Fox River dredging

1. Deposit N demonstration

2. SMU 56/57

3. OU 1
Dredging projects

Fox River

Deposit N (1998-1999)

SMU 56/57 (1999-2000)

OU1 (2004-2010)
## Fox River dredging projects

<table>
<thead>
<tr>
<th></th>
<th>OU 1</th>
<th>SMU 56/57</th>
<th>Deposit N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Volume removed (CY)</strong></td>
<td>800,000</td>
<td>80,000</td>
<td>8000</td>
</tr>
<tr>
<td><strong>Costs</strong></td>
<td>$60 million (estimate)</td>
<td>$17 million</td>
<td>$4 million</td>
</tr>
<tr>
<td><strong>Cost/CY</strong></td>
<td>$75</td>
<td>$340</td>
<td>$500</td>
</tr>
</tbody>
</table>
Fox River SMU 56/57

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

Things that worked

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

3. One contractor for most work
   a. Equipment flexibility
   b. Proven dredging experience
Things that worked

5. Over-design treatment capacity relative to dredge

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
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

Photo courtesy of WDNR
Sediment processing facility - 2004

Truck disposal route

Water treatment plant

Geotubes

From: Little Lake Cleanup Team
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: they’re big

Fox River July 19, 2005
- 200 feet long
- 80 foot circumference
- Contains 1600 cubic yards
Stacked tubes

From: Little Lake Cleanup Team
Geotube and Deposit N dredge video
Water treatment

- Air flotation
- Sand/gravel filters
- Carbon filters

From: WDNR webpage
Landfill disposal*

* Engineered for contaminant containment

From: Little Lake Cleanup Team
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

<table>
<thead>
<tr>
<th></th>
<th>OU 1</th>
<th>SMU 56/57</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractors</td>
<td>Multiple</td>
<td>One</td>
</tr>
<tr>
<td>Dewatering</td>
<td>Geotubes</td>
<td>Plate and frame presses</td>
</tr>
<tr>
<td>Dredges</td>
<td>Two operating</td>
<td>One operating &amp; one backup</td>
</tr>
</tbody>
</table>
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 been removing PCB-contaminated

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.