



**US Army Corps  
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Huntington District

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# Belleville Locks & Dam

**Barge Accident on  
6 Jan 05  
John Clarkson**



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# Belleville Barge Accident

- ◆ **Salvage Operations**
- ◆ **Lessons Learned**
- ◆ **Preventive measures considered to lessen the chances of losing pool in the event of future barge accidents.**



# BARGE ACCIDENT

- ◆ On January 6, 2005 the M/V Jon Strong, a twin screw towboat was up bound with 12 loaded barges.
- ◆ Nine of the barges drifted down into the dam.
- ◆ Four of the barges went through the dam gates, however, five of the barges lodged or sank against the dam piers.



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# Barge Location

- ◆ **AEP 8815 – sank against the pier between Gates 3 and 4**
- ◆ **AEP 8823 – lodged against the pier between Gates 4 and 5.**
- ◆ **PEN 207 – wrapped around the pier between Gates 6 and Gate 7.**
- ◆ **AEP 611 – lodged against the pier between Gates 6 and 7.**
- ◆ **MEM 94256 - lodged against the pier between Gates 6 and 7.**



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# Belleville Barge Accident

- ◆ **The barge accident blocked 5 of the 8 gatebays.**
- ◆ **The effects of the subsequent pool loss to the area caused approximately 5 million dollars a day in damages.**



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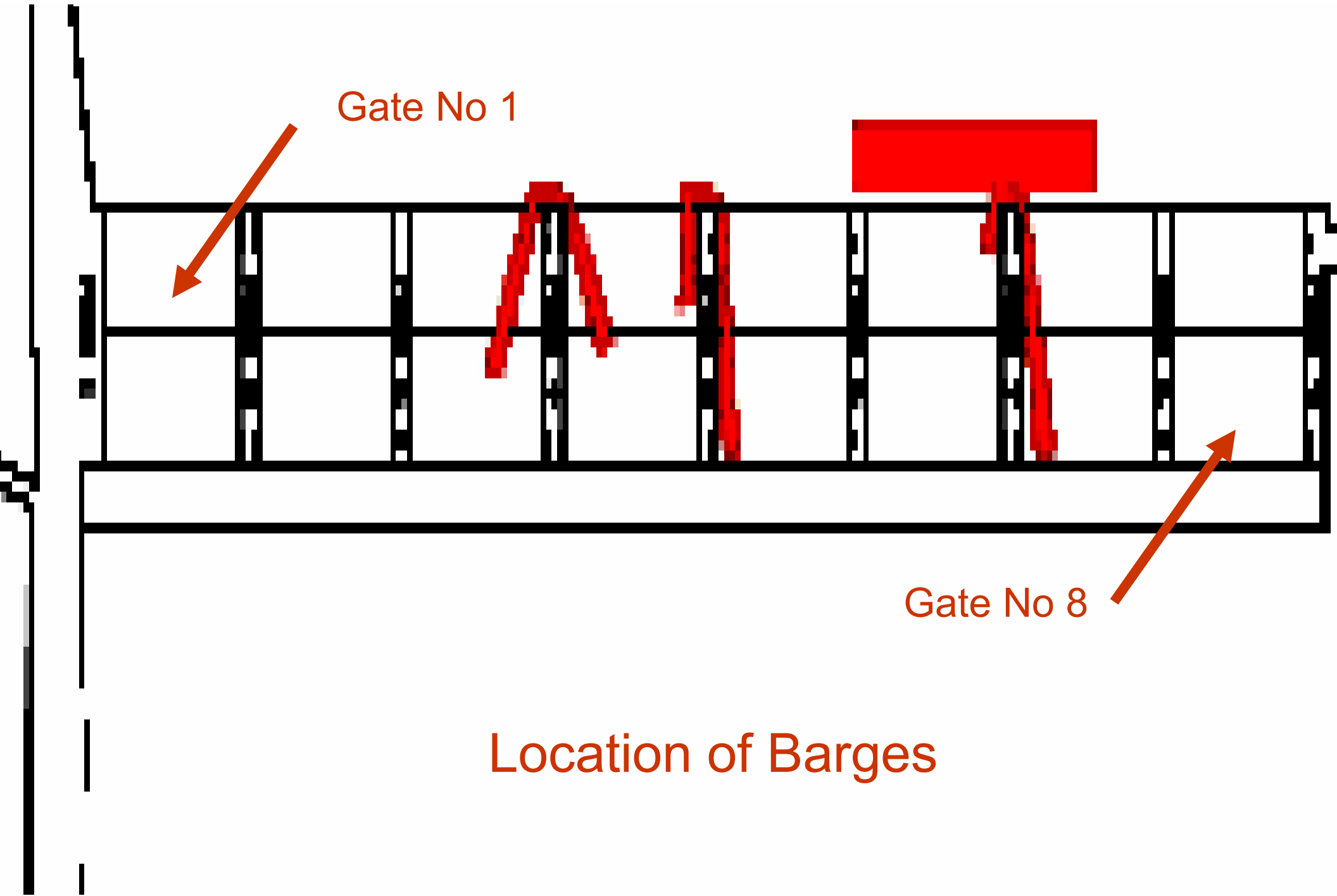
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## **BARGE ACCIDENT, cont**

- ◆ **Heavy Rains had caused flood conditions, the dam gates raised out of the water.**
- ◆ **High water allowed for some lockages to continue, Locks closed to traffic for two of the four weeks**
- ◆ **Loss of pool aided salvage operations**



Aerial View of Belleville Locks and Dam







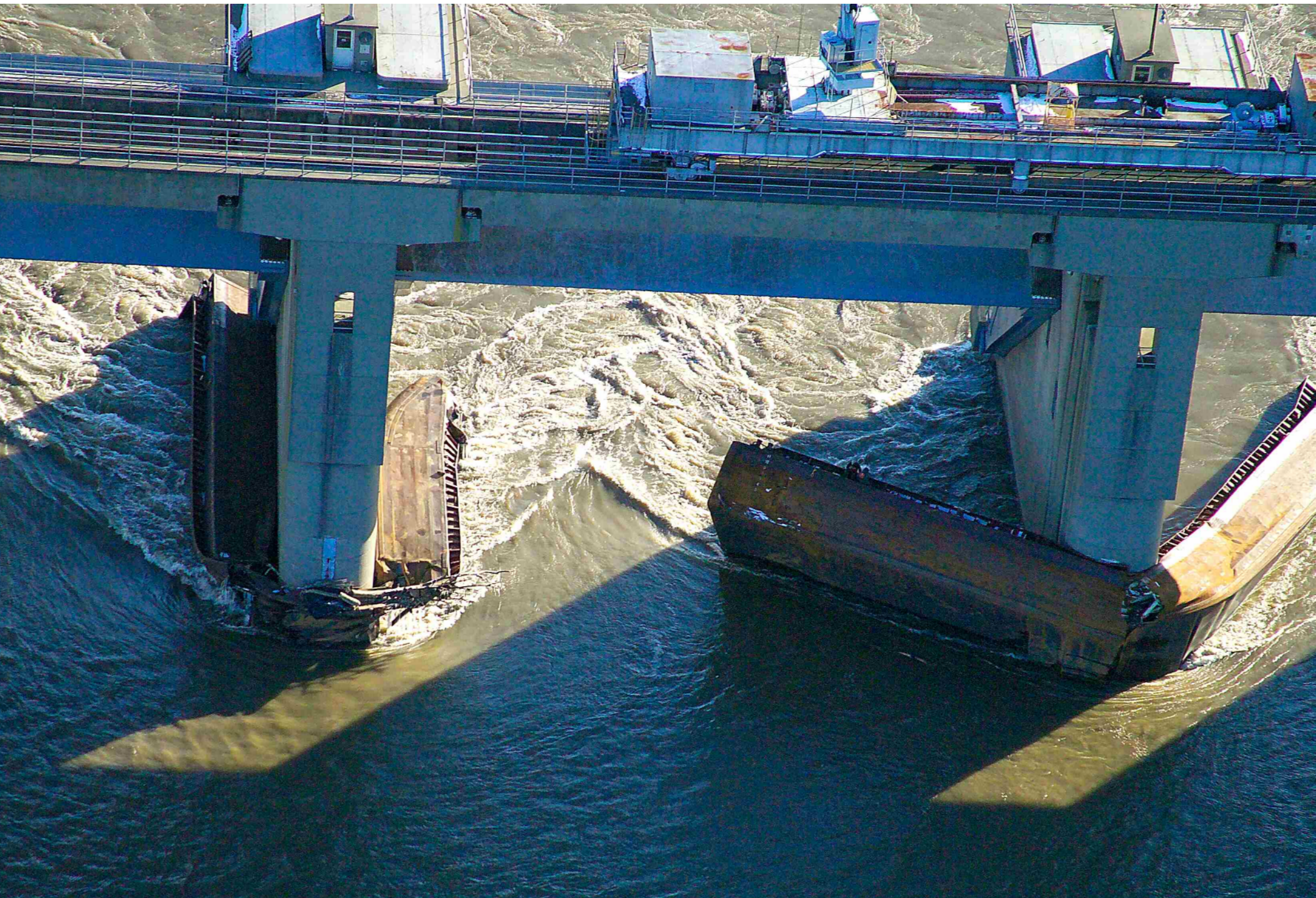
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## Belleville Locks & Dam

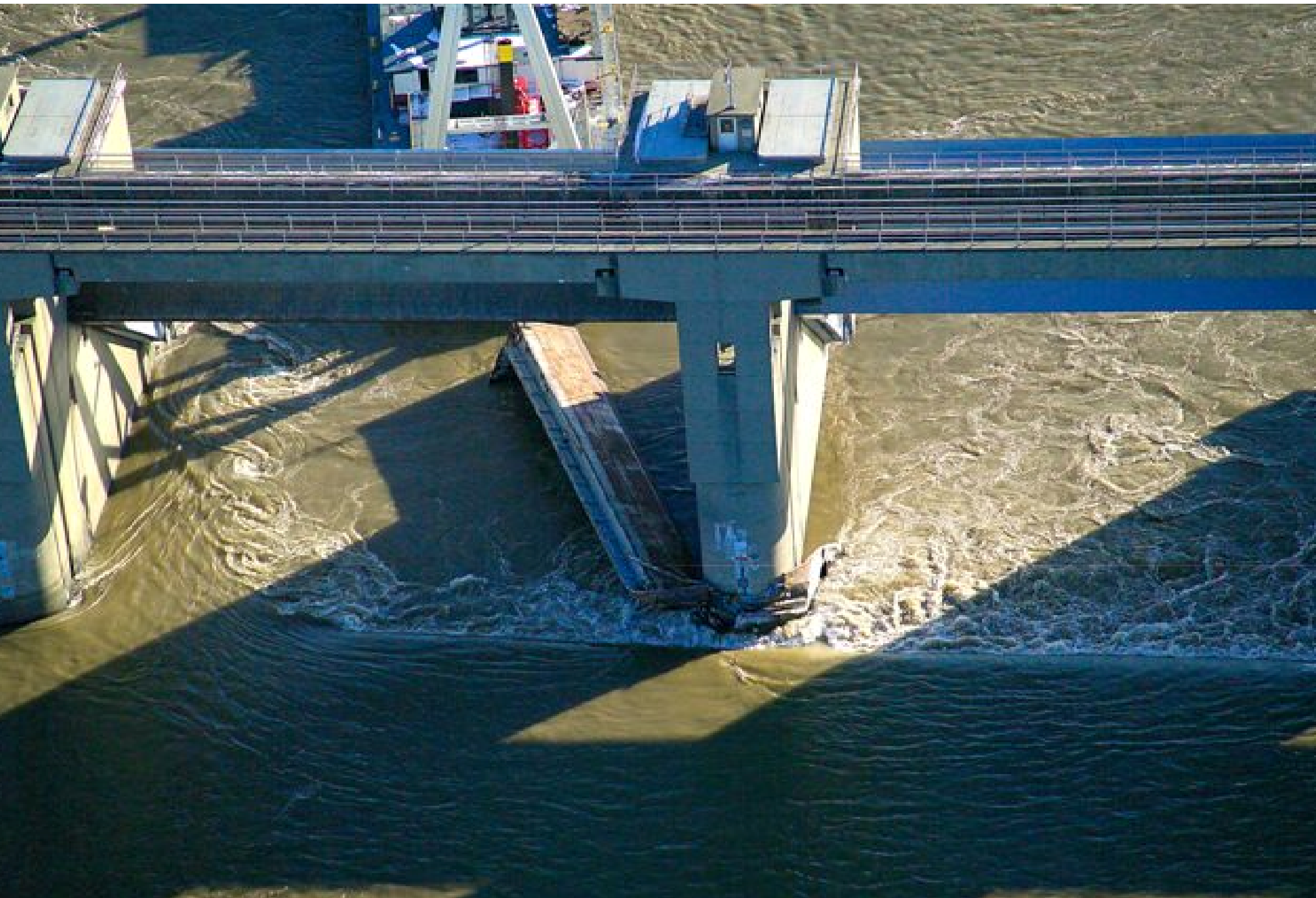
- **Tow Boat Operator responsible for hiring 2 salvagers to remove barges.**
- **Assembled Belleville Team, Included Industry, Coast Guard and the Corps.**















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# Belleville Locks & Dam

**Get salvage equipment onsite as quickly as possible before loss of pool prohibits transport.**





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# Salvager's Equipment

- ◆ **2 towboats 4176 kilowatt (5600 HP)**
- ◆ **454 metric ton (500 ton) A-frame crane**
- ◆ **Pulling barge**
- ◆ **Hydraulic shear**
- ◆ **Cutting beam**
- ◆ **Numerous other smaller cranes, A-frame cranes, and barges**



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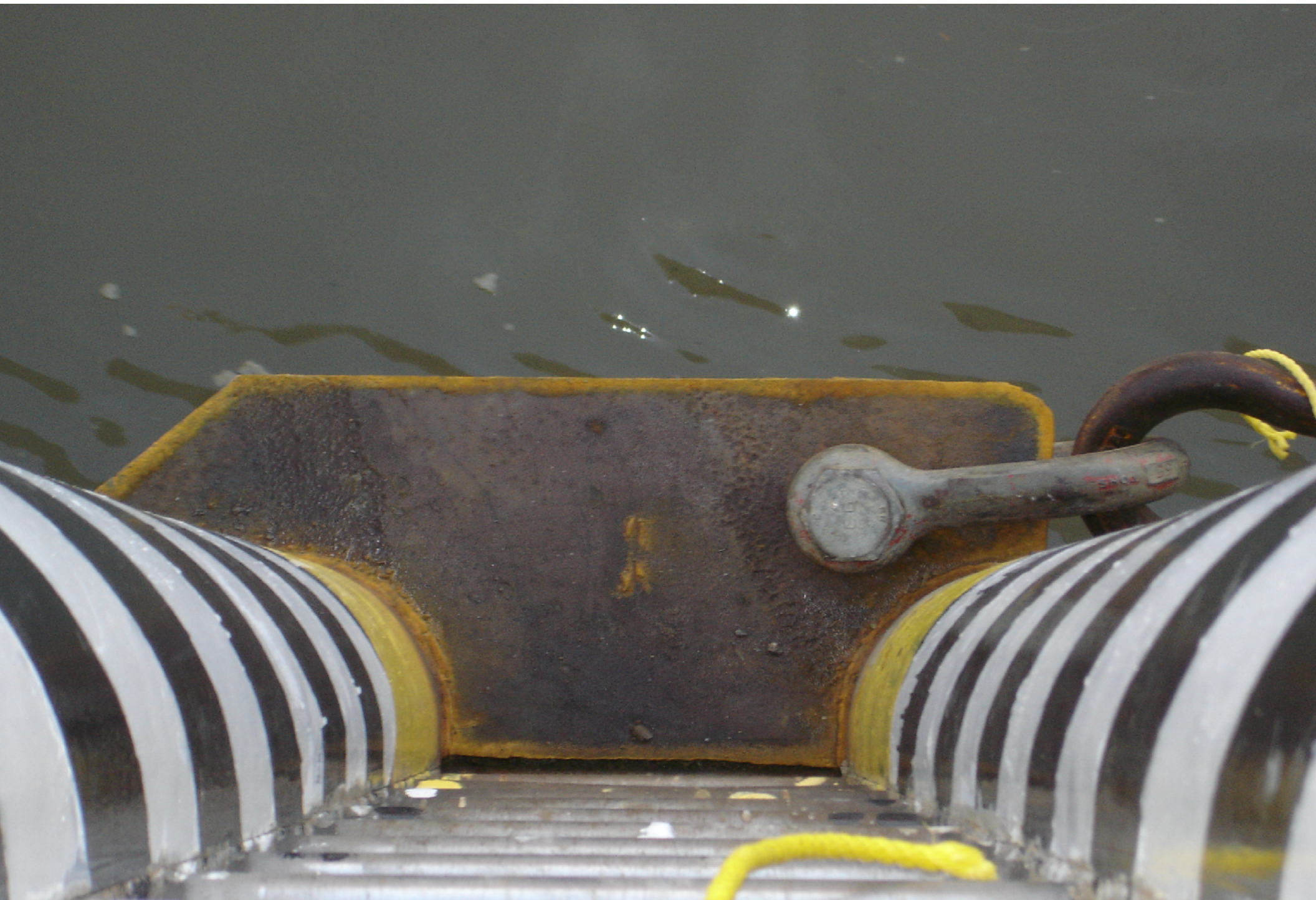
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# Various Concepts to Remove the Barges

- ◆ Pull Barges Upstream off the Dam
- ◆ Pull and Lift Barges Downstream
- ◆ Cutting Beam
- ◆ Hydraulic Shear
- ◆ Underwater Cutting by Divers
- ◆ Pull Downstream with Three Towboats
- ◆ Lift out with Bulkhead Crane



**Pull from Upstream  
Need to install pad-eye**





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# Salvage Equipment Upriver

River Salvage digging with a crane to anchor a barge with winches to lower down their excavator with a hydraulic shear

Okie Moore  
Equipment:  
Crane barge  
pulling barges  
M/V Capt. Val

M/V James  
Moorehead



**2 in (5cm) pulling cables being installed**







**Pull and lift barges from downstream**









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# Cutting Beam and Pile Driver





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- ◆ **Started to use cutting beam (Successfully used by the Louisville District) Ultimately not used, only had one barge that might be able to use, restriction that the beam could not extend beyond pier**



**Cutting torch is the salvagers most useful tool**



**Hydraulic shear**



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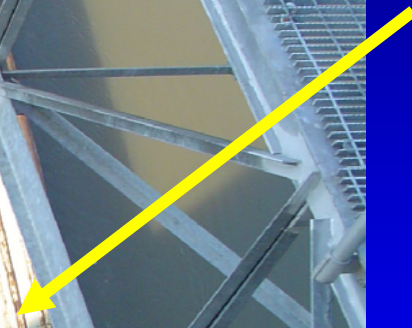
**PEN 207**



**Divers ladder  
and support lines**



**AEP 611**



**Divers  
cutting  
PEN 207**





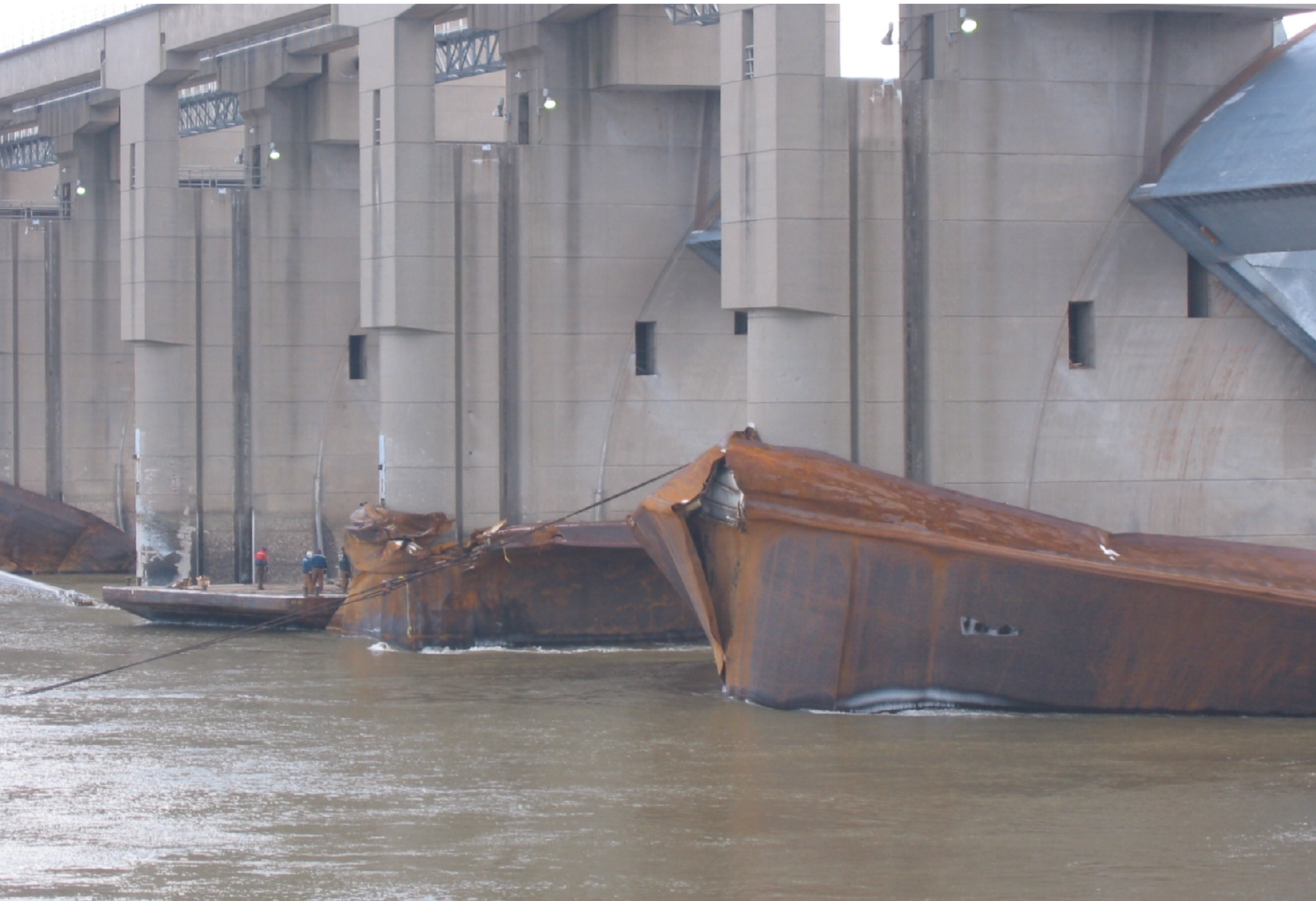
**After 17 days of trying, the first of 5 gates was cleared**

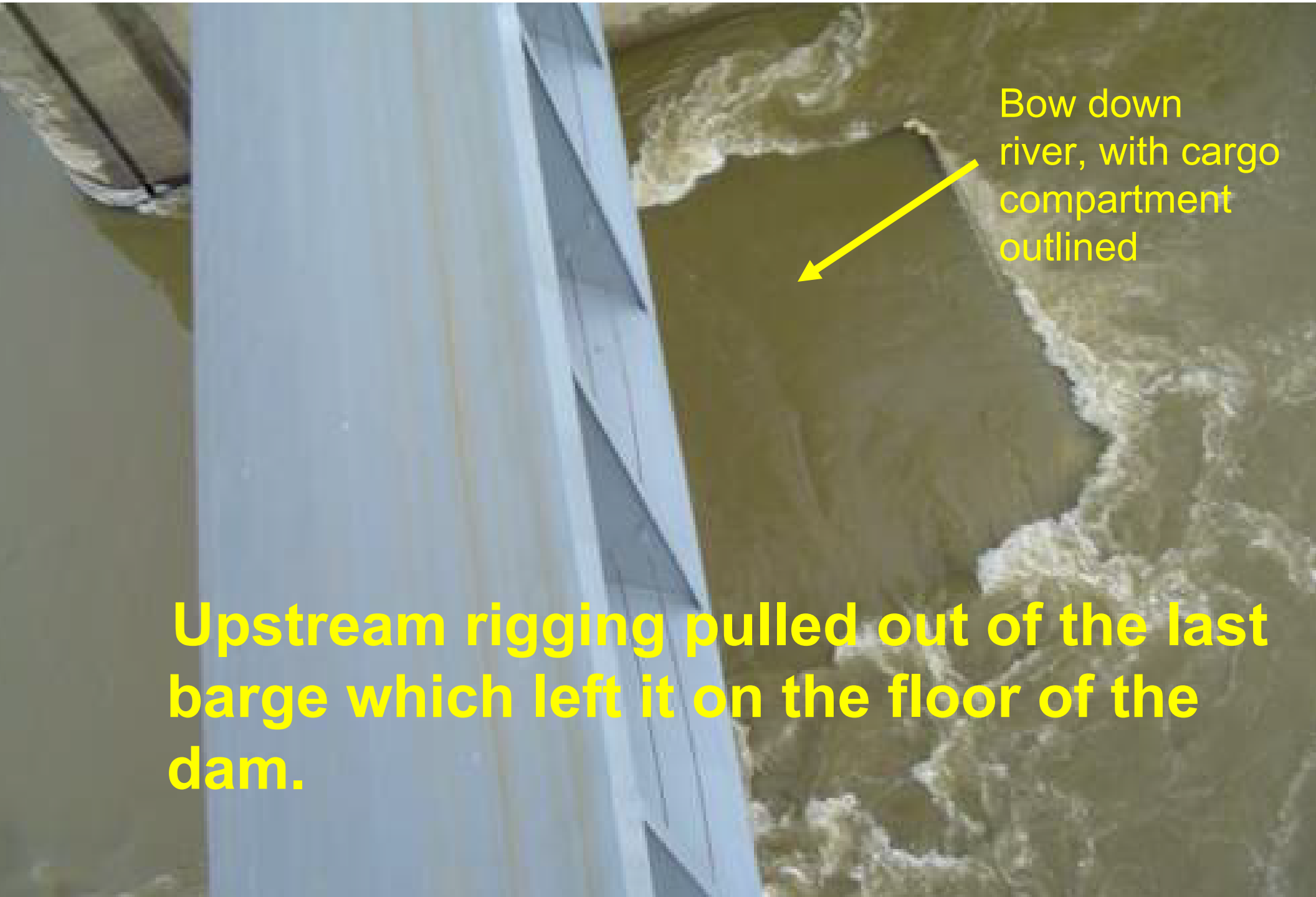




**Most of the wreckage came out by cutting in sections with a torch and pulling downstream**







Bow down  
river, with cargo  
compartment  
outlined

**Upstream rigging pulled out of the last  
barge which left it on the floor of the  
dam.**



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# Saturday, Jan 29th



**Worked a sling under the bow of AEP 8815.**



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# Last Barge

- ◆ Running out of options and tried pulling the downstream rigging with three towboats. While unsuccessful, there was some movement, the barge appeared to be hung up on a part of the dam sill.





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**Lifting out with Bulkhead Crane and the 454 metric ton (500 ton) A-frame to lift the barge. The salvager raised one end of the barge with the A-Frame crane and worked a sling under the mid-section to rig to the dam's bulkhead to lift the other end out of the water and then cut the barge into two pieces.**









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M/Vs Capt John Reynolds and James Garret coordinated the movement out of Gate 3 and down river.



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# Finally, after 26 days the locks reopened

**Queues at the  
lock increased  
to a total of  
fifty-three (53)  
towboats  
waiting**













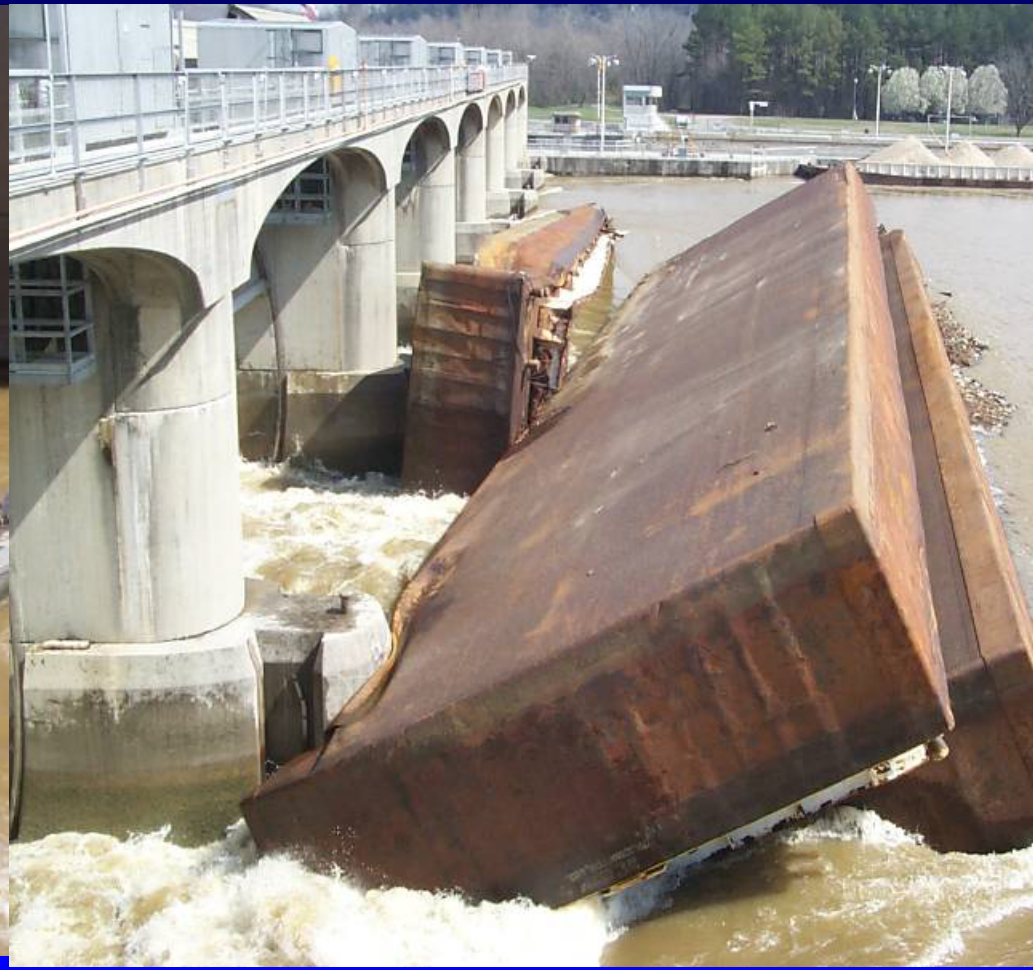
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# Past Accidents



**Smithland Locks and Dam**



**Cheatham Locks and Dam**



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# Past Accidents



**Columbia Lock and Dam**



**Pipe to Protect Diver from Current**





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# Maxwell Locks and Dam





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# Barge Accident Study

- ◆ **Studying modern era pool loss accidents to find commonalities.**
- ◆ **Preventive measures are being considered to lessen the chances of losing pool in the event of future barge accidents.**



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## **Barge Accident Study, cont.**

- ◆ **The preferred solution would be transported via roadway to quickly get onsite and be deployed with minimum if any floating plant (working barge). It would also be universal and could be used at many lock projects.**
- ◆ **Several options are being considered, including an integrated pile driver/cutting beam that can move across the gate bay.**



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# ***Belleville Barge Accident***

## **QUESTIONS**

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