



Chicago District

povative Dredging and Disposal of Contaminated Sediments at Indiana Harbor and Canal

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Disposal

- Hydraulically offload dredged material from barges into a confined disposal
- Store and recirculate CDF site water to slurry material to minimize water to be treated
- Cover bottom as quickly as possible to seal the CDF and decrease seepage infiltration
- Collect groundwater and maintain inverse 2-foot gradient



CDF Features

- 140-acre site, including 91 acres for storage 10-acre equalization basin for runoff and
- groundwater storage
- Interior disposal cells
- Stage 1 Dike Height 20 to 23 ft - Stage 2 Dike Height 31 to 34 ft (raised after backlog dredging occurs) - Cap for RCRA closure after 30 yrs of dredging
- Wastewater and groundwater treatment plant, maintenance facilities, debris stockpile, roads, and drainage



Upland CDF Between Disposals Interior Trenching

CDF Management

improve drying

Site Controls and Monitoring

Environmental Monitoring

- Background phase to measure substance in the atmosphere prior to any USACE activity in the area (Nov 2001 - Dec 2003)
- Construction phase to monitor existing conditions and examine trends (Jan 2004 - Present)
- Dredge/Disposal phase is currently under development and will likely include action levels to help protect site workers and the community

Air Monitoring Locations

- Groundwater monitoring
- Surface water monitoring
- Site worker health and safety
- Community safety



Air Monitoring Station

Overview

- Dredging of Indiana Harbor and Canal has been delayed since 1972, awaiting an environmentally and economically acceptable disposal alternative.
- At least 1M cubic yards of sediments have accumulated in about 5 miles of navigation channels, containing PAHs, PCBs, metals, and petroleum byproducts.
- Numerous studies and site investigations have been performed to obtain the dredging and disposal alternative being presented

Restoring

and Maintaining

Harbor and

Channel Depth

Project Objectives

- To restore and maintain the navigable depth of Indiana Harbor and its channels
- Insure the air and water quality do not pose unacceptable risks to the environment and human health during, between and after the disposal operations
- Perform the dredging and disposal in a cost-effective manner



Aerial Photo: 2005

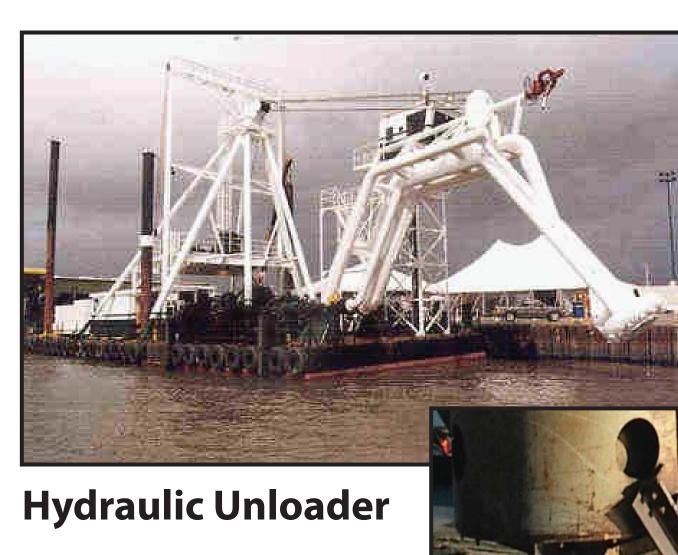
Mechanical Dredging

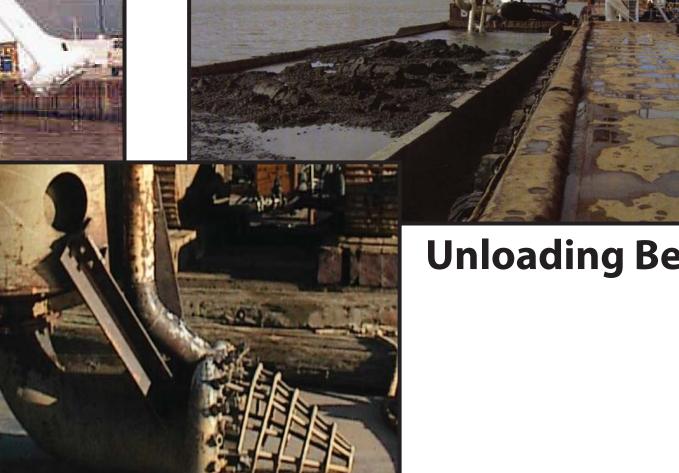
- Mechanically dredge the accumulated sediment (backlog) in a series of annual projects to restore the channel over a 10-year period
- Maintain the depth of the channels using periodic maintenance dredging projects over the following 20-year period



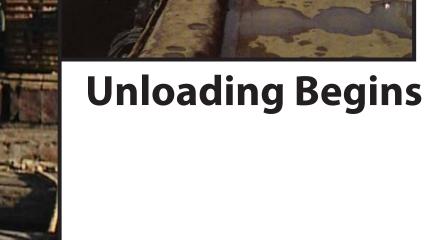


Mechanical Dredge





Close shot of Liberty offloader shows Liberty snorkel as

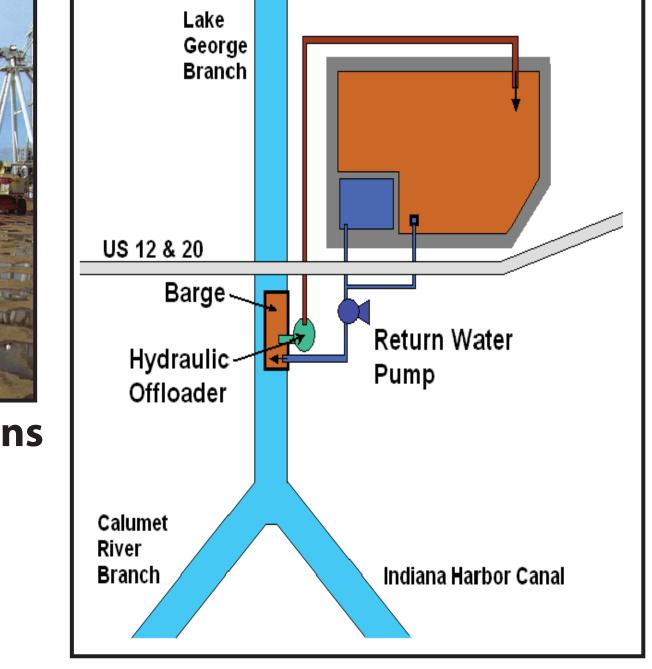






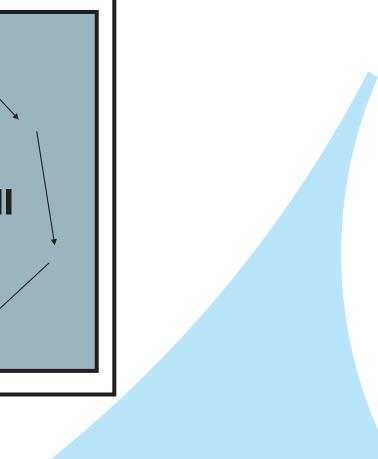
Unloader Snorkel

- **Hydraulic Unloading** Uses water to slurry the dredge material
- Pumps the slurry out of the barge and into the site
- Pipes will be double-lined and inside dikes



Slurry Line

Water Line



Cost-Effective Dredging and Disposal

Operations Components Volatilization and dust control

- Groundwater control
- Seasonal wastewater treatment

Dewater and dry dredged material to maximize storage capacity

Alternate placement in two cells or place materials in thin lifts to

Trench the perimeter of the CDF to promote dewatering

Monitoring

Use dust controls to reduce particulate losses





Three Phases of Water Treatment

1) USEPA mobile plant - Springfield Belle (2006)

- 2) Interim groundwater treatment plant (2007 Dredging)
- 3) Permanent treatment plant for groundwater, surface water, and precipitation (duration of CDF operation)

Selected Treatment Processes

Equalization

Perimeter

Trenching

- Precipitation/clarification
- Biological treatment
- Ion exchange

Activated carbon

- Treated water discharged to Lake George Branch

Project Status (January 2007)

Completed to Date

- Slurry wall
- Majority of perimeter dikes Design for groundwater gradient
- control system
- Design for interim groundwater plant

Design for south cut-off wall

- Complete CDF construction Continue to develop facility
- operating and monitoring plans Continue to inform and involve
- the community

Next Steps

For more information, please contact:

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