Basic Details

Publish Date

02 September 2025

Case ID#

3118

Title

Erosion during overflowing from water flowing over piles and onto embankment

Nation

England

Regulator Reference No.

308

Legal Status

Statutory

Reservoir Type

Non-impounding

Reservoir Capacity

10 - 24,999m3

Year of Construction

1970 - 1989

Main Construction Type

Earth fill embankment

Dam Height

2 - 4.99 metres

Dam Flood Category

B

Hazard Class

High-risk reservoir

Reservoir Use

- Other

Owner Type

Public body

Incident Details

Date & Time of Incident

25 June 2007 - 12:00

Date Incident Closed

Not provided

Observations that Caused the Incident to be Declared

- Dam or embankment overflowing or overtopping

Describe the Incident

In one case, a flood storage reservoir overflowed because its capacity was exceeded. In the other, a river overflowed the defences surrounding it and water flowed into the adjacent flood storage reservoir. In both cases, the embankments had been raised with steel sheet piles. When the water overflowed the sheet piles it dropped vertically onto the earth embankment below causing erosion.

Supporting Photos

No images provided.

Causes and Impacts

Natural Processes which Initiated or Contributed to the Incident

- Not provided

Main Contributing Factors to the Incident Occurring

Dam Factors

- None

External Factors

- None

Shortcomings

- Design shortcoming

Root Cause of the Incident

Impacts on the Reservoir

- External erosion

Supporting Photos

No images provided.

Supporting Contributions and Studies

Human Factors which Influenced the Incident

Instrumentation at the Reservoir

There is no instrumentation

Was Instrumentation Effective?

Not Applicable

Assistance by External Parties and Impacts on Downstream Population

None

Summary of Studies or Investigations Undertaken

The cause of the damage is known and no studies are necessary.

Supporting Photos

No images provided.

Lessons Learnt

Lesson 1

- Structural

The reservoir was not provided with a dedicated outflow spillway and, had it not been for the need to raise the embankment crest level with sheet piles due to mining subsidence, a well maintained grass embankment may have withstood the flows which have been discharged. The use of sheet piles to raise any embankment which may be subject to overtopping requires very careful detailing and should be avoided, if possible. The emergency reconstruction work involves removal of the sheet piles and raising/re-profiling of the embankment crest with clayey material to an improved profile (1 on 3 side slopes and a 3m wide crest. The crest, a busy public footpath, is to be protected with grasscrete and the grass on the downstream slope is to be strengthened with 'Enkamat' geotextile matting, thus forming a spillway which is designed to withstand any future overtopping events.

Closing Comments

Supporting Photos

No images provided.

Information provided has been sent from reservoir owners and engineers, and cleansed of personal information by the enforcement authority. We cannot guarantee the accuracy of the data, but if you find an error please contact the relevant enforcement authority.