

DEFENCELL BARRIERS FOR FLOOD CONTROL



ERDC TESTING

DEFENCELL barriers underwent successful testing by the US Army Corps of Engineers at their Engineer Research and Development Centre in Vicksburg MS in November 2010 and passed all aspects of the testing procedure including static testing, wave action and impact tests. DEFENCELL was shown to be an effective, easy to install/remove, resilient and cost effective solution to flood protection. Further details are shown in the table overleaf.



APRIL 2011 – SMITHLAND, KY

At the confluence of the Ohio and Cumberland rivers, Smithland had to prepare for a record surge in river levels. The Louisville office of the U.S. Army Corp of Engineers (USACE) requested the emergency installation of a Defencell® Flood Wall system. The DEFENCELL Flood Wall is a geotextile-based system, originally developed for ballistic defenses in military operations, and can be quickly constructed utilizing local fill, sand, or other common aggregates.

Within 24 hours of receiving a call from the USACE, DEFENCELL delivered three miles Flood Wall units that, once installed, would provide almost four feet of additional flood protection height to a key stretch of the levee in Smithland. As a testament to DEFENCELL's ease of use, within an hour of delivery to Smithland small teams were able to start placing, connecting and filling, the DEFENCELL Flood Wall systems, and within the first three hours, they achieved an installation rate of 20+ units per hour (equal to over 22,000 sandbags).

Over the next 34 workable hours over a mile of DEFENCELL Flood Walls were installed, 700+ units were filled, stacked two units high to help raise the town levee by one metre to meet the pending flood.



During the next ten days the river rose to the top of the wall and continued to threaten the town. The DefenCell barriers remained solid and additional barriers were installed to protect 'boils' and leaks from weak areas of the levees.



Specifications

BUILDING MAN HOURS			
Structure	Constructions	Repairs	Removal
DEFENCELL	29.6	0.0	2.9
Sandbags	205.1	6.0	9.0
Hesco Bastion	20.8	1.8	13.4
Hesco Bastion Retest**	23.2	0.0	4.72
RDFW	32.8	4.6	42.00
Portadam	24.4	2.0	4.4
Floodwall	6.0	0.0	0.0
Metalith H2O	23.18	1.52	5.7

SEEPAGE RATE DURING STATIC HEAD TEST (GPM/FT²)				
Structure	1-ft Head	2-ft Head	95% Head	Average
DEFENCELL	0.025	0.08	0.25	0.12
Sandbags	0.05	0.23	0.54	0.27
Hesco Bastion	0.39	0.94	1.81	1.05
Hesco Bastion Retest**	0.04	0.09	0.14	0.09
RDFW	0.02	0.08	0.10	0.07
Portadam	0.10	0.14	0.14	0.13
Floodwall	0.04	0.09	0.18	0.10
Metalith H2O	0.02	0.04	0.06	0.04

LOG IMPACT DAMAGE		
Structure	12" Log	16" Log
DEFENCELL	No Damage	No Damage
Sandbags	Unable to test	
Hesco Bastion	No Damage	No Damage
Hesco Bastion Retest**	Did not test	
RDFW	No Damage	No Damage
Portadam	1/8" hole	1/8" hole
Floodwall	No Damage	No Damage
Metalith H2O	Dented	Dented



Actual data as reported from ERDC.