Temporary Water Diversion for Inspections & Repair of Weirs & Spillway Dams

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Past Successes
SPILLWAY DAM

- Williams Dam, Indiana, Restoration
  - Engineering Inspection
  - Surface Repair
  - Resisted Overtopping
Challenges for Routine Dam Inspection and Maintenance

- Limited Access
- Narrow Surfaces
- Expediency
- Variable Flow Rates
- Proven Project Success
Footprint Width  
Equipment completed within a 3 ft width, or no need to consider for this spill-top installation

Retained Depth  
Standard 2 ft high unit is specified for retained depths up to 20 inches. Not only did Aqua Levee provide this, but also 8 inches overtopping (min 32 inches total)!

Water Ballast  
Does anyone see sand available in the photographs? How about water? What about disposal at time of wall removal? ‘Nuff Said

Nearly Zero Infiltration  
A picture is worth a thousand words, so look at surface behind wall

Simplicity  
No assembly of bolts, nuts, clips and other wall parts on top of a narrow spillway. Standard concrete anchors were installed using a simple spacing jig and standard concrete drilling practices.

Lightweight  
Hand carry until the time it is pumped full of water. Four to six units weighing 65 lbs were safely and easily shuttled from landing to spillway on the bow of a small boat (at least 25 ft of wall at a time)

Puncture Resistance  
90% of Aqua Levee water bladder is protected by integrated protective shell. To prevent any opportunity for puncture, seam covers are available
Clear Surface of Debris
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Spillway Installation Process

Place Concrete Anchors

High Water Expectations Only
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Spillway Installation Process

Place Unit
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Spillway Installation Process

Fill Unit
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Spillway Installation Process

Repeat
Limit Rise of Water in Upper Pond

- Minimize Length of Diversion Wall
- Consider Auxiliary Pumps at High Water

Seam & End Shields Available to Protect Remaining Exposed Water Bladders
Aqua Levee is the only product designed first to satisfy flood conditions

- Addresses Virginia Tech & US Corps of Engineers published criteria in 1997
- Provides Control through Flood Prevention, Protection & Intervention
- Envelopes performance attributes for Fluid Diversion & Retention

- Multi-use, reusable product can be shared for various conditions
- Conforms to Hard & Soft Surfaces
- Installation Unaffected by Inclement Weather

Which Came First - The Flood or Need to Divert Water?
Required Footprint (Width)
Cost
Max Retained Water Levels
Durability
Aesthetics
Ease of Construction

Time Required to Install
Simplicity of Design
Required Manpower to Install
Terrain Adaptability
Required Storage Space
- Seepage Through Section Joints
- Soil Fill Requirements
- FOS Against Sliding
- Induced Hydraulic Gradient under Structure
- Induced Bearing Pressure
- Location of Resultant on Base of Structure
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Other Features & Attributes

- Stable
- Installation in Flowing Water
- Unaffected by Weather Conditions
- Non-Sand Based
- Ability to Increase Height of Wall
- Capable of Overtopping
Past Successes
RIVER DIVERSION

- Shoreline Restoration
- Temporary Retention or Diversion
In Summary,

- Simple, Reusable w/o Need for Heavy Equipment
- Proven in Floods and River Diversion Projects
- Meets Stringent Flood Control Requirements
- Performance Envelopes other Water Control Applications
- Opportunities to Improve Project Success