Oroville Spillway Failures – February 2017

In February 2017, heavy rainfall in the Feather River basin led to outflows through Oroville Dam. Spillway slab failure occurred resulting in erosion and damage. Gated releases ceased for damage assessments and the lake level was allowed to rise over the emergency spillway crest, which in turn also experienced significant erosion.

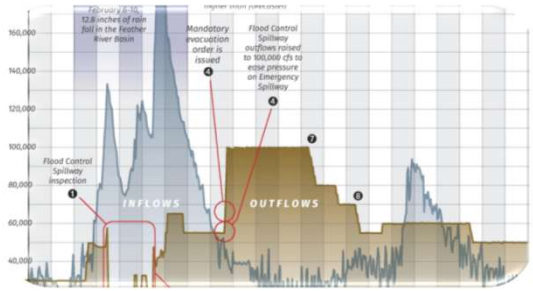
The scenario resulted in evacuation of large numbers downstream in preparation for a failure event. The learnings below are from the 2018 forensic investigation report with 33 key learnings available.

Resources available

- Independent investigation report
- Photographic evidence
- Media articles
- Dam owner checklist
- Timeline

Useful to

- Regulators
- Insurance
- Dam owners
- Utilities
- Engineering
- Disaster & emergency managers
- Boards



Review graphic and failed spillway (Source: Chico Enterprise-Record)

Governance Questions

Are processes in place to ensure each comprehensive inspection takes a fresh look at the dam?

Do processes allow significant areas of reports to be copied from year to year?

Do we have a culture of assuming the dam is safe because it's still there?

Is there technology that can mitigate OH&S risk or increase dam access?

Learnings Checklist

Category	Event	Learning/prevention activity	Question?
Risk governance	OH&S prioritised over dam safety. (5.1.2)	Lack of access to key locations for inspection – notably the spillway.	Can technology access areas where OH&S risk is costly/time consuming? Have we prioritised OH&S over community safety inadvertently?
Contract management / roles and responsibilities.	5 yearly regulatory inspections concentrated on what had changed in last 5 years, not overall risks. (5.1.2)	Failure modes were missed. Wording on scope for comprehensive inspection is a significant organisational risk.	What's the process for five yearly inspections? What is stipulated through scope and procurement?
System and process/culture	Reports relied on as a comprehensive review but cut and paste indicates sections were recycled from one to another. (6.4)	The technical review panel found that this didn't meet comprehensive review definition	Do inspection reports copy and paste material from one year to the next?
Record keeping	Fundamental geological misunderstanding during original design and construction. (5.1.2)	Engineers considered failure mode wouldn't be a problem if it did occur due to geology but was highly erodible	Does safety review start from scratch in information assessment? Are there gaps?
Culture	Opinions based on incorrect myths and assumptions handed through the organisation. (5.1.2)	Influence of opinions on quality of the dam	What is the chatter about dam safety? What does that suggest for culture?
Culture	Dam safety process applied but didn't achieve good outcomes with key information missed. (6.1)	Overconfidence in dam safety design and construction influenced by lack of major incidents	Are issues being identified? All good maybe a red flag?

Climate Resilience
connect@climres.com.au
Natural Hazard Governance and Advisory