

The background of the slide is a close-up, slightly blurred image of the American flag, showing the stars and stripes. In the lower right quadrant, there is a small, golden-colored figurine of a castle or fortress with multiple towers and battlements.

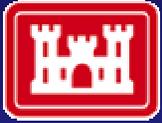
*Reconstruction of Deteriorated Concrete
Lock Walls After Blasting and Other
Demolition Removal Techniques*

by

STEPHEN G. O'CONNOR

CORPS OF ENGINEERS - St. Louis District

August 4, 2005



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LOCK and DAM 24

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GENERAL INFORMATION

- **LOCK and DAM 24**
 - approximately 40 miles north of St. Louis, MO.
- **CONTRACT WAS A BEST VALUE**
 - type of work
 - experience of contractor
- **CONTRACT RESTRICTIONS**
 - 3 lock closures: 1@ 60 days and 2 @ 90 days
 - river side of the intermediate wall
 - chamber side of the intermediate wall
 - chamber side of the land wall
- **PARTNERING CONFERENCE**

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CONCRETE REMOVAL



- *BLASTING*
- *MECHANICAL METHODS*
 - *GRINDERS*
 - *HYDRUALIC BREAKERS*
- *DIAMOND WIRE SAW*
- *CHEMICAL GROUTING*
- *HAND TOOLS*
 - *SAW*
 - *SMALL JACK HAMMERS*

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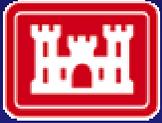
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BOOM!!!



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PRE-BLAST PREPARATION



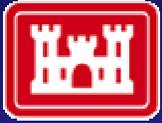
MONITORING EQUIPMENT



JOINT BOLTS READINGS
BEFORE and AFTER BLASTING



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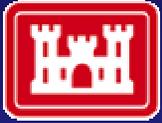
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PRE-BLAST DRILLING



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PLACEMENT OF EXPLOSIVES



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BLASTING

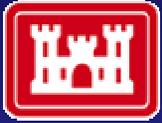


SAFETY

BLASTING MATS

CATCH BARGE

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BLASTING PATTERNS



LINE BREAKAGE

EMBEDDED ITEMS

SURFACE REMOVAL

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BLAST DAMAGE



LEDGE DAMAGE

CONTROL HOUSE

COMPLETED SURFACES

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MECHANICAL REMOVAL-GRINDER



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MECHANICAL REMOVAL-GRINDER



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DUST CONTROL



DUST CONTROL



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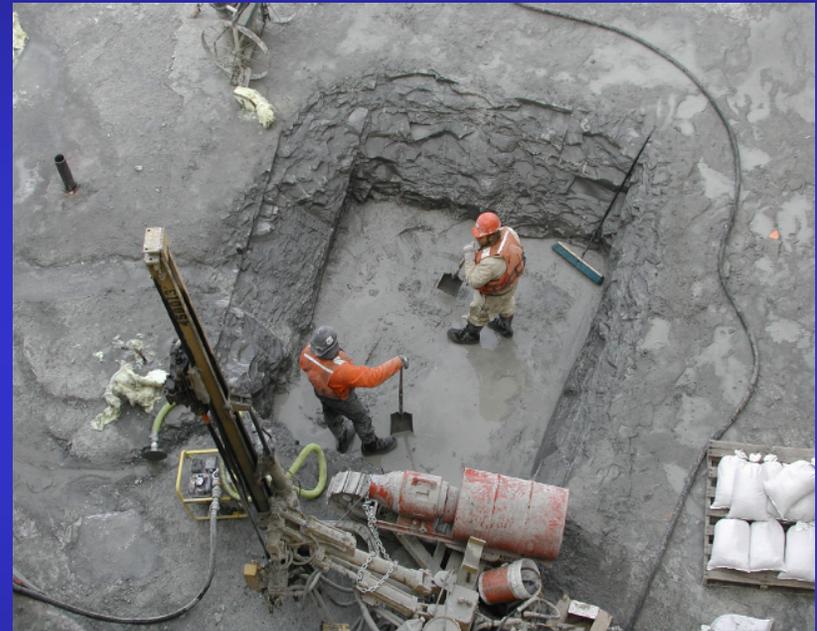


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MECHANICAL REMOVAL-GRINDER



***LOCK FLOOR-SHALE REMOVAL
NEW FLOOR-SUMP AREA***

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MECHANICAL REMOVAL-HYDRUALIC BREAKERS



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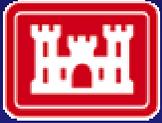
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DIAMOND WIRE SAW



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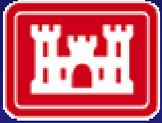
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DIAMOND WIRE SAW



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CHEMICAL GROUTING



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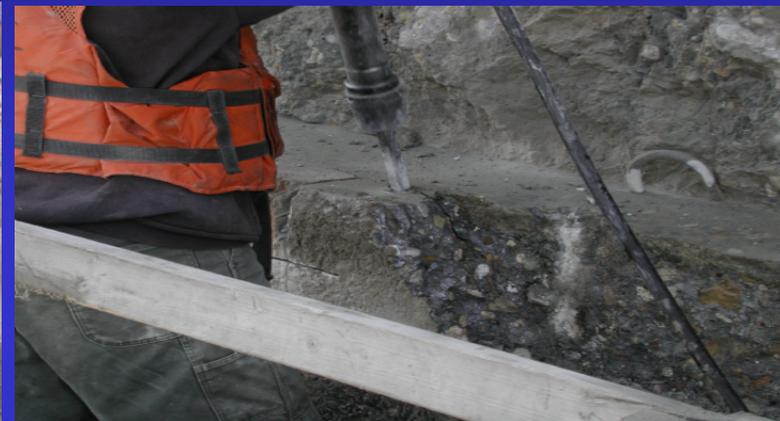


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HAND TOOLS—SMALL JACK HAMMERS



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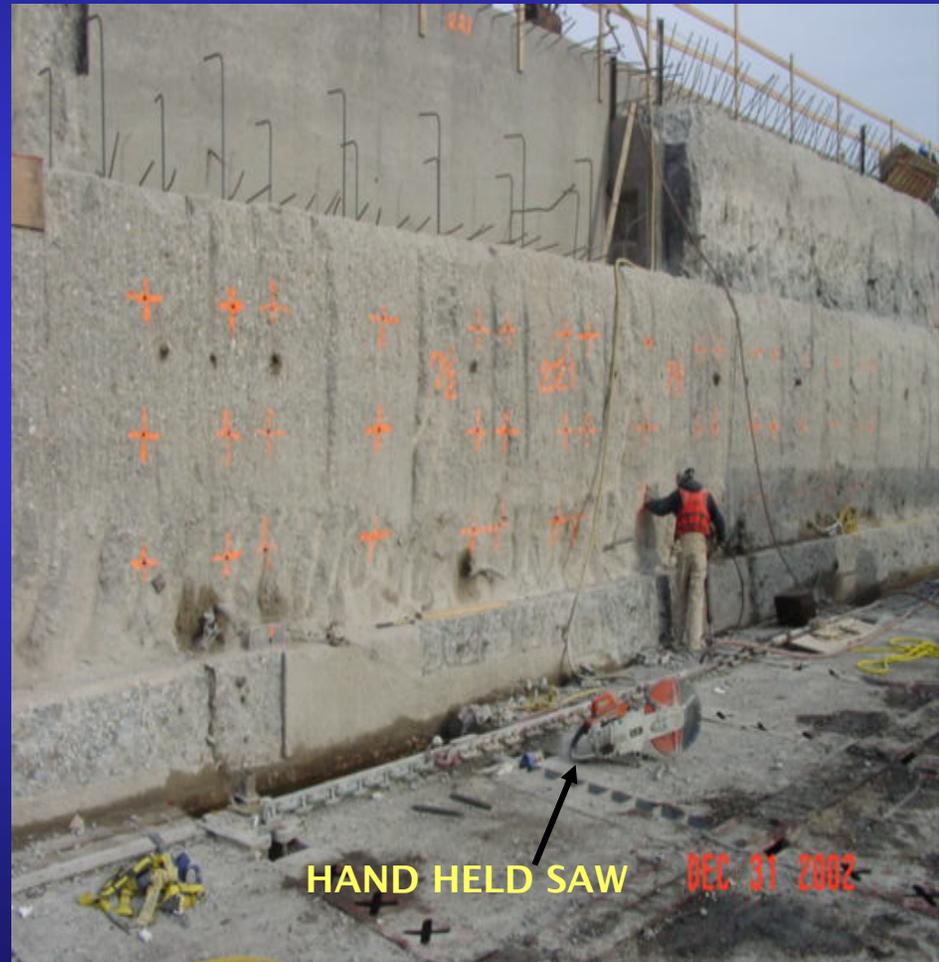


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HAND TOOLS—SAW



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OH NO!!!



GRINDER



BLAST DAMAGE



GRINDER



EXISTING CRACK—LOCK HOUSE
BASEMENT WALL (ADDITIONAL DAMAGE?)

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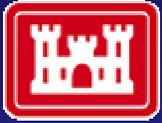
CLEAN UP



***LOCK FLOOR—EACH
CLOSURE PERIOD***

***RIVER SIDE—
INTERMEDIATE WALL***

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CLEAN UP



**MATERIAL HAULED OFF
SITE FOR DISPOSAL**



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QUANTITIES of CONCRETE REMOVAL

BLASTING: 2,900 CY

MECHANICAL: 2,600 CY

TOTAL: 5,500 CY

SAW CUTTING: 4,700 LF

DIAMOND WIRE SAWING: 3 LOCATIONS

CHEMICAL GROUTING: 3 LOCATIONS



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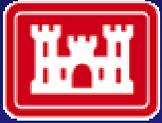
QUANTITIES of CONCRETE RECONSTRUCTION

CAST IN PLACE CONCRETE: 8,850 CY

INFILL CONCRETE (BEHIND PANELS): 270 CY

TOTAL CONCRETE: 9,120 CY

PRE CAST CONCRETE PANELS: 29,960 SF



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