

# Nashville Dam (Illinois) 'Failure' - July 2024

Heavy rainfall fell in Nashville creek catchment on 16<sup>th</sup> July 2024 resulting in a high peak, low volume flood. The fuse plug eroded, and the emergency spillway operated as designed protecting the primary embankments. Over floor and infrastructure flooding resulted downstream in Nashville. Antecedent conditions were wet with around 40mm (1.57 inches) on the 4<sup>th</sup>, 50mm (1.96 inches) on the 9<sup>th</sup> and 10mm (0.4 inches) on the 11<sup>th</sup>, some of the notable totals. Event totals were widely described as around 6 inches (152mm) of rain. Available data shows around 80% of this fell in 1.5 hours between 5:30 am and 7am on the 16<sup>th</sup>.

There was US national coverage of the 'dam failure' resulting from the use of the term secondary dam failure to refer to the fuse plug eroding. The event is useful for learnings regarding communication during natural hazard events as it repeated a similar event in July 2022.

The dam was built in 1931 across the Nashville Creek. It has a volume of 493ML, or 400 acre-feet. Catchment size is small at 4.1km<sup>2</sup> or 1007 acres but is classed as 'high hazard' by Illinois regulators. Maximum discharge is 260.8m<sup>3</sup>/s or 9710cfs.

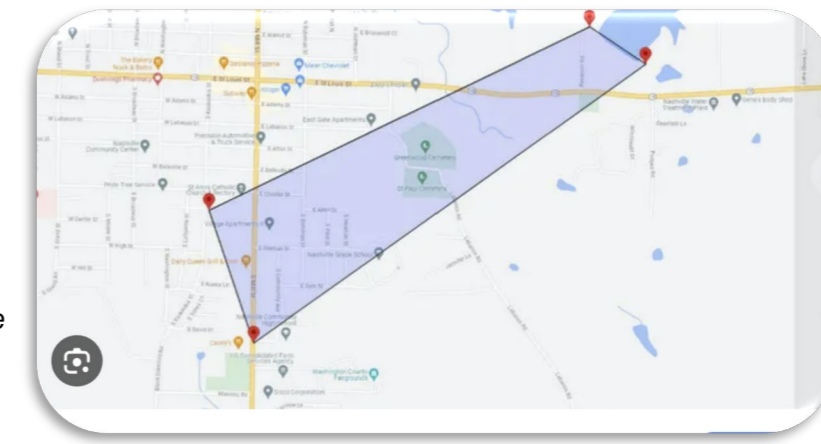
## Resources available

- Rainfall data – official
- Rainfall data – unofficial
- EMA information distributed
- Media coverage

## Useful to

- Regulators
- Dam owners
- Utilities
- Engineering
- Emergency managers
- Boards

Source: Right: USA Today coverage of warnings. Below: KSDK News, St Louis: Emergency spillway discharging (mid left)



## Event learning examples

### Governance Questions

Have operational event scenarios been used to assess asset performance and compare against risk appetite?

Do stakeholder emergency plans have communication team input to ensure clear language for stakeholders?

Do we have a culture of reviewing prior events and embedding lessons for continuous improvement?

Does incident planning consider a range of scenarios affecting the asset and region?

Category	Event	Learning/prevention activity
Sources for the event learnings have come from study of the 2022 and 2024 events along with media coverage and public information from Washington County (WC). Prevention activities are broader industry learnings inferred from the event.		
Stakeholder communications	There was a much more significant downstream emergency in 2024 than in 2022 which drove significantly more public and media interest in the flood event.	Coincident flood risk provides different context for information provided around dam outflows. Communities receive information through the lens of their lived experience, at that time. Communication plans should consider the context in which the dam safety event is occurring.
Stakeholder communications	Rapid rise in reservoir level, but reservoir behaved as designed during extensive concurrent downstream flooding.	Communicating that the dam is behaving as designed can be as important as advising there is an emergency. An educated media with clear, unambiguous statements when things are planned vs. unplanned can avoid confusion. Educating the community on language and a potential sequence of events is critical.
Stakeholder communications	2024 language advised "Secondary Dam Failure, dam has been overtopped with flood waters, please evacuate if you are in the below shaded area! Attention The Failure of the Nashville dam is imminent. Please evacuate your home at this time. If you are in the grey box, you need evacuate now!" This referred to the Fuse plug which is designed to fail and was not in reference to the main dam. This caused confusion for the community, and the media	Dam failure language should be reserved for such a scenario. Fuse plugs are complicated, and community education is needed. Is the communication understandable for the person in the street? Additional material can be prepared to explain technical information for dissemination during events.
Lessons learned	The issue was a repeat of a similar occurrence in 2022. 2022 EMA Facebook post corrected reporting that it was a dam failure. This occurred again in 2024 with a similar reference.	Identifying and embedding lessons from events for constant improvement is a key risk mitigation activity and is an aspect of demonstrating risk management to a standard of 'so far as reasonably practicable'.
Risk Management	Road closures due to flooding around the County. WC advised in a 16th July press release that assistance was unable to reach the area / would be delayed and was complicating the situation at the dam.	Impact of hazards on ability to manage the event, and access locations can be included in advance planning with constraints and mitigations identified.