Basic Details

Publish Date

10 September 2025

Case ID#

3333

Title

Near miss: unexpected site features led to poor construction practices and the weight limit of a service reservoir roof being exceeded

Nation

England

Regulator Reference No.

548

Legal Status

Statutory

Reservoir Type

Service

Reservoir Capacity

25,000 - 99,999m3

Year of Construction

1950 - 1969

Main Construction Type

Unknown

Dam Height

5 - 9.99 metres

Dam Flood Category

A

Hazard Class

High-risk reservoir

Reservoir Use

- Water supply

Owner Type

Limited company

Incident Details

Date & Time of Incident

12 March 2024 - 12:00

Date Incident Closed

12 June 2024

Observations that Caused the Incident to be Declared

- Other (including pollution and unplanned scour release)

Describe the Incident

The drawings provided to a contractor did not accurately reflect the position of the existing pipework within the reservoir. As a result, the team worked from assumptions, leading to the pre-laid pipework being installed too long. In responding, a lack of understanding of working near reservoir embankments led to the near miss. The Team Leader made several unsuccessful attempts to free the 3-ton excavator before deciding to use the 5-ton excavator.

Valves and test ends had already been bolted into position where the concrete ring was due to be installed. To avoid disruption, the team chose to pull the pipework back and cut it from the opposite end.

As daylight was fading, the Team Leader was concerned about leaving the excavator in position overnight. He decided to ensure all plant was returned to the compound for security.

The team was not aware of any restricted areas within the reservoir or that the reservoir roof had a weight limit.

Existing vehicle markings were visible on the verge leading onto the reservoir roof, which reinforced the team's assumption that this was a safe access route.

The team did not follow the Contractors SLAM procedure (Stop, Look, Assess, and Manage).

The incident was not reported internally by the team; it was identified by the reservoir undertaker's personnel.

The Contractor SHEQ Team was not informed until a week later.

Supporting Photos

Causes and Impacts

Natural Processes which Initiated or Contributed to the Incident

- None

Main Contributing Factors to the Incident Occurring

Dam Factors

External Factors

- Human error
- Other external factors (describe below)

Shortcomings

- Process or procedural shortcoming

Root Cause of the Incident

The drawings provided to the team did not accurately reflect the position of the existing pipework within the reservoir. As a result, the team worked from assumptions, leading to the pre-laid pipework being installed too long.

Valves and test ends had already been bolted into position where the concrete ring was due to be installed. To avoid disruption, the team chose to pull the pipework back and cut it from the opposite end.

This led to a change in works, and a 3T excavator was being used to remove the pipework, to cut it on site. The 3T excavator got stuck on the bank. The Team Leader made several unsuccessful attempts to free it before deciding to use the 5-ton excavator.

As daylight was fading, the Team Leader was concerned about leaving the excavator in position overnight. He decided to ensure all plant was returned to the compound for security. The team was not aware of any restricted areas within the reservoir or that the reservoir roof had a weight limit.

The team did not follow the Contractors SLAM procedure (Stop, Look, Asess, and Manage).

Impacts on the Reservoir

- None - near miss

Supporting Photos

Supporting Contributions and Studies

Human Factors which Influenced the Incident

The contractor team was not aware of any restricted areas within the reservoir or that the reservoir roof had a weight limit. Existing vehicle markings were visible on the verge leading onto the reservoir roof, which reinforced the team's assumption that this was a safe access route.

The team did not follow the Contractors SLAM procedure (Stop, Look, Assess, and Manage).

Instrumentation at the Reservoir

No instrumentation at site

Was Instrumentation Effective?

Not Applicable

Assistance by External Parties and Impacts on Downstream Population

None

Summary of Studies or Investigations Undertaken

A comprehensive review of the undertaker's project management process was conducted, with recommendations provided for improvements in areas such as early contractor engagement and the development of Pre-Construction Information (PCI). The Contractor made some recommendations to prevent reoccurence.

Discussion to be held with the team re-informing them of the Browne SLAM procedure, ensuring that the team are aware if something out of the description of the on-site RAMS or on-site issues are discovered, works are to stop and findings reported to their Supervisor.

Issuing of a safety briefing/toolbox talk highlighting the dos and don'ts of working within a reservoir environment.

ACTION PLAN

Issuing of a safety briefing/toolbox talk highlighting the dos and don'ts of working within a reservoir environment.

RAMS to be updated covering restrictions in place for access to roof of Reservoir.

Updated RAMS to be discussed with site team and briefing record issued and signed by all parties.

Safety Briefing to be created and issued across business highlighting the dangers of working within Reservoir environments.

Site team to be re-briefed on the importance of following Contractor SLAM procedures. Briefing record to be issued and signed by all parties.

Contractor Incident Reporting Procedure to be re-briefed to Site Supervisor ensuring that the procedure is followed for all incidents going forward.

The Undertaker conducted a Remotely Operated Vehicle (ROV) investigation to assess the impact of the incident on the structure. No structural defects were identified.

In summary, the Contractor concluded that the

"The team did not follow Contractors SLAM procedures. As soon as the 3T Excavator had become stuck the team should have stopped work, reported the issue to their Supervisor so that alternative methods could have been discussed, received confirmation of weight restrictions and agreement/approval sought for any attempt to access the roof of the reservoir".

Improvements identified by the Undertaker's project teams includes.

· Identify not just the works area, but also restricted areas within our RAMS

· Review of PCI

· Review of site authorisation and induction process

Lessons Learnt

Lesson 1

- General design and construction
- Records and studies

Ensure buried services and assets are accurately surveyed and drawings updated before excavation begins.

Verify the suitability and dimensions of prelaid materials in advance to avoid delays or unplanned modifications.

Lesson 2

- General design and construction
- If site conditions change or designs change, ensure that work is stopped, risks and site specific hazards are re-assessed and appropriately mitigated prior to re-starting work.
- Plan for sufficient workspace by considering nearby assets, access requirements, and boundary constraints during design and preparation.
- Factor in how additional structures such as shafts or slip trenches can further restrict working space and plan mitigations accordingly.
- Communicate any weight restrictions on critical infrastructure (e.g., reservoir roofs) clearly to all site teams.
- Review site history and visible ground evidence (such as vehicle tracks) to assess potential risks before commencing works.
- Install clear, visible signage to warn teams of fragile structures and enforce weight restrictions.
- Allow adequate daylight working hours and avoid pressuring teams to complete complex tasks under unsafe time constraints.

Lesson 3

- General design and construction

Ensure any contractors and their staff working on reservoir sites are aware of the specific risks and hazards, for example weight limits or plant restrictions on dam banks. Ensure contractors are aware of the requirement to report reservoir safety incidents, and that they do so to the undertaker promptly.

Lesson 4

Closing Comments

Supporting Photos

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.