

# Barrels are not effective measures to address piping

N°

2019-02



Describe the challenge, the situation and the context:  
(Where, Who, What, Why, How, When)

Extreme rainfall in combination with the second highest ever recorded discharge of the Mississippi River. Such a high river discharge last occurred in 1927.  
  
At various locations wells occurred as a result of piping. The USACE used barrels in an attempt to halt the piping process. However, the measure was not effective as there was substantial transport of sand along the barrel (leakage) and as it was difficult to build up enough pressure to halt the process.

What did you learn and why is it important:

The use of barrels as an emergency measure to address piping is not (very) effective. Barrels in some cases drifted away, in other cases it was difficult to even place them. An embankment or the use of sandbags (possibly also with a geotextile) is more effective and reliable.

Cold phase: Not applicable.  
Warm phase: Levee Patroller. Our current practice in The Netherlands using sand bags or embankments to help halt piping processes is and remains the preferred way forward.  
Recovery phase: Not applicable.

Cold phase: [Blue box]  
Warm phase: [Orange box]  
Recovery phase: [Yellow box]

Event characteristics  
Subject of lesson learned: Piping, Wells, emergency measures  
Contact person: Wijnand Evers  
Mission or exercise name: Flood event Mississippi, Q1 2019; Louisiana, USA  
Relevant publication with hyperlink: 1 [www.Wiki-Noodmaatregelen.nl](http://www.Wiki-Noodmaatregelen.nl)

Cold phase [Blue box]  
Warm phase [Orange box]  
Recovery phase [Yellow box]



Figure 1: use of barrels to contain the wells

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Figure 2: the flags mark the locations of the wells



Figure 3: a cut to help manage pressure



Figure 4: bags to ballast the barrels are not effective to achieve sealing and avoid leakage



Figure 5: the ultimately implemented embankment did halt the piping process