Black Lagoon Site
Trenton, MI

First Great Lakes Legacy Act
Sediment Clean-up Project

Black Lagoon Site

Approximately 2-acre exposed cove on Trenton Channel of Detroit River

- Part of Detroit River Area of Concern & Detroit River International Wildlife
- Located immediately downstream of former McLouth Steel plant (closed in 1995)
- Acted as settling basin for past 50 years

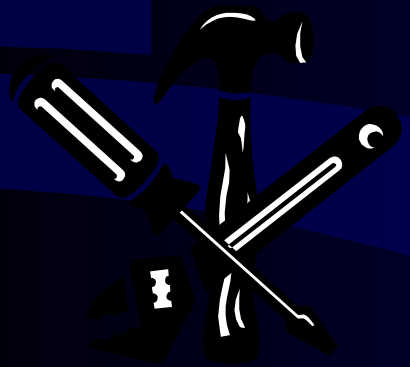
[illegible] Site [illegible]

- [illegible]ultiple joi[illegible]
  [illegible]mpling effo[illegible]
- One of six major contaminated areas of Trenton Channel
- Over 400,[illegible] contaminated sedi[illegible] in Trenton Channel

Black L

- Site contribu
  contaminated sedi
- Average contamina
- Average con trations:
  - : 6,200
  - Total PC
  - Mercury: 1.40 mg
  - Lead: 146 mg/kg

Great Lakes Legacy Act of 2002…



…a new “tool” in the Great Lakes sediment remediation

Great Lakes Legacy Act

- The Legacy Act authorizes $50M per year from FY2004 through FY2008 for contaminated sediment projects in the Great Lakes
- Funds can be used for clean-ups, research, and public outreach in AOCs
- $10 Million appropriated in FY2004
- $22 Million appropriated in FY 2005
- Black Lagoon Site submitted by MDEQ

Multi-Agency Cooperative Effort

- U.S. EPA Region V
  - reat Lakes
  - uperfund D
- Michigan Department of Environmental Quality
  - Surface Wat
- US Army Corps of Engineers
  - Detroit District & Detroit Area Office
  - Grand Haven Area Oth
  - Pointe Mouillee Confined L

Multi-Agency Cooperative Effort

- Greater Detroit American Heritage River Initiative
- City of Trenton
- Private land-owners

Primary Objectives

- Reduce risk to aquatic [illegible] Rouge River AOC
- Restore the aquatic habitat
- Prepare for recreational and economic redevelopment of Black Lagoon

Black Lagoon Clean-up Plans

- Lagoon Isc
- Environme
- Mechanica [illegible]dging
- Barge Transport to Pointe Mouillee CDF
- Sediment Solidification at CDF
- Truck Transport t
- Final Sediment Placem

Lagoon Isolation/Silt Curtain

- Approxima
- Fifty foot s
  polyester fabric with heat-treated seams
- 8” x 8” x 48” EPS foam block floats
- Initially connected to pipe piles at 50 ft
  interva
- Final connection at 10-15 ft intervals with
  steel beam suppor

Lagoon Isolation/Silt Curtain

Lagoon Isolation/Silt Curtain

Environmental Controls

- Oil Spill Protection Equipment at Lagoon
  - Harbor Boom
    bsorbent Boom
  - Shoreline
  - Work Barges

Environmental Controls

- Turbidity Monitoring
  - 1 Station Upstream
  - 2 Stations Downstream
  - Collect data 2 hours after start of shift
  - Repeat throughout shift
  - Continuous feed units
  - Handheld readings

Environmental Controls

- Air Monitoring & Sampling
  - Several locations at both Lagoon & CDF
    - eal-time VOCs and parti
  - Biweekly Sampli for PCBs, Lead and Mercury

Mechanical Dredging

- Two work
  CAT 235D
  clamshell for
- Long-reach
- Material
- Weekly soundings conducted for volume measurements (GPS/total station)

Mechanical Dredging

Barge Transport to Pointe Mouillee Confined Disposal Facility (CDF)

- Sediments
  transpo
- Barges hold approximately 1800 cy
- Spill prevention steel plate used for transfer
- Transport barges travel down Detroit River Channel to CDF in Lake Erie

Barge Transport to Pointe Mouillee CDF

Pointe Mouillee CDF

- Designed t
  contam
  the Det
- 700-acre crescent-shape dike in Lake Erie
- Structure is 3.5 miles long and 1,400 ft wide
- Constructed in sections from 1976 – 1981
- USACE authorized to manage under River and Harbor Act of

Sediment Solidification at CDF

- Sediments
  transpo CDF
- Solidified sediments off-loaded into off-road dump trucks
- Silt curtain in place around barges
- Sediments off-loaded into either temporary storage pit or directly into CDF cell

Sediment Solidification at CDF

Sediment Solidification at CDF

Truck Transport to CDF

- Project del
  incleme conditions
- Transport b barge to
- Initiated solidification at Lagoon with transport by truck to CDF
- Continued truck transportation for remainder of proj

Truck Transport to CDF

Other Weather Considerations

- Turbidity m
- Silt curtain
  - Diver assisted inspections
  - Longer sections of impermeable silt curtain
  - Second layer of permeable silt curtain added
- Ice management in excavation area

Winter at the Black Lagoon

Two Layers of Silt Curtain

Final Sediment Placement at CDF

Cross dike

Lagoon

- Outer CDF walls lined with geotextile
- Overflow weir installed to manage oil/water
- Solidified sediments placed in 12 inch lifts
- Two foot cover material placed on top
- Sediments compacted

Final Placement at CDF

Final Sediment Placement at CDF

Black Lagoon Site Summary

- Cooperative
- Dredging oc[illegible] 13 months
- Approximately 115,000 cy of contaminated sediments removed
- Excavated area covered with 6 inches of sand and 3 inches of stone
- Sand bar area created with stone riprap
- City of Trenton received $113,000 grant for shoreline restoration

Black Lagoon Contamination

- 115,000 cy of contaminated sediment removed

CONTAMINANT	AMOUNT (in lbs.)
PCBs	160
Mercury	360
Oil and G	300,000
Lead	
Zinc	

Black Lagoon Project Costs

- Total cost approximately $9.3 million
- $6 million Legacy Act funds
- $3.3 Clean Michigan Initiative

(The Clean Michigan Initiative is a $675 million bond used to clean up, protect and enhance Michigan's environmental quality and natural resources).

Black Lagoon Site Contacts

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Human Error or Equipment Failure?

The Resulting Multifaceted Response