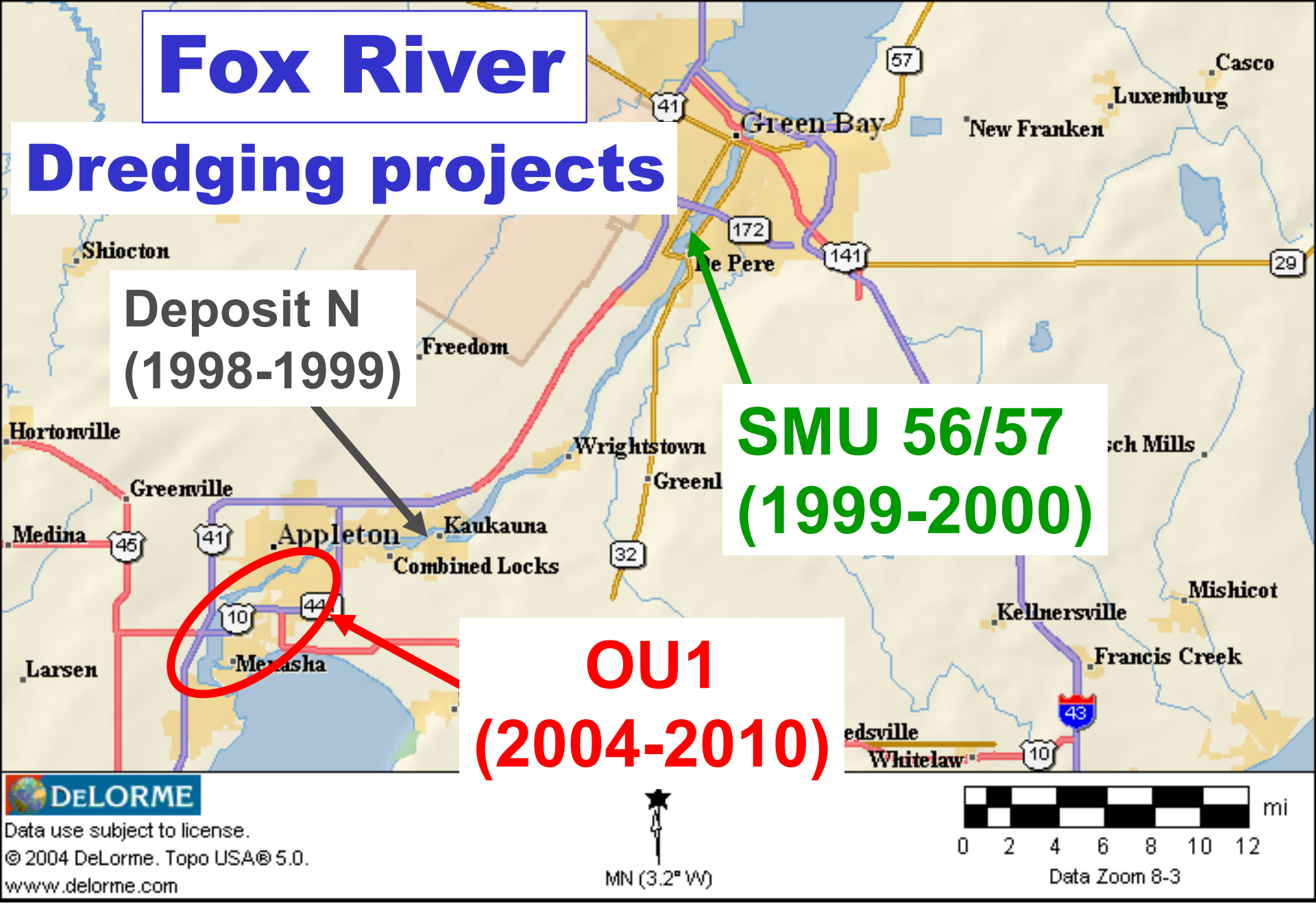
Fox River Dredging

James Hahnenberg

Sediment Remediation Course
August 16, 2005

Fox River dredging

1. Deposit N demonstration
2. **SMU 56/57**
3. **OU 1**


Fox River
Dredging projects
Deposit N
(1998-1999)
SMU 56/57
(1999-2000)
OU1
(2004-2010)
Green Bay
New Franken
Luxemburg
Casco
Shiocton
De Pere
Freedom
Hortonville
Greenville
Medina
Appleton
Kaukauna
Combined Locks
Wrightstown
Kellnersville
Mishicot
Francis Creek
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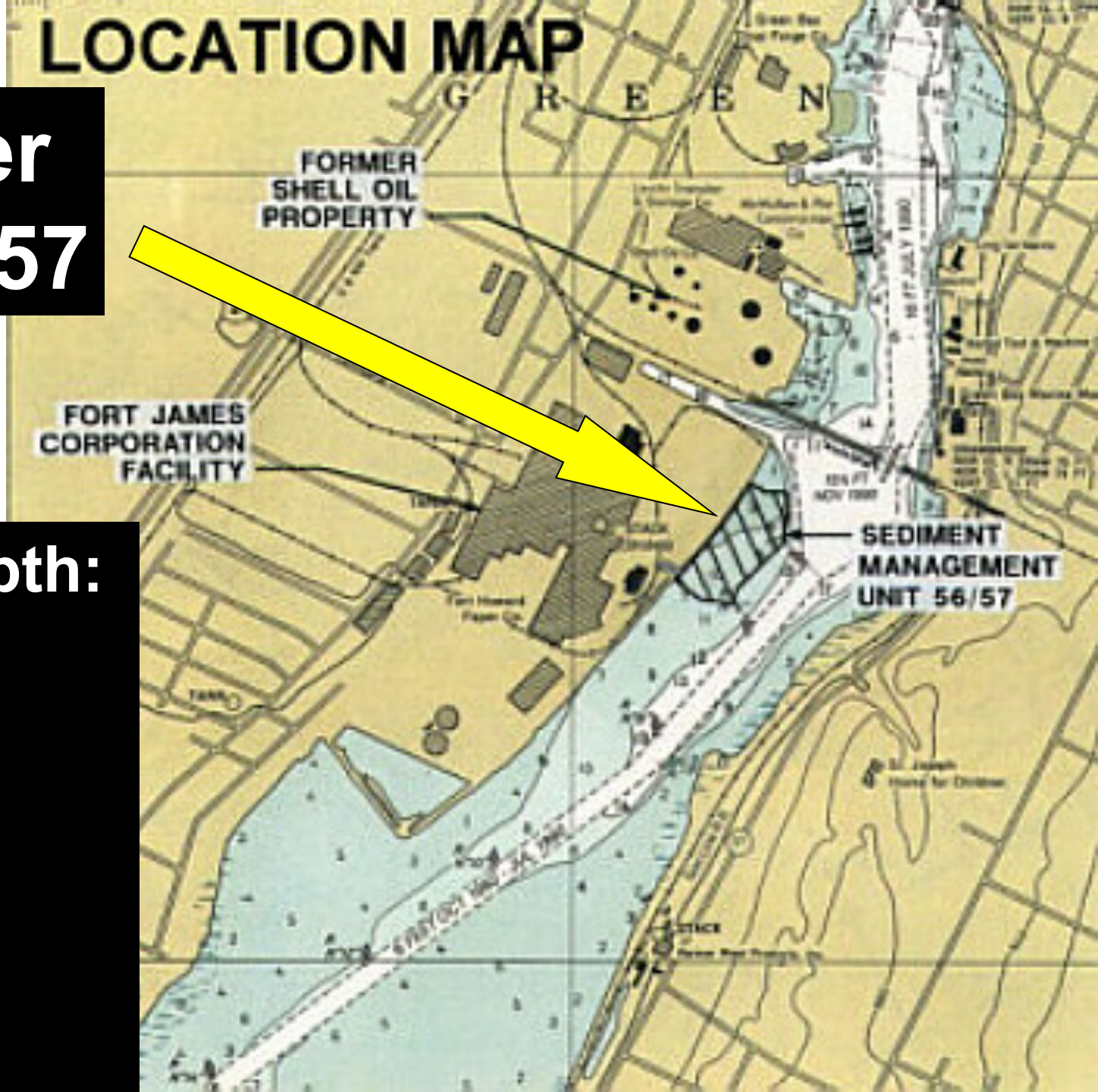
Fox River dredging projects

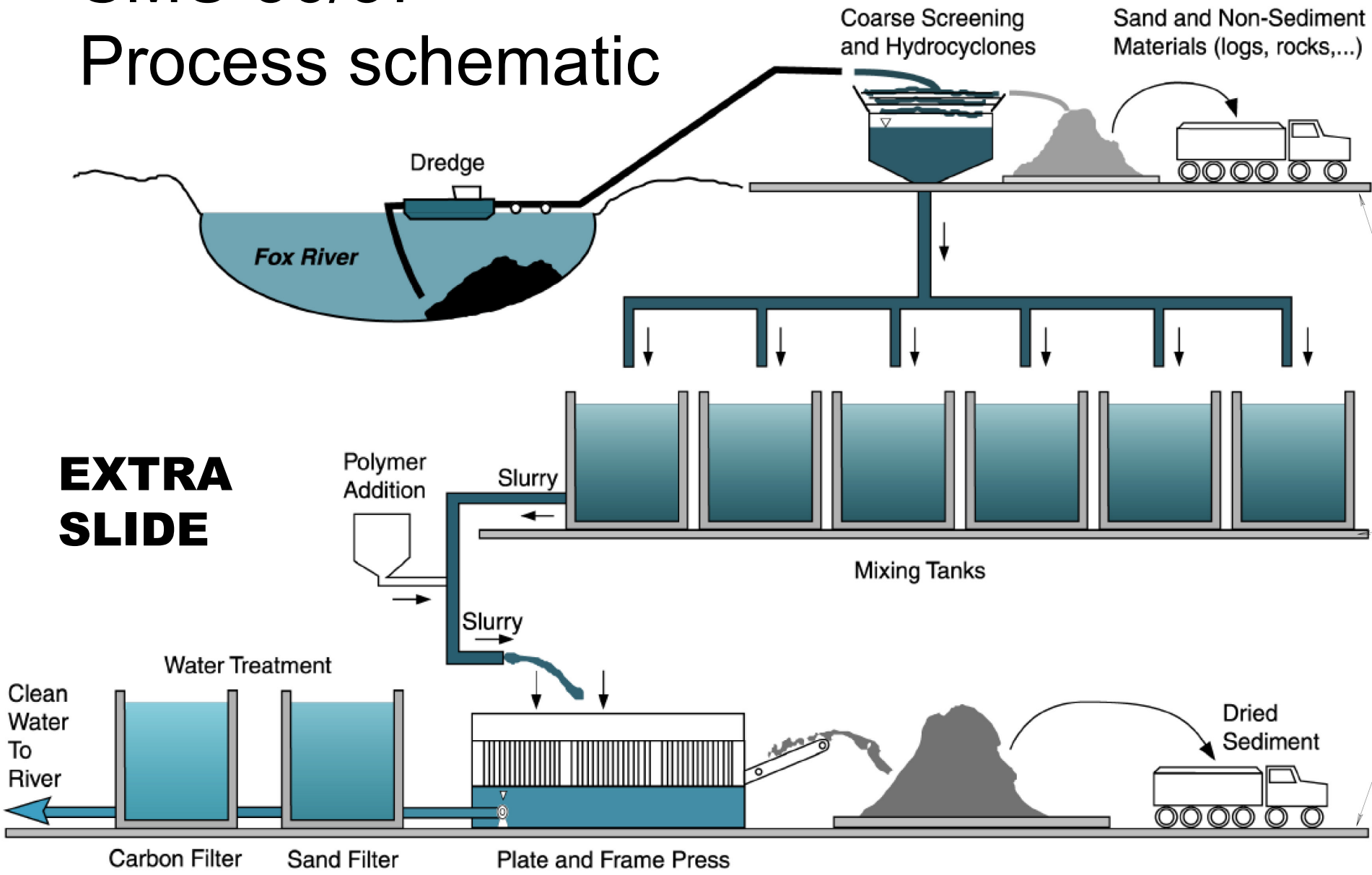
	OU 1	SMU 56/57	Deposit N
Years	2004-2010	1999-2000	1998-1999
Volume removed (CY)	800,000	80,000	8000
Costs	$60 million (estimate)	$17 million	$4 million
Cost/CY	$75	$340	$500

Fox River SMU 56/57



- Water depth: 10 – 20’
- 6.5 acres
- PCBs

SMU 56/57
Process schematic

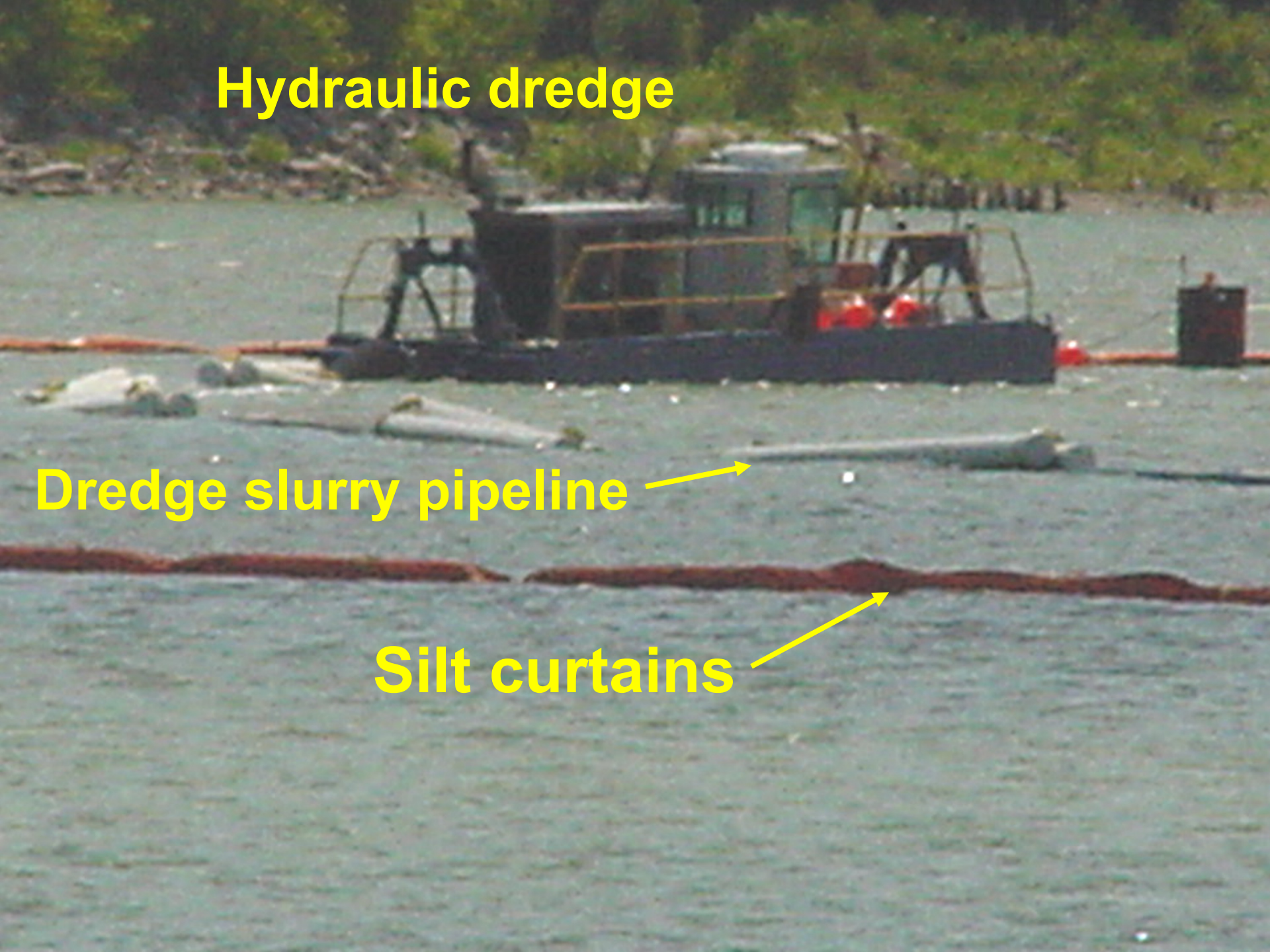


EXTRA SLIDE

From: Ft. James Corp., 2001 Final Report, 2000 Sediment Management Unit 56/57 Project

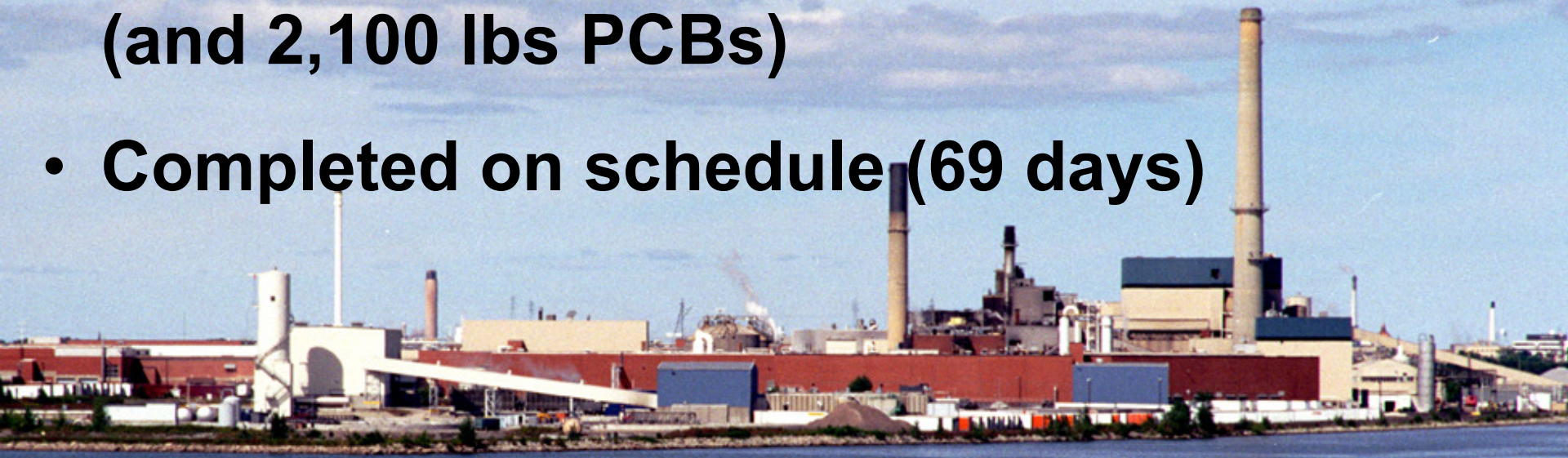
SMU 56/57

Hydraulic auger dredge


Hydraulic dredge
Dredge slurry pipeline
Silt curtains

OBJECTIVES ACHIEVED

- Met cleanup standards
- 2000: removed goal of 50,000 cubic yards (and 2,100 lbs PCBs)
- Completed on schedule (69 days)

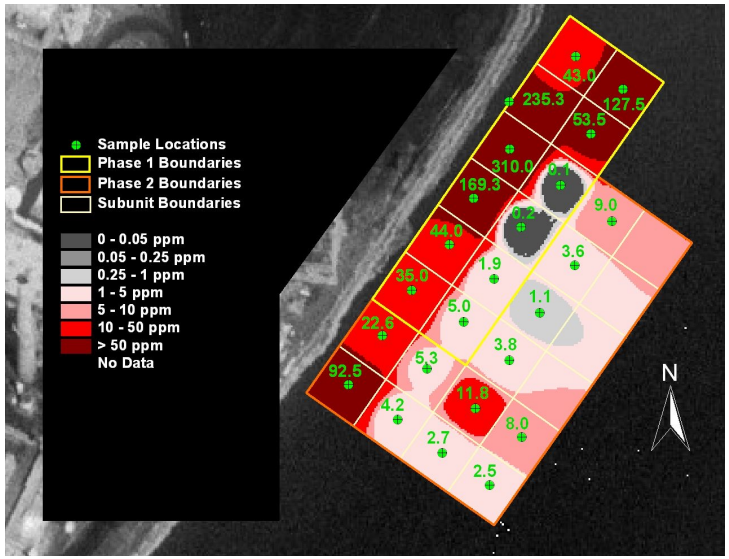


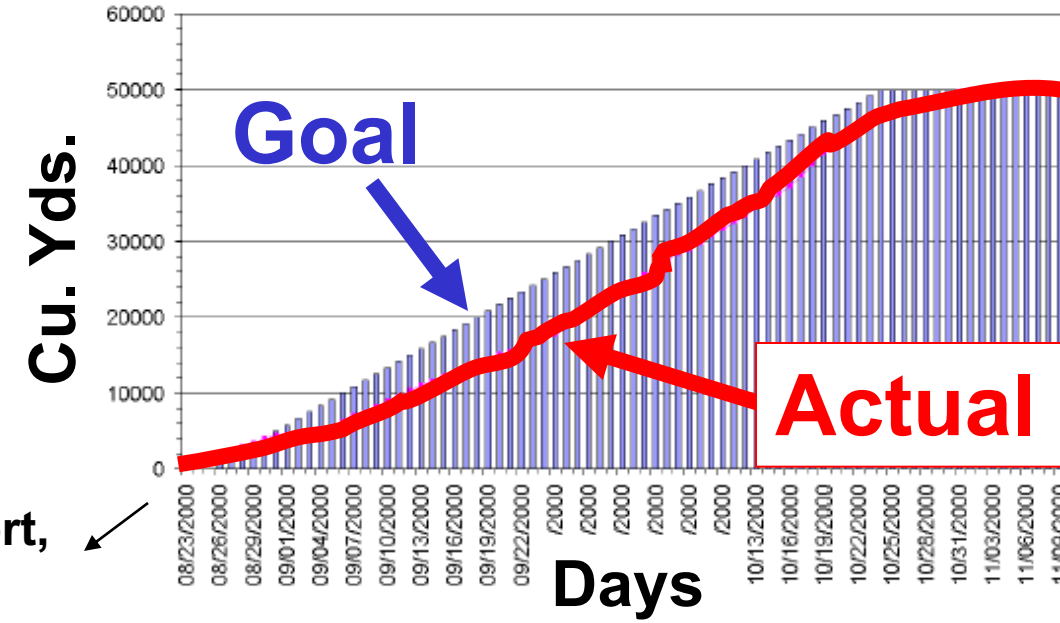
2000 costs: $8 million ($160/CY)

Things that worked

1. Clear goals and flexibility in how to achieve

2. Production objectives & schedule





From: Ft. James, et al, Final Report, SMU 56/57, January 2001.

Things that worked

3. Daily meeting with company, agencies and contractors
   a. Issue identification
   b. Problem resolution

3. <u>One</u> contractor for most work
   a. Equipment flexibility
   b. Proven dredging experience

Things that worked

5. Over-design treatment capacity relative to dredge

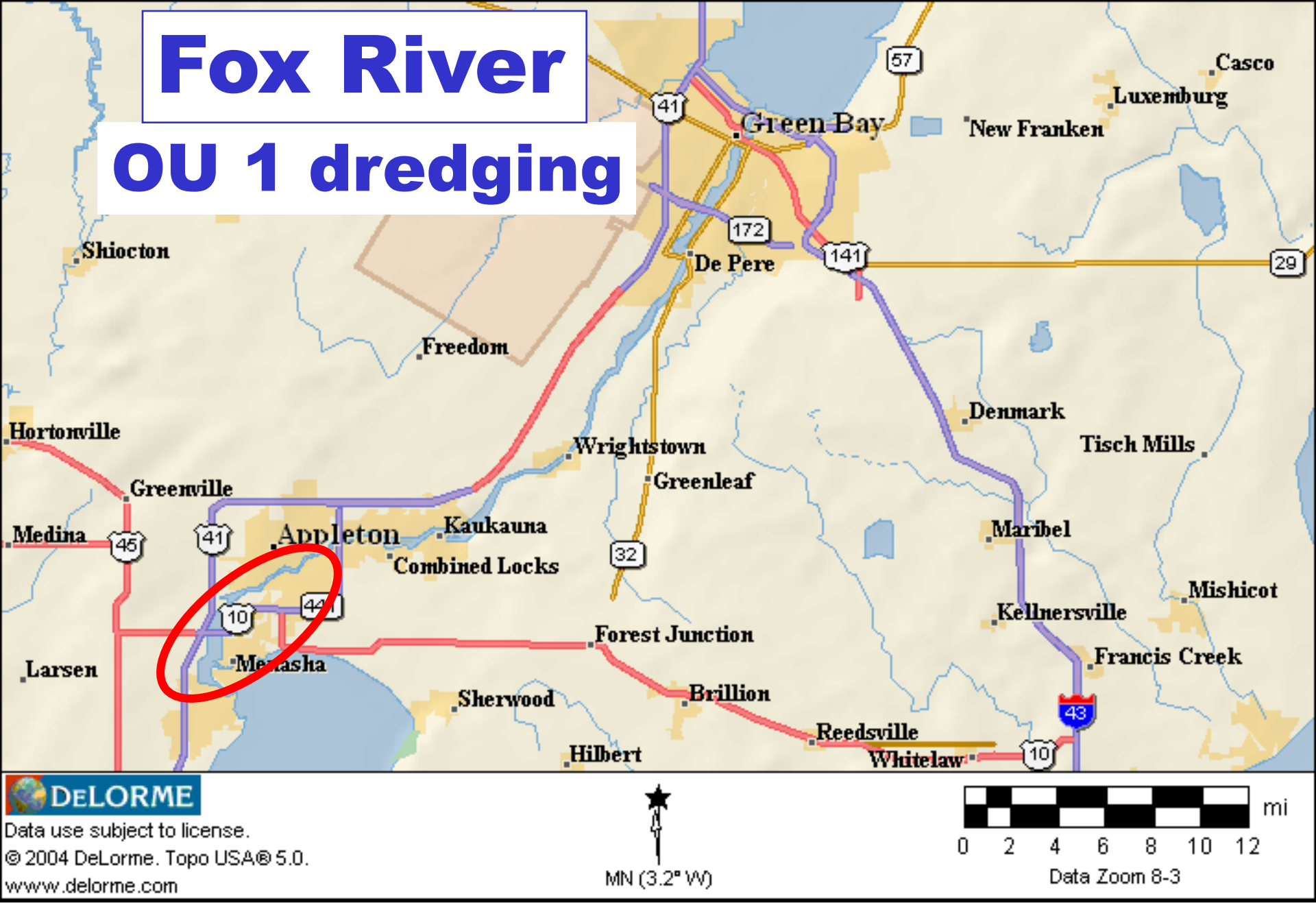
Water treatment

6. Redundant equipment (dredge)

Things that didn't work (1999 dredging)

1. No "meeting of the minds" between agency and companies doing work

2. Multiple contractors


Fox River
OU 1 dredging
Green Bay
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De Pere
Freedom
Denmark
Tisch Mills
Hortonville
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Medina
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Kaukauna
Combined Locks
Maribel
Mishicot
Kellnersville
Forest Junction
Francis Creek
Larsen
Menasha
Sherwood
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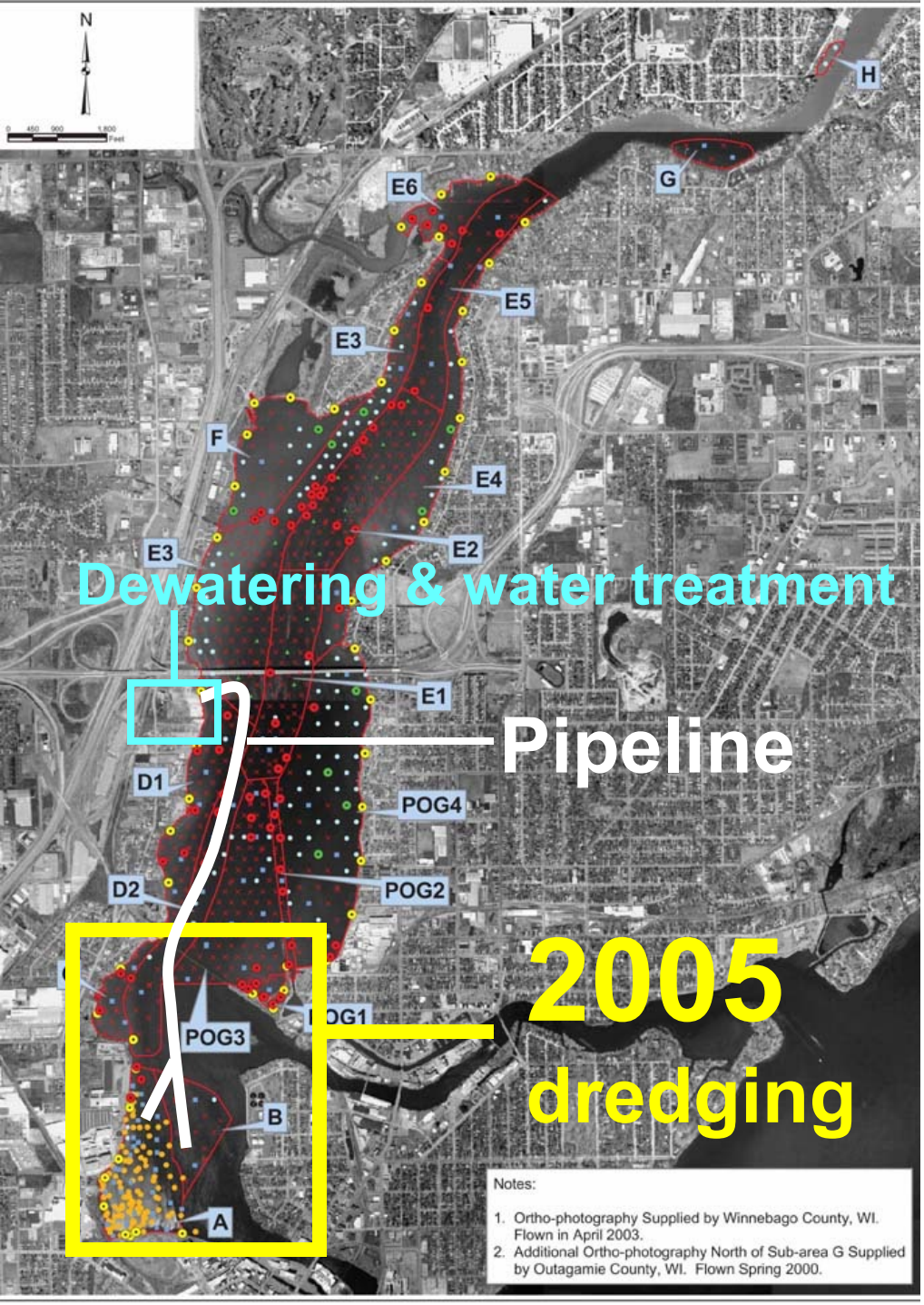
OU 1 dredging

1. Dredge sediments
   (800,000 cubic yards)
2. Dewater sediment
3. Treat dredge water
4. Dispose at landfill



Hydraulic dredge

Photo from: Little Lake Cleanup Team

Using 2 dredges

August 3, 2005

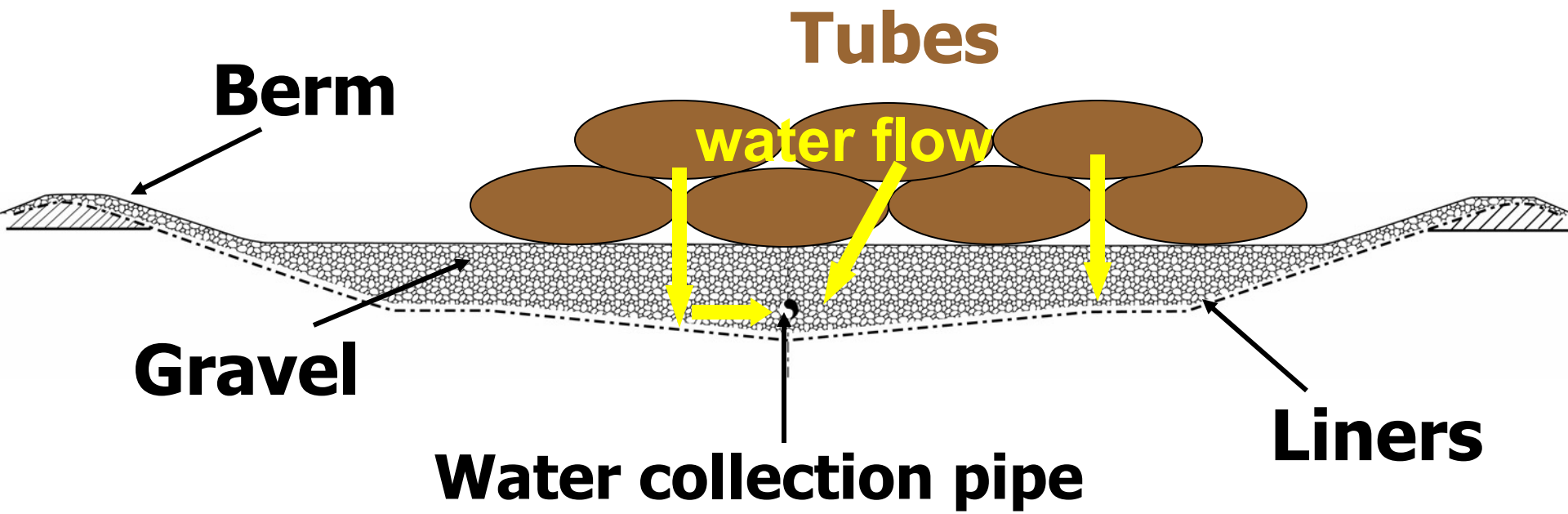
Sediment processing facility - 2004

Dewatering of dredge slurry

- Gravity drainage of tubes – collect water and treat
- Less labor/equipment than "traditional" dewatering
- "Decouples" dredging & dewatering
- Less potential air release

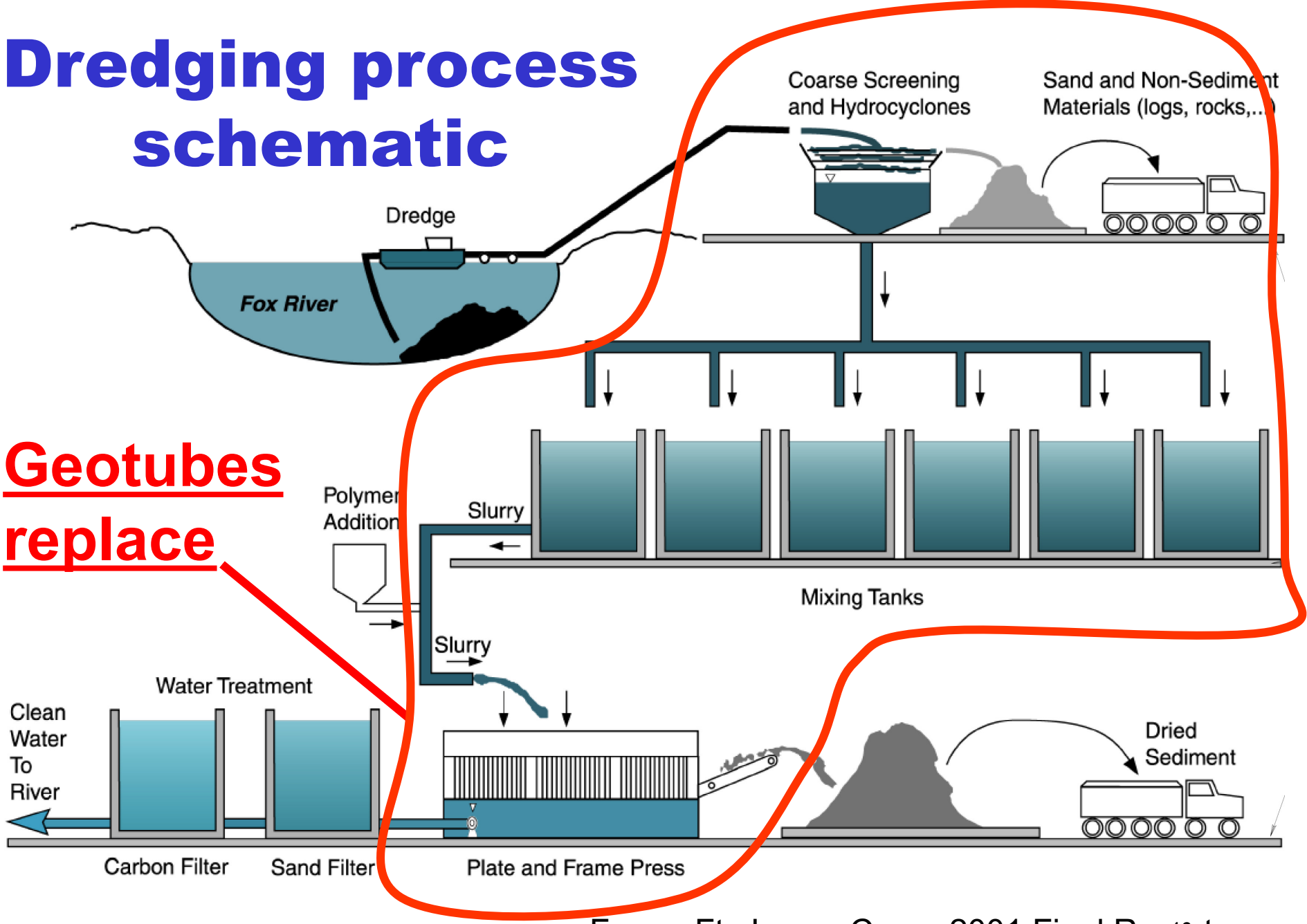

Solids captured
& water drains
out

Storage pad for geotextile tubes



From: Little Lake Cleanup Team

Dredging process schematic



Geotubes replace

From: Ft. James Corp., 2001 Final Report, 2000 Sediment Management Unit 56/57 Project

Geotubes: they're big

<u>Fox River July 19, 2005</u>

- **200 feet long**
- **80 foot circumference**
- **Contains 1600 cubic yards**

Stacked tubes

Geotube and Deposit N dredge video

Water treatment

- Air flotation
- Sand/gravel filters
- Carbon filters

From: WDNR webpage

Loading

Landfill disposal*

From: Little Lake Cleanup Team

*** Engineered for contaminant containment**

Things that worked

1. Dewatering with geotubes

2. ***Multiple*** contractors (in contrast to SMU 56/57)

3. Property purchase (for dewatering and water treatment facility)

Things that worked

4. Full scale test (2004 start)

5. Flexibility in *how* to achieve cleanup standards

6. Cooperative relationship between agencies and companies

Fox River Projects

	OU 1	SMU 56/57
Contractors	Multiple	One
Dewatering	Geotubes	Plate and frame presses
Dredges	Two operating	One operating & one backup

THE POST-CRESCENT

LOCAL NEWS

Posted Sept. 24, 2004

PCB dredging a smooth operation

Little Lake Butte des Morts cleanup surpasses expectations

By Duke Behnke
Post-Crescent staff writer

TOWN OF MENASHA — Engineers and contractors are all smiles three weeks into the six-year, $62 million cleanup of PCBs from Little Lake Butte des Morts.

A high-tech hydraulic dredge has

Clean up at a glance

Who: The Little Lake Cleanup Team consists of GW Partners and its contractors. Representatives can be reached at 920-912-5065 or by e-mail at littlelakecleanup@execpc.com.