

# Oroville Spillway Failures - 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, that then 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.



Source: Chico Enterprise-Record

Event	Impact	Learning areas
OH&S prioritised over dam safety. (5.1.2)	Lack of access to key locations for inspection – notably the spillway.	Engineering O&M risk SFARP and ALARP Dam safety frameworks Critical infrastructure risk
5 yearly regulatory inspections concentrated on what had changed in last 5 years, not overall risks. (5.1.2)	Failure modes were missed	Engineering Dam safety frameworks Critical infrastructure risk Governance
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	Culture and behavior Risk appetite Policy and planning Governance SFARP and ALARP
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	Risk appetite Engineering governance SFARP and ALARP Culture and behaviour
Opinions based on incorrect myths and assumptions handed through the organisation. (5.1.2)	Influence of opinions on quality of the dam	Culture and behavior Engineering Knowledge management
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	Culture and behavior Engineering SFARP and ALARP

Climate Resilience

Resources	Associated Services
<ul style="list-style-type: none"> <li>Independent investigation report</li> <li>Photographic evidence</li> <li>Media articles</li> <li>Dam owner checklist</li> <li>Timeline</li> </ul>	<ul style="list-style-type: none"> <li>Dam safety programs</li> <li>Emergency planning</li> <li>ALARP/SFARP advisory</li> <li>Culture and behavior risk</li> <li>Operation and maintenance risk</li> </ul>
Value to managing risk in...	Useful to
<ul style="list-style-type: none"> <li>Governance, risk, and compliance</li> <li>Climate disclosure</li> <li>Critical Infrastructure</li> <li>Culture and behaviour</li> <li>Systems and processes</li> <li>SFARP/ALARP</li> <li>Engineering</li> </ul>	<ul style="list-style-type: none"> <li>Regulators</li> <li>Insurance</li> <li>Dam owners</li> <li>Utilities</li> <li>Engineering</li> <li>Disaster &amp; emergency managers</li> <li>Boards</li> </ul>