Basic Details

Publish Date

02 September 2025

Case ID#

3116

Title

Seepage from voids in masonry and tree roots

Nation

England

Regulator Reference No.

305

Legal Status

Statutory

Reservoir Type

Impounding

Reservoir Capacity

25,000 - 99,999m3

Year of Construction

< 1800

Main Construction Type

Earth fill embankment

Dam Height

2 - 4.99 metres

Dam Flood Category

D

Hazard Class

High-risk reservoir

Reservoir Use

- Other

Owner Type

Private individual(s)

Incident Details

Date & Time of Incident

05 July 2006 - 12:00

Date Incident Closed

Not provided

Observations that Caused the Incident to be Declared

- Leakage or seepage from a new leakage point

Describe the Incident

The owner of the reservoir noticed leakage passing around the outlet structure at the toe of the embankment. The reservoir level was lowered by pumping water over the crest. Leakage through the masonry wall forming the upstream face of the dam and through the sides of the drop shaft on the line of the dam crest had been occurring for many years. Drilling was carried out vertically from the dam crest and from within the spillway drop shaft to fill voids and stem the leakage. The voids behind the drop shaft wall, possibly together with rotten tree roots within the embankment, probably contributed to the new seepage path developing between the drop shaft and the downstream toe.

Supporting Photos

No images provided.

Causes and Impacts

Natural Processes which Initiated or Contributed to the Incident

- None

Main Contributing Factors to the Incident Occurring

Dam Factors

- Other dam factors (describe below)

External Factors

- Damage by trees (tree fall, instability, etc.)
- Other external factors (describe below)

Shortcomings

- Maintenance shortcoming

Root Cause of the Incident

Impacts on the Reservoir

- Internal erosion (fill deterioration)

Supporting Photos

No images provided.

Supporting Contributions and Studies

Human Factors which Influenced the Incident

Daily surveillance and prompt reporting of this incident to the Supervising Engineer, together with a precautionary drawdown of the reservoir, prevented the incident from resulting in a dam break.

Instrumentation at the Reservoir

None present

Was Instrumentation Effective?

Not Applicable

Assistance by External Parties and Impacts on Downstream Population

None

Summary of Studies or Investigations Undertaken

Vertical drilling into the masonry wall and horizontal drilling into the embankment fill were undertaken to establish where water was flowing through the wall.

Supporting Photos

No images provided.

Lessons Learnt

Lesson 1

- Emergency response
- Operation and maintenance
- Surveillance and Monitoring

Daily surveillance and prompt reporting of this incident to the Supervising Engineer, together with a precautionary drawdown of the reservoir, prevented the incident from resulting in a dam break. Earlier grouting works around the drop shaft may have prevented the incident arising.

Lesson 2

- Emergency response

Pumps should have been used from the outset rather than siphons. This may have allowed earlier completion of the remedial works.

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.