

# Intrusion-Prepakt has a solution for taming turbulent undertow –

## *it's in the bag!*



Prepakt work barges positioned for the underwater placement of Fabricast® Blocks along the downstream face of Little Falls Dam. The 140-ft.-long water diversion frame on the front of each barge shields divers from overflow turbulence.

Cross section of Little Falls Dam. Overflow turbulence pattern is altered by stepped layers of 6-ft.-wide by 2-ft.-thick bags of various lengths.

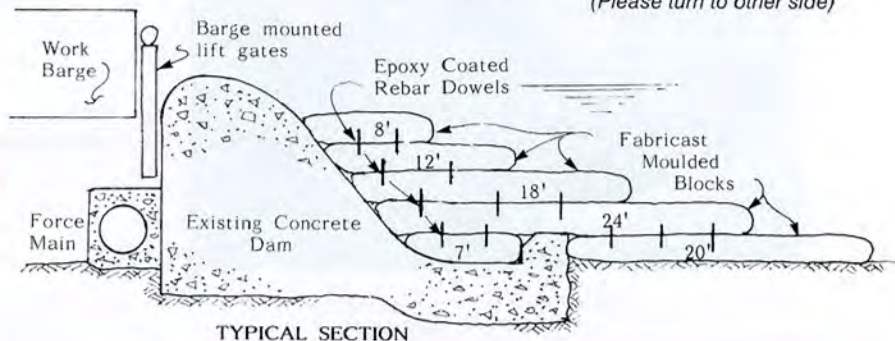
■ On the 1500-ft.-wide Potomac River near Washington, D.C., Little Falls Dam was built in 1959 to impound water for distribution in the metropolitan area. The low, overflow structure appears harmless with its modest 3 to 4-foot difference in water level between upper and lower pools but, in fact, the contour of the dam's downstream face and apron created a vicious undertow responsible for numerous boating accidents and many drownings. So many fatalities occurred at Little Falls that it became known as the "drowning machine."

To neutralize the undertow, the U.S. Army Corps of Engineers designed a unique solution that model tests showed would correct the problem. The design utilized Intrusion-Prepakt Fabricast® Gravity Blocks.

The project, as awarded to Intrusion-Prepakt, called for installing 5 layers of concrete-filled polyester bags in a precise, stepped pattern along the entire length of the downstream face of the dam – some 1,600 bags containing about 8,800 cu. yds. of concrete and positioned as per typical section below.

Installation was made from two large, specially-constructed barges variously positioned on the upstream side of the dam. Bags measured 6-ft.-wide by 2-ft.-thick by as much as 24 ft. in length, all under water when placed. Transit mix trucks delivered concrete to a battery of pumps on the Maryland shore from which the concrete was pumped as far as 1500 ft. to work barges. Two relay pump stations were installed on small barges in midstream. A fleet of small boats and tugs ferried supplies and personnel to various work areas besides helping keep channels free of ice and assisting the relocation of the big work barges as necessary. Radio communication connected supervision at all work stations with project managers. Despite winter ice and some flooding, the Little Falls project was completed in about 11 weeks of actual construction time.

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A "T"-shaped Prepakt work barge positioned against the upstream side of the dam employs a movable frame to divert overflow from the location where divers are working. These barge-mounted, stop-log frames are thought to be a "first" in the construction industry. Spuds hold the barge in place. Each barge has a heavy-duty crane aboard.

Aboard a work barge, a crane lowers a bag-positioning frame (upper part of photo) into the water below the dam. The vertical "H" beams are part of the water diversion frame. Stop logs nested between flanges are lowered to press against the dam's upstream face.



Closeup of a 6-ft.-wide by 8-ft.-long Fabricast® top-row bag positioned for filling. The grout hose in the foreground is bringing concrete from the distant Maryland shore. The frame has openings for 3 bags spaced 6 ft. between bags. When all three are positioned and filled, the frame is lifted and additional bags fit precisely into the 6-ft.-wide open slots.



A top row of concrete-filled Fabricast® bags in place below the dam.



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