- Phase 1 Target Area Identification (TAI) Report (September 2004)
  - approved January 20, 2005
- Phase 1 Dredge Area Delineation (DAD) Report (February 2005)
  - approved March 30, 2005

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Key Points

Phase 1 (first year of dredging)

- **Initially at a reduced rate progressing to full scale**
- **Test the ability of the dredging operations to achieve the project performance standards**
- **Evaluate equipment and methods specified in design documents**
- **Peer review**

Phase 2 is the remainder of the dredging operation

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Target Area Identification

- Phase 1 dredging areas should represent a range of dredging conditions
- Areas considered
  - Northern Thompson Island Pool
  - Griffin Island Area
  - Northumberland Dam Area
- Considerations
  - PCB concentration, type of sediment, water depth, proximity to dewatering sites, debris/obstacles in the river, etc.

Target Area Identification (Cont)

- Areas proposed by GE and approved by EPA
  - East channel of Griffin Island
  - Northern Thompson Island Pool
- Sufficient volume to meet productivity standard target volume of 265,000 cubic yards

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Dredge Area Delineation Process

- Collected river sediment samples
  - began in 2002
  - more than 40,000 sediment samples taken
- Evaluated data
- Performed delineation
- EPA approved GE's DAD Report

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Dredge Area Delineation (Cont)

- Identify sediment with PCB levels that meet removal criteria
  - mass per unit area (MPA) of PCBs with three or more chlorine atoms (Tri+ PCB)
  - surface concentrations (i.e., top 12 inches)
  - additional considerations include
    - sediment texture
    - river bathymetry
- Identify depth of contamination

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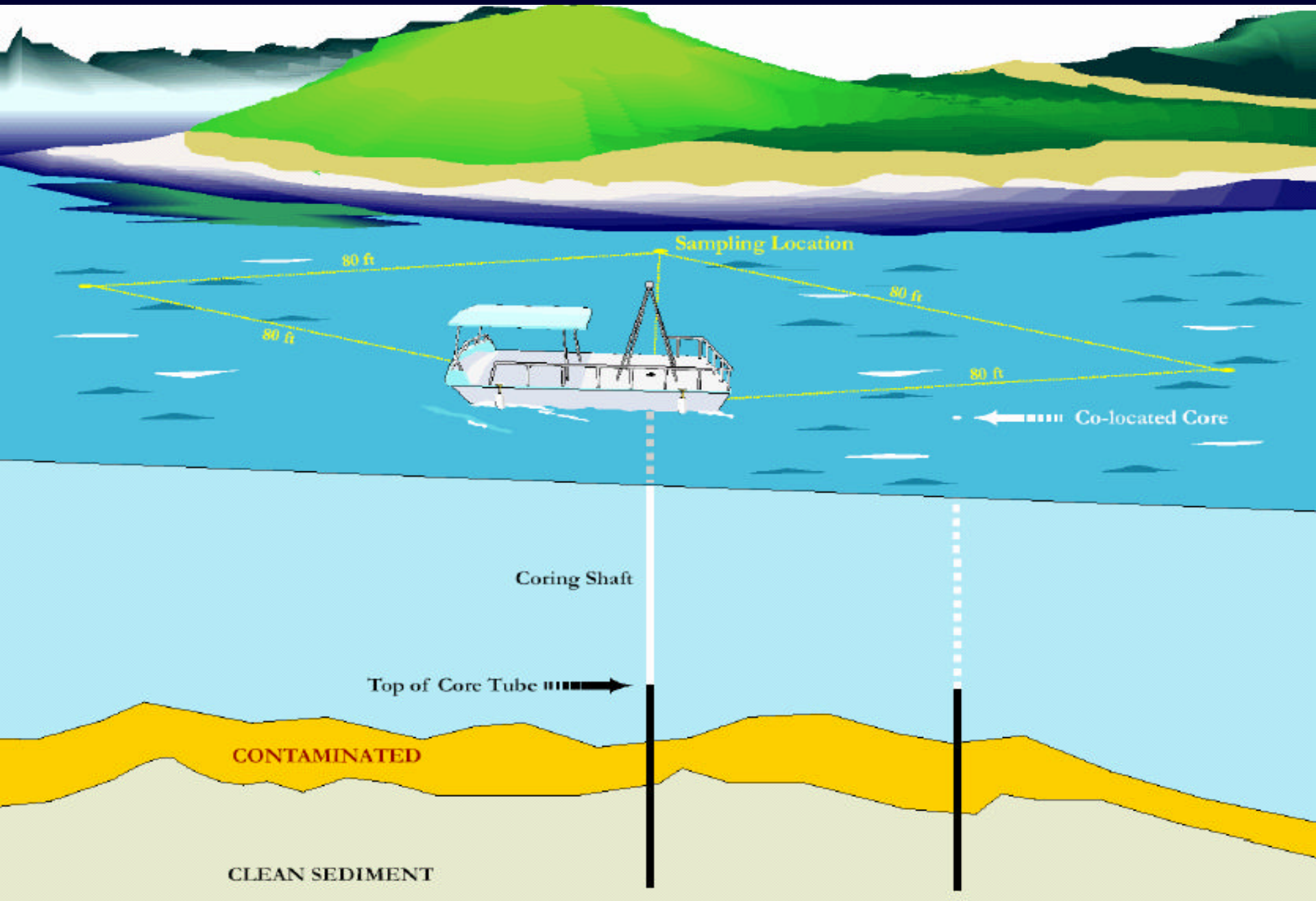
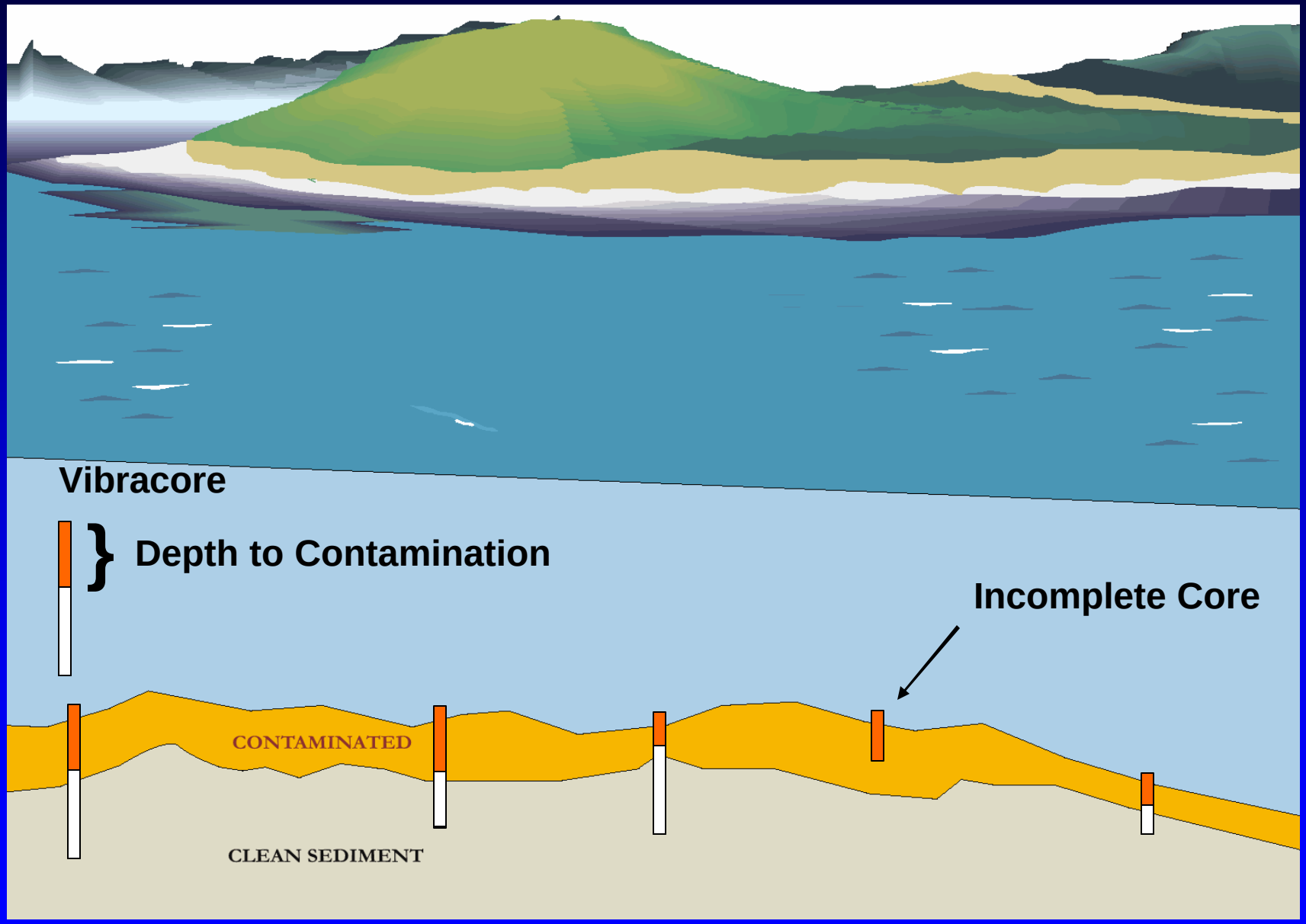


Delineation of Contamination



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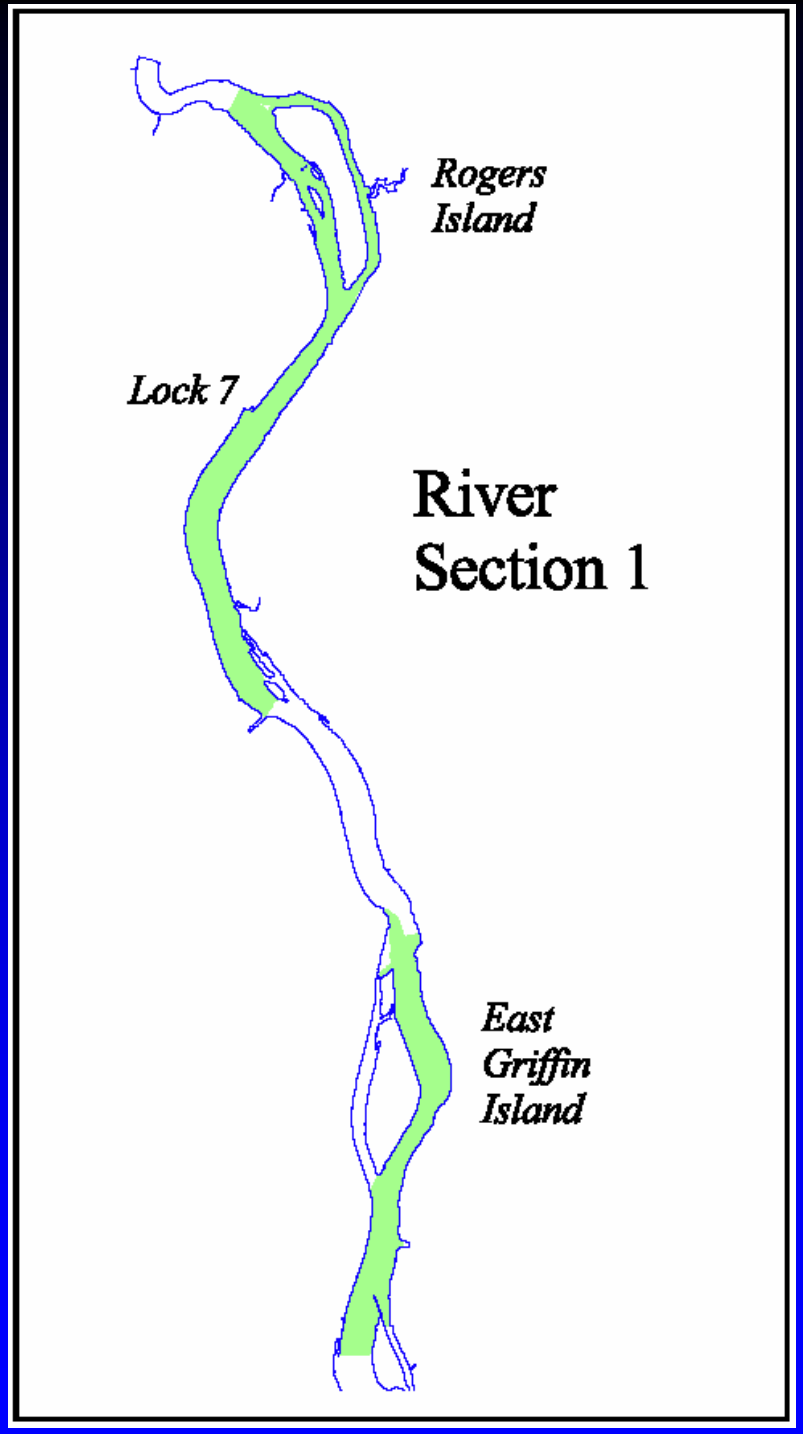
Phase 1 Areas

Northern Thompson Island Pool

East Griffin Island



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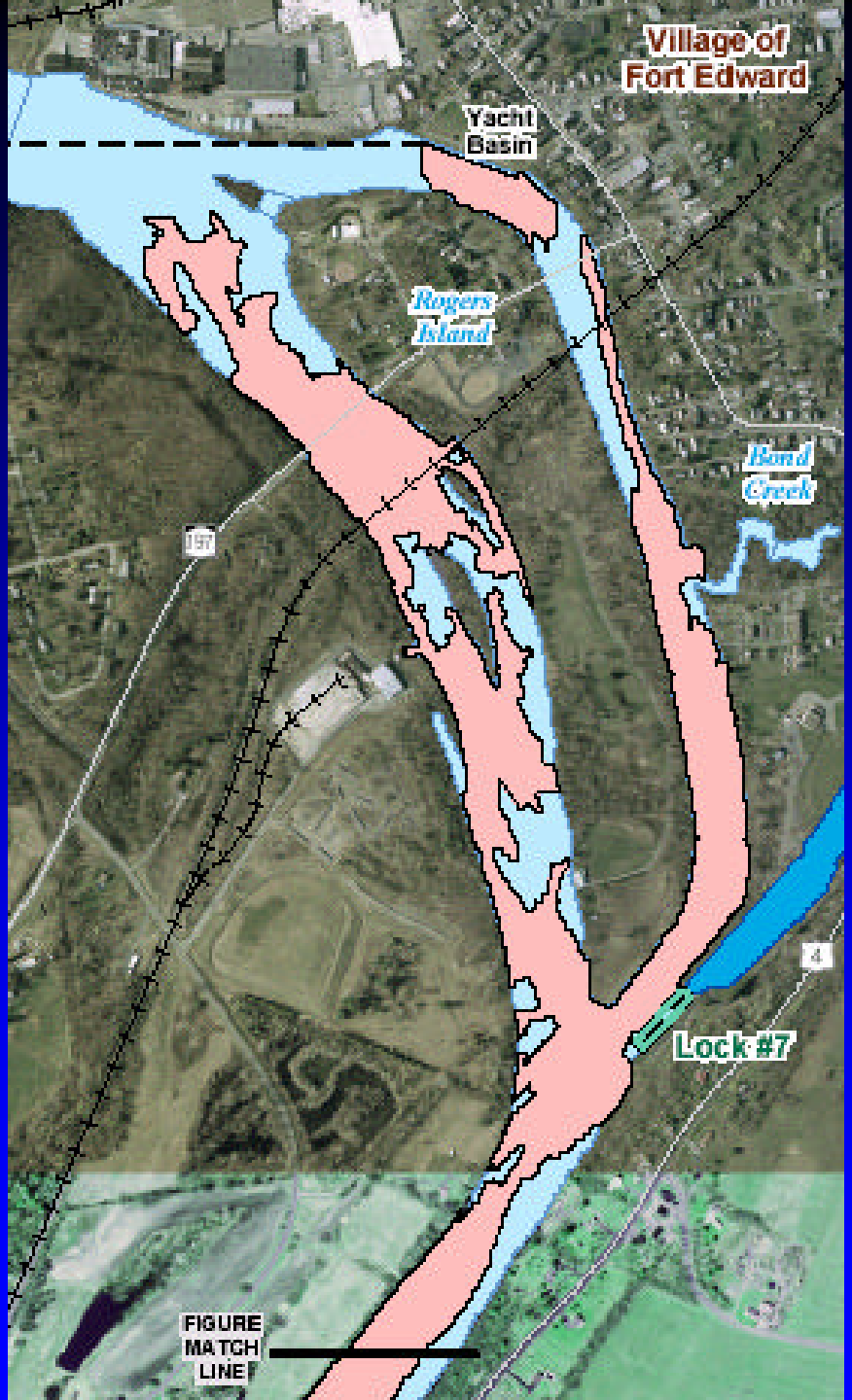
Northern Thompson Island Pool

(up stream portion)



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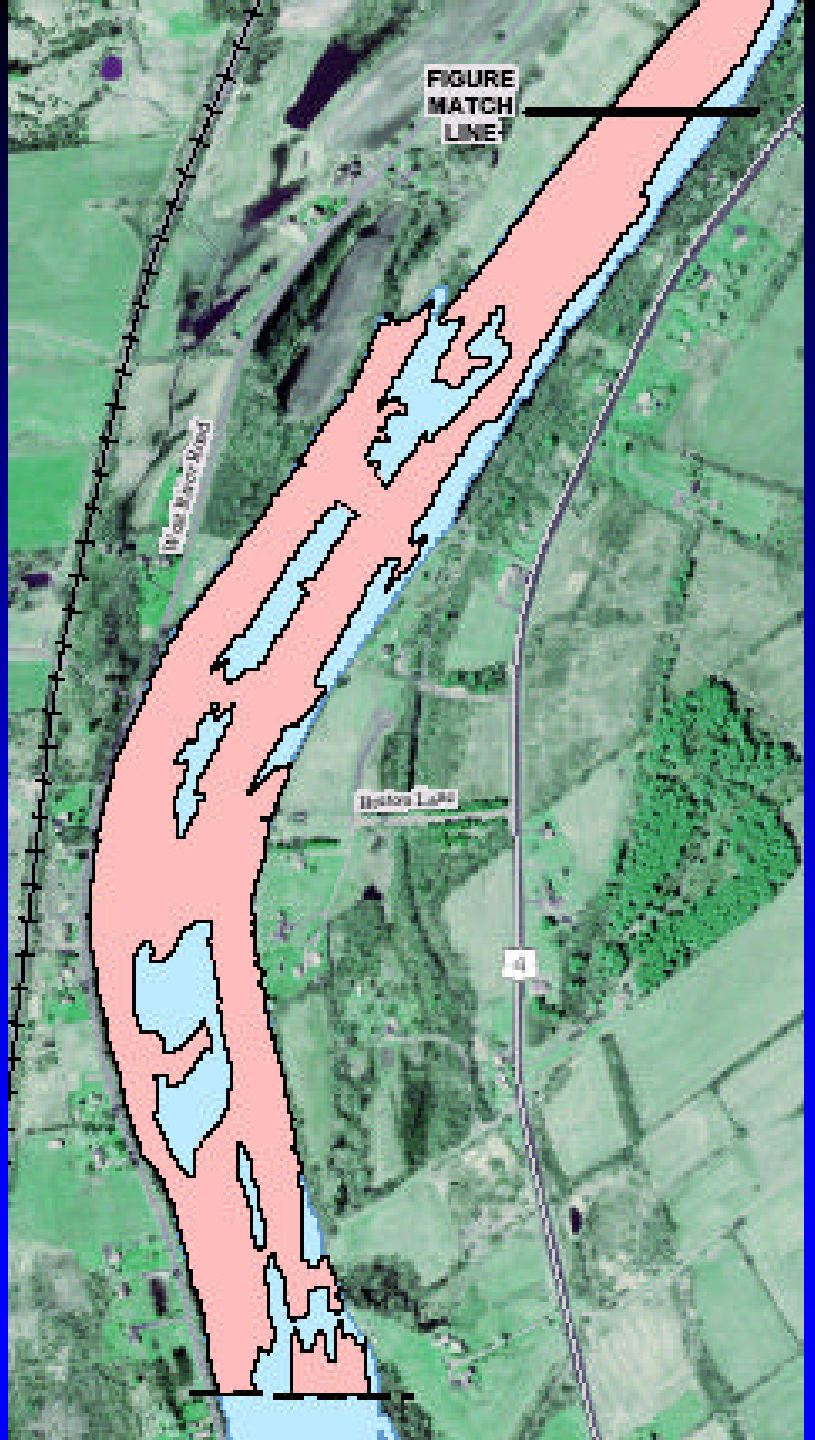
Northern Thompson Island Pool

(down stream portion)



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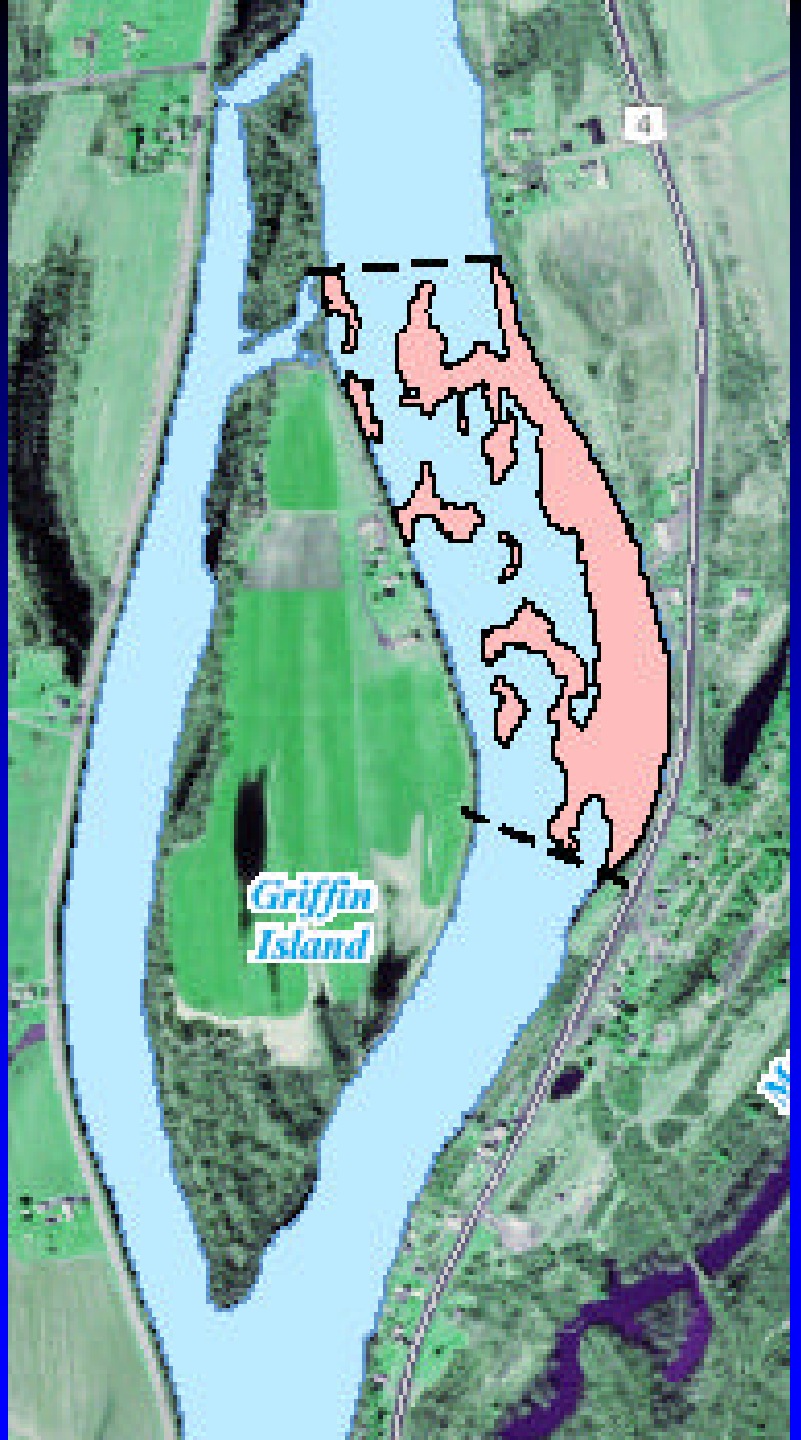
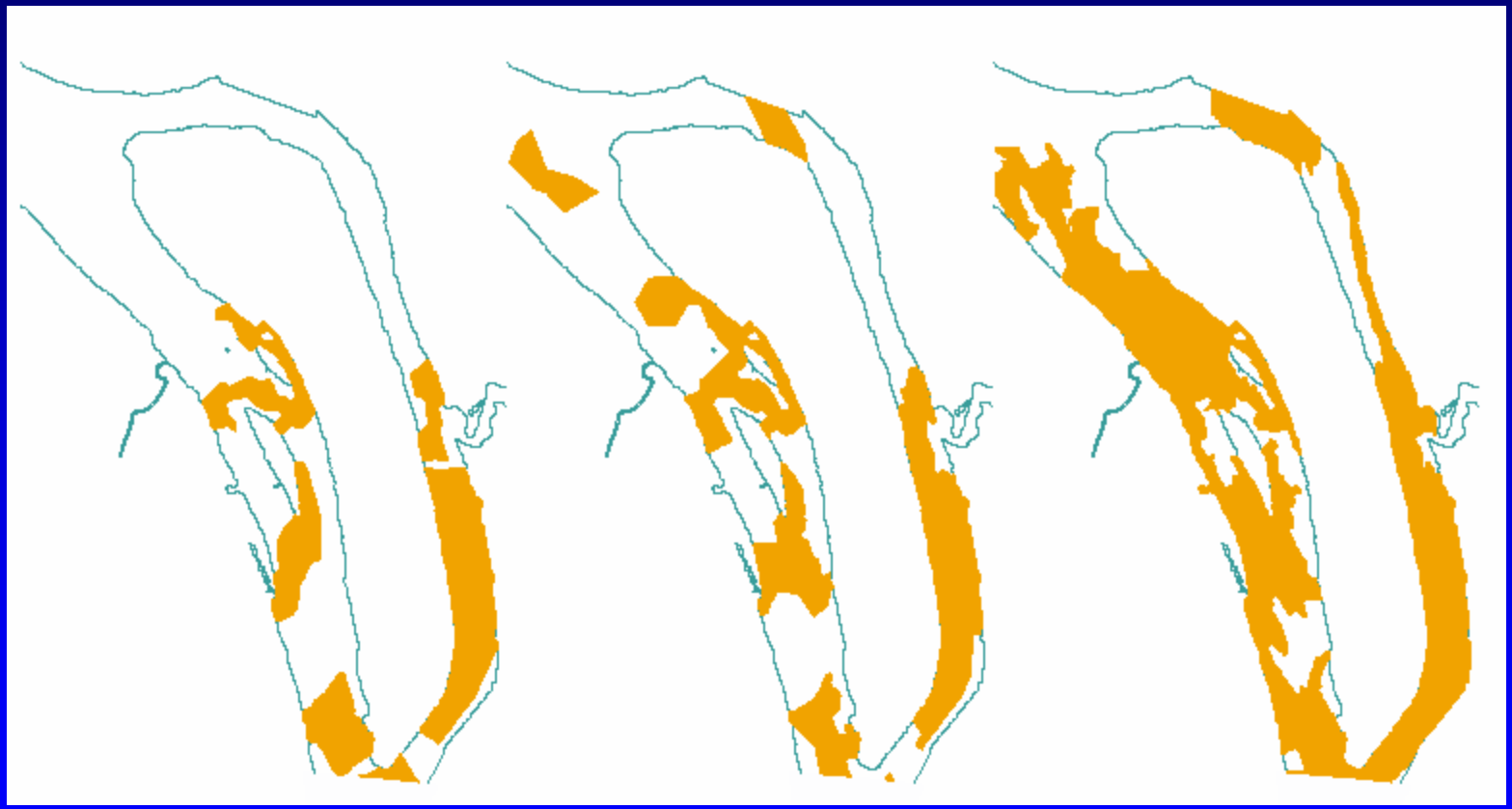
East Griffin Island



Delineation at Rogers Island

Jan ‘04 Sep ‘04 Feb ‘05



Delineation at East Griffin Island

Jan ‘04 Sep ‘04 Feb ‘05

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Dredge Area Delineation (Cont)

Dredging depth

- **The depth of sediment estimated to contain PCBs varies from dredge area to dredge area**
- **In most cases is 3 ft or less**
- **Areas that are deeper (5 ft or more) include**
  - **southern portion of the east channel at Rogers Island**
  - **area just south of Lock 7**

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DAD Consideration in Design (Cont)

- Phase 1 DAD Report will be used by GE to prepare a Phase 1 Intermediate Design Report
- Three dimension dredge shapes (prisms) and dredging cut lines further developed in the intermediate and final design documents

DAD Consideration in Design (Cont)

Dredge areas will be adjusted during design to account for engineering and other considerations

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Engineering and Other Considerations

- Dredging equipment limitations
- Structures such as bridge abutments, dams, locks, wing walls, etc.
- Low clearance structures such as bridges and piers
- Other physical obstacles within the waterway that cannot be removed such as concrete cribs, very large boulders, bedrock, pipes, etc.
- Buried utilities
- Protection of habitats and cultural artifacts

DAD Consideration in Design (Cont)

Design will provide detail on dredging depths, volume of material to be removed and dredging equipment needed

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Next Steps

- EPA will use maps depicting the Phase 1 dredge areas to inform riverfront residents where the dredging operations will occur
- Phase 1 Intermediate Design
  - due to EPA August 2005

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Discussion