

# ***INNOVATIVE SEDIMENT MANAGEMENT EXPERIENCES***

**AT**

## ***Manistique Harbor, Michigan***

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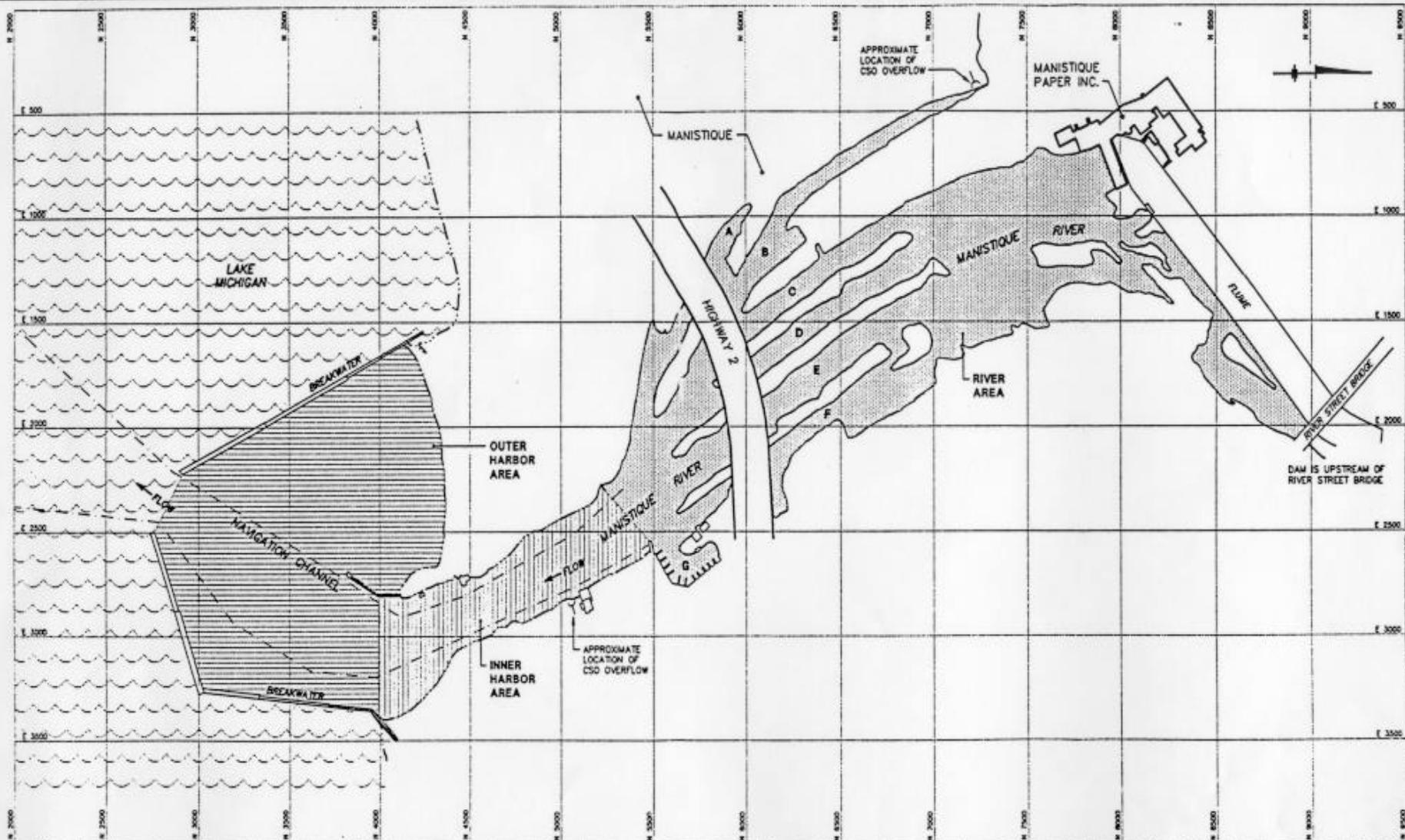
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## **Detroit River Industry Summit Conference**

April 19, 2000







**BLASLAND, BOUCK & LEE, INC.**  
ENGINEERS & SCIENTISTS

MANISTIQUE RIVER/HARBOR  
ENGINEERING EVALUATION/  
COST ANALYSIS

MANISTIQUE RIVER/  
HARBOR AREAS

500' 0 500'  
SCALE: 1" = 500'

FIGURE  
1-2



# **SITE BACKGROUND**

- ❖ Manistique Harbor - Upper Peninsula of Michigan
- ❖ Man-made Harbor located on Lake Michigan's northern shore
- ❖ Harbor floor historically created by blasting bedrock to achieve project depth
- ❖ Manistique River is 350 feet wide at the mouth and narrows to a channel of 200 feet
- ❖ River Current:
  - average flow of 1680 cfs
  - maximum average monthly flow of 4380 cfs (April)
  - minimum average monthly flow 890 cfs (August)



## **SITE BACKGROUND (*continued*)**

- ❖ Current use of the Harbor is pleasure craft and small, shallow-draft fishing boats and small barges only
- ❖ Harbor bustled in the 1880s through the 1920s
- ❖ Harbor is now considered obsolete for modern Great Lakes shipping
- ❖ Area of interest encompasses approximately 17 acres
- ❖ Volume of sediment at issue originally estimated to be 100,000 cubic yards, but EPA now believes the total will be closer to 135,000 cubic yards

# **TIMELINE TO SECURE APPROVAL OF CAPPING**

- ❖ August 1993 Notice Letter
  - ❖ August 1993 PRP offer to cap the harbor
  - ❖ Fall 1993 Sampling
  - ❖ Spring 1994 EE/CA and Qualitative Risk Assessment prepared and submitted
  - ❖ May 1994 PRP recommendation to cap harbor
  - ❖ June 1994 EPA approval of the EE/CA and Risk Assessment
  - ❖ August 1994 EPA releases proposed plan (dredging)
  - ❖ August-October 1994 Public comment period
  - ❖ Dec '94 - Mar '95 EPA HQ de novo review
  - ❖ October 1995 Region V approves capping

# **REGULATORY FRAMEWORK/DRIVERS/ WHY WAS CAPPING PROPOSED?**

- ❖ Regulatory Climate - 1993
  - Reg V
  - Reg V
  - Reg V
- ❖ Adamant/religious fervor about dredging and anti-in place solutions. Examples...
  - 105 lbs per year of PCBs
  - Regulatory bar to in-situ remedy
  - Cheboygan “pilot” alleged cap failure

# ***REGULATORY FRAMEWORK/DRIVERS/ WHY WAS CAPPING PROPOSED? (CONTINUED)***

- Canadian/IJC concerns
- TSCA Containment Policy
- Unit costs for capping and dredging
- Risk assumptions - 100% carp ingestion
- Economic preservation of harbor
- Precedent concerns
- Ice scour
- Prop wash
- Waves
- Floods
- Unquantifiable natural (and unnatural!) disasters
- Plague, pestilence

# **REGULATORY FRAMEWORK/DRIVERS/ WHY WAS CAPPING PROPOSED? (CONTINUED)**

- ❖ Natural Attenuation was perceived to be mission impossible
- ❖ Emergency attention - initially - 10 days to commit to dredging harbor!
- ❖ SACM site
  - Accelerated program!
  - Bean needed for quick success
- ❖ Cost-effective remedy- originally perceived to be approximately 2.0 million

# ***REGULATORY FRAMEWORK/DRIVERS/ WHY WAS CAPPING PROPOSED? (CONTINUED)***

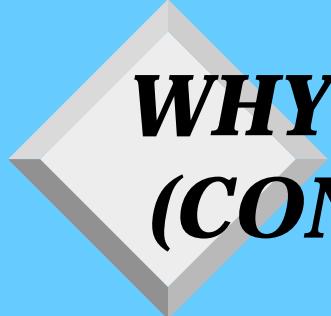
- ❖ Offer to proceed straight to remedy
- ❖ PRP circumstances
  - liability defense
  - cost to fight; risk of loss
  - good citizen



# **WHY WAS CAPPING APPROPRIATE?**

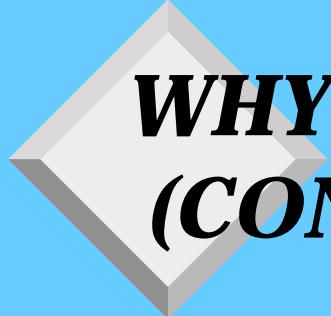
High energy vs. low energy debate:

- ❖ River and harbor setting
- ❖ If high energy, why extensive depositional area?
- ❖ Average flow - 1680 cfs
  - max. flow - 4380 cfs (April)
  - min. flow - 890 cfs (August)
- ❖ Cap designed to withstand 17 foot waves
- ❖ Cap designed to withstand 500 year flood



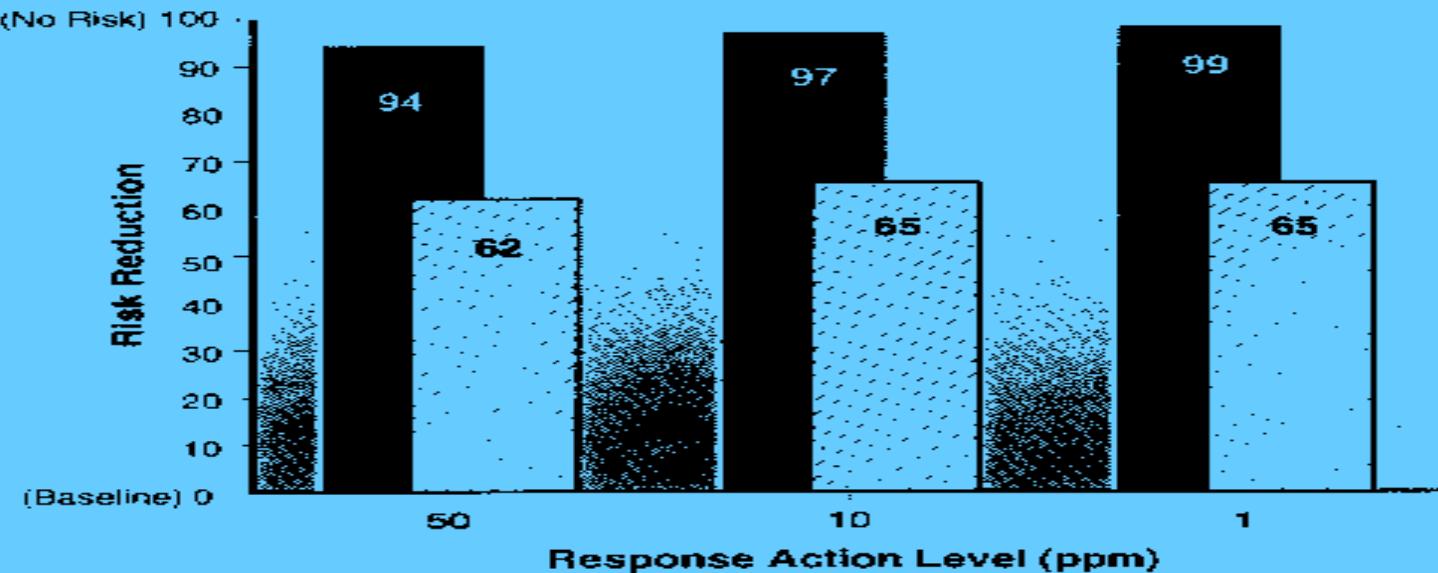
# **WHY WAS CAPPING APPROPRIATE? (CONTINUED)**

- ❖ 20 inches of sand; carbon additive; geotextile base (for stability, not migration)
- ❖ PCB releases from dredging were estimated to be 46 to 183 pounds
- ❖ The average PCB concentrations at depth were 90 ppm
- ❖ The bedrock harbor floor virtually guaranteed substantial residuals would remain
- ❖ Capping would isolate 93% of the basin's PCB mass



# **WHY WAS CAPPING APPROPRIATE? (CONTINUED)**

- ❖ The 16-acre cap would reduce the surficial concentrations in the overall 56-acre basin to 1 ppm vs. the pre-remediation levels of 5.2 ppm
- ❖ Risk-reduction better - 97% capping vs. 65% dredging
- ❖ Cost effective - 5.5 million (including \$1.7 million for 30 years of O & M) vs. \$33-43 million for dredging
- ❖ Difficulty in siting a local CDF



**NOTE:**

The risk reductions presented are the percentages of the baseline additional cancer risk for an "average" recreational angler, estimated in the Risk Assessment to be  $1 \times 10^{-5}$ . Risk reduction for all of the potential capping alternatives are higher than those for any of the dredging alternatives. The risk reduction associated with capping to a 50 ppm action level is 94 percent. Capping to 10 ppm would reduce an additional 3 percent while capping to 1 ppm reduces an additional 2 percent beyond the 10 ppm alternatives.

**LEGEND:**

Capping (Alternative 5b)   
 Dredging (Alternative 4a)

BLASLAND, BOUCK & LEE, INC.  
 ENGINEERS & SCIENTISTS

MANISTIQUE RIVER AND HARBOR  
 PUBLIC MEETING  
 JULY 21, 1984

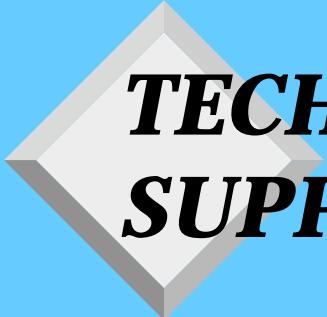
**RESIDUAL RISKS FOR  
 DREDGING VS. CAPPING**

# ***COST SAVINGS -- CAPPING VS. DREDGING\****

|                                 |                 |
|---------------------------------|-----------------|
| Engineering estimate - capping  | \$3.62          |
| million                         |                 |
| Low Bid - capping               | \$3.8 million   |
| EPA dredging ( <u>to date</u> ) | \$35.7 million* |

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\* Year 2000 budget is expected to be \$7-\$10 million.



## **TECHNICAL STEPS TAKEN TO SUPPORT PROPOSED CAPPING**

- ❖ Critical foundation of sound science
- ❖ Foundation used to support:
  - administrative record for remedy selection
  - Michigan Department of Environmental Quality (MDEQ) support
  - local government support
  - community support
  - congressional support

# **TECHNICAL STEPS TAKEN TO SUPPORT PROPOSED CAPPING (CONTINUED)**

- ❖ Assistance of the Army Corps, Waterways Experiment Station (WES)
- ❖ Top experts in the areas of technical debate
  - Sediments - Mark Brown
  - Toxicology/Risk Assessment - John Schell
  - Floods/Waves - ACE
  - Ice - Guenther Frankenstein (retired Army Corps)
  - Academic support - University of Michigan, Michigan State University, Texas A&M

# **TECHNICAL STEPS TAKEN TO SUPPORT PROPOSED CAPPING (CONTINUED)**

- ❖ Effective Communication - Strong and coherent writing
- ❖ Presentation of previous capping successes in the record
- ❖ Risk-reduction calculation
- ❖ Presentation of cost issues
- ❖ Regular community updates, meetings, Public Advisory Committee (PAC)



## ***PUBLIC COMMENT PERIOD***

- ❖ Public comment was extensive and intense
- ❖ Public meeting
- ❖ Over 4,200 petition signatures received supporting capping

# **PUBLIC COMMENT PERIOD (*continued*)**

- ❖ Strong local government and local organization support, including:
  - the City Council
  - the Mayor
  - the EDC
  - the Native American Tribe
  - local businesses



## **PUBLIC COMMENT PERIOD *(continued)***

- local conservation groups
- MDEQ
- State Representatives
- Governor Engler
- U.S. Congressman
- U.S. Senators

Harbor

Petition drive doubles its goal of 2000

**Manistique group takes its case to Gore**

**The EPA must do a better job**

EPA begins  
harbor capping



# pioneer-Tribune

The EPA isn't doing the right thing

Thursday, August 11, 1994

3 columns, 10 pages

Manistique, WI

Manistique City  
Council opposes  
EPA proposal to  
dredge its harbor

Governor Engler supports capping

EPA proposal must be fought

Cap It!

**Stupak asks for review of EPA's dredging plans**

# ***CONGRESSIONAL AND OTHER LEGISLATIVE BRANCH INTEREST AND INVOLVEMENT***

- ❖ Communication of the issue and the problem early on
- ❖ Issue of important public policy on Superfund Reform
- ❖ Sound science and convincing risk reduction comparisons (capping would reduce risk 97%, dredging would reduce risk 65% at 10ppm action level)

# **U.S. EPA HEADQUARTERS DE NOVO REVIEW**

- ❖ Sixteen person inter-disciplinary panel
- ❖ Report finds capping to be protective
- ❖ Review team slightly favors dredging in a “close call,” but approves capping as a “protective” remedy
- ❖ Headquarters transmittal to Region V urged consideration by the Region of the community’s views, the State’s views and the feasibility of siting a CDF locally, all of which strongly favored capping



# **U.S. EPA'S RECOMMENDED RESPONSE ("RAR") (AUGUST 1994)**

- ❖ ("Hybrid") remedy - primarily dredging, with the only capping in the "no action" area
- ❖ EPA visit to Manistique in August 1994 to introduce the RAR to the public was met with extreme resistance

# **POLICY CHANGE ON CONTAINMENT REMEDIES FOR PCBs**

- ❖ April 1995 Headquarters memo extended the Standard Scrap decision permitting PCB containment remedies of greater than 50 ppm of PCBs to any remedial situation as long as the remedy is considered protective (as opposed to Standard Scrap's limitation of >50 ppm containment remedies to historical impoundments or intended disposal areas)
- ❖ A containment remedy now may be considered viable for PCBs over 50 ppm as long as it is considered protective

# ***REMEDY SELECTION, NEGOTIATION FOR IMPLEMENTATION, DESIGN AND REMEDY IMPLEMENTATION***

- ❖ Following review of the Headquarters review team report and transmittal memo, Region V concluded that capping would be an appropriate and protective remedy for Manistique Harbor
- ❖ EPA also decided to conduct a demonstration dredging program in a small portion of the river prior to the PRP implementation of the capping remedy (August Action Memo)

# **REMEDY SELECTION, NEGOTIATION FOR IMPLEMENTATION, DESIGN AND REMEDY IMPLEMENTATION (continued)**

- ❖ EPA's selection of capping was documented in an October 6, 1995 Action Memo
- ❖ Cap design proceeded simultaneously with negotiations on an appropriate Administrative Order
- ❖ Cap construction was expected to commence in the spring of 1996
- ❖ Over the winter of 1995-96, EPA's strong desire to dredge manifested itself in a cash-out opportunity for the PRPs

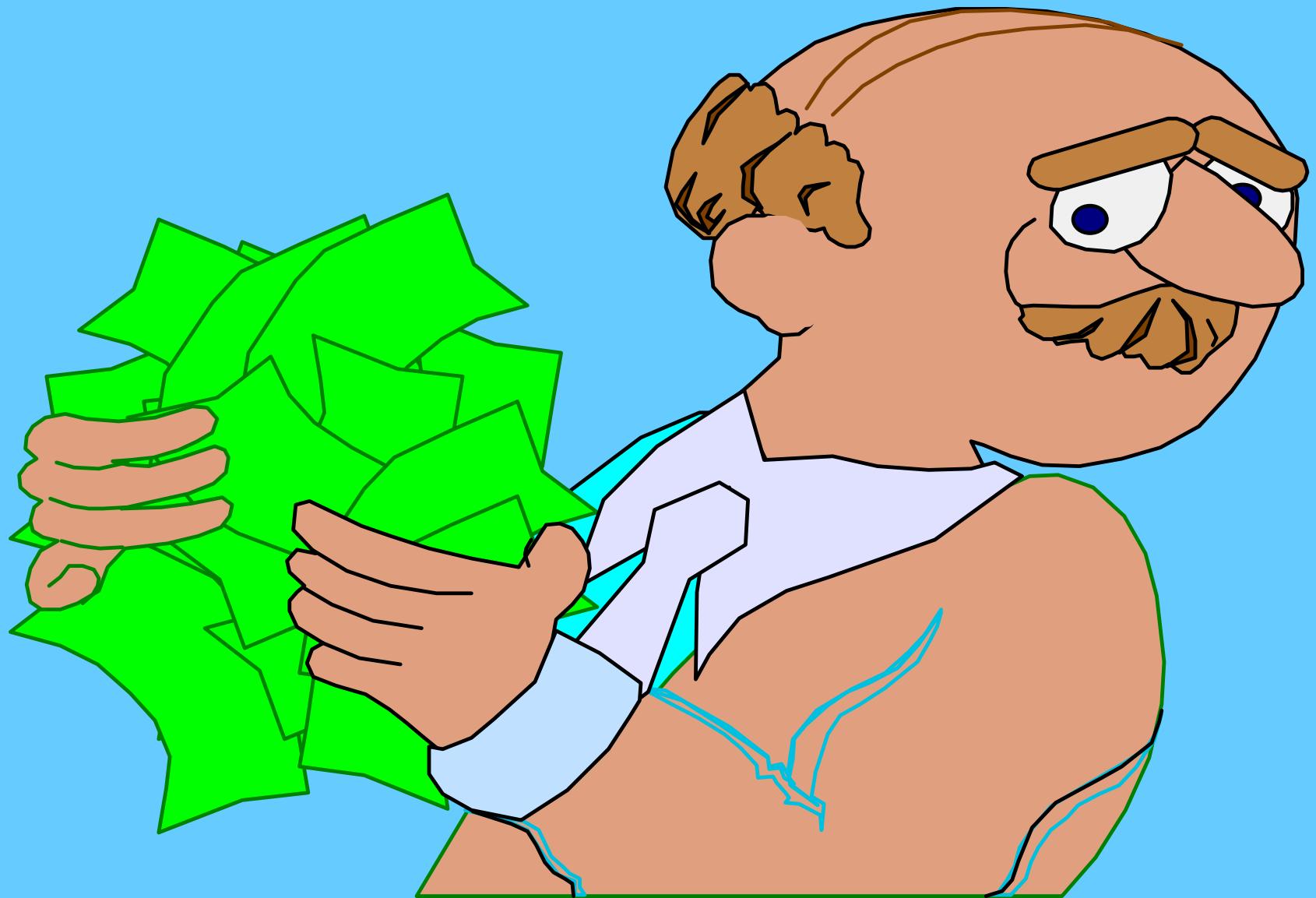


# ***MILESTONES FROM THE MANISTIQUE HARBOR PROJECT***

- ❖ Challenge the traditional and bureaucratic standard operating procedures:
  - Process
  - Schedule
  - Substance
- ❖ Use SACM (and now EPA's administrative reforms) as the basis to streamline the process and the schedule
- ❖ Effective education of the community involvement
- ❖ Consider strategic and timely involvement of the legislative branch

# ***MILESTONES FROM THE MANISTIQUE HARBOR PROJECT (continued)***

- ❖ Importance of building a strong technical record
- ❖ Effective use of freedom of information act requests
- ❖ Use of streamlined and more balanced Administrative Orders
- ❖ De Novo HQ review
- ❖ Clarification and favorable extension of TSCA “Standard Scrap” decision - containment remedies can be used for >50 ppm of PCBs even if not located in an “intended impoundment”
- ❖ Capping precedent - acceptance of capping as a viable sediment remediation option in the Great Lakes!



# **KEY INGREDIENTS OF THE MANISTIQUE HARBOR CASH-OUT SETTLEMENT**

## ❖ Cash-out -base cost of:

- Cost of low bid for capping from a qualified contractor \$3,936,700.00
- Cap O&M costs projected for 30 years (reduced to present value) \$1,400,000.00
- One-half of EPA response costs through date certain (covering a period pre-dating the settlement by approximately one year) \$ 401,000.00

\$5,737,700.00

***Rounded up to total***

***\$6,000,000.00***



## **KEY INGREDIENTS OF THE MANISTIQUE HARBOR CASH-OUT SETTLEMENT (continued)**

- ❖ Following HQ/DOJ difficulties on the CNTS and lack of re-openers, the PRPs' informal offers to cooperate and provide in-kind goods and services were formally incorporated into the settlement as a "premium"
  - Use of Mill property for staging and operations
  - Use of Mill's Storage Pad No. 5
  - Supply of filter fabrics
  - Rail access and rail car switching services
  - Utility poles and lighting for operating areas
  - Separate short form AOC on access and in-kind services with the Mill



## ***KEY TERMS OF THE ADMINISTRATIVE ORDER ON CONSENT (AOC)***

- ❖ Choice of form of settlement document - Consent Decree vs. Administrative Order
- ❖ Critical negotiations on scope of Covenant Not to Sue (CNTS)
- ❖ Definition of "Dredged Area" - the foundation of the protection
  - All areas actually dredged, including any unplanned expansions of work
  - All areas which had been planned to be capped - in case project not completed by EPA



## ***KEY TERMS OF THE ADMINISTRATIVE ORDER ON CONSENT (AOC) (continued)***

- ❖ Covers all hazardous substances, not just the chemical of concern, which was PCBs
- ❖ CNTS protects settling parties from liability attributable to EPA's performance of the Dredging Remedy
- ❖ Claims resolved include CERCLA, RCRA, TSCA, the Federal Water Pollution and Control Act and the Rivers and Harbors Act
- ❖ CNTS covers all past and future costs, including any Agency overruns (key definitions - "Past Response Costs" and "Future Response Costs")



## ***KEY TERMS OF THE ADMINISTRATIVE ORDER ON CONSENT (AOC) (continued)***

- ❖ "Site" was broadly defined geographically from upstream dam to mouth of the harbor and includes the river banks up to the mean high water mark (Upland areas are not included)
- ❖ Unlike most CNTS in Orders and Decrees (the typical "model" language), our CNTS took effect immediately upon payment of the cash-out
- ❖ Re-opener for "unknown conditions or information" which results in an environmental response action in addition to the Dredging Remedy



## ***KEY TERMS OF THE ADMINISTRATIVE ORDER ON CONSENT (AOC) (continued)***

- The re-opener expressly does not apply to any sediments in the Dredged Areas or any PCB sediments outside the Dredged Area impacted as a result of the Agency's Dredging Remedy
- The Agency's knowledge was broadly defined to include everything in the Agency's files as of the date of the Order
- Standard re-opener for criminal liability, future releases by the PRPs and natural resources damages liability



## ***KEY TERMS OF THE ADMINISTRATIVE ORDER ON CONSENT (AOC) (continued)***

- ❖ Unique protection of corporate parents, affiliates and individual officers/stockholders without any obligation under the Order
- ❖ The City of Manistique was protected by the Order without obligation (avoiding potential property tax exposure)
- ❖ Contribution protection was provided to the signatories, which was important in case of Agency overruns in the dredging budget



# **SIGNIFICANCE OF THE MANISTIQUE CASH-OUT SETTLEMENT**

- ❖ Precedent-setting settlement: One of the first cash-outs involving the "majors" (non-de minimis parties) at a Superfund site which provided a virtually complete walk away
- ❖ Groundwork paved for others in the future: A concept and mechanism for use in other situations; the intense negotiations at the Regional level and the Region V, HQ, DOJ discussions should pave the way for others
- ❖ Prognosis for future “Manistiques”



# **SUMMARY OF 1999 NRD SETTLEMENT SAGINAW/RIVER BAY, MICHIGAN**

- ❖ The assessment area included 22 miles of the Saginaw River and 1143 square miles of Saginaw Bay (Lake Huron, Michigan).
- ❖ The settlement covered all potential future natural resource damages (“NRD”) from the claimants: the State of Michigan, the federal government, including the United States Environmental Protection Agency (“U.S. EPA”), the U.S. Department of Interior (“DOI”), the U.S. Fish and Wildlife Service (“USF&W”) and the Army Corps of Engineers.
- ❖ Original estimates by the Trustees for the applicable NRD damages were well above \$100 million (with the highest range \$211 million).

# **SUMMARY OF 1999 NRD SETTLEMENT SAGINAW/RIVER BAY, MICHIGAN (CONTINUED)**

- ❖ The settlement includes a payment of \$28.22 million by General Motors, Bay City and the City of Saginaw covering:
  - Remediation
  - Natural resource restoration
  - Acquisition of land
  - Preservation of unique wetlands and fishing habitats
  - Construction and enhancement of public boat launches
  - Long term O&M of the CDF

# **SUMMARY OF 1999 NRD SETTLEMENT SAGINAW/RIVER BAY, MICHIGAN (CONTINUED)**

- ❖ The funding designated to cover sediment remediation was \$10.9 million for 345,000 cubic yards (dredging to be performed by the State and DOI through the Army Corps).
- ❖ The Covenant Not to Sue (“CNTS”) covers all NRD and response and remediation costs.
- ❖ Contribution protection from third party suits was provided to the settling parties.

