

## WHAT IS DAM SAFETY AND FLOOD PROTECTION?

Under the Dam Safety Program, Reclamation identified the need for expedited action to reduce hydrologic (flood), static (seepage), and seismic (earthquake) risks at Folsom Dam and related impoundment structures.



**Test of overtopping flow leading to embankment erosion**

**HYDROLOGIC RISK & FLOOD PROTECTION**— Reclamation and the Corps will jointly construct a new spillway to prevent an uncontrolled breach of any of Folsom Dams earthen embankments (Dikes 1-8, Right & Left Wing Dams and Mormon Island Auxiliary Dam) caused by overtopping during the largest foreseeable flood events. Hydrologic risk refers to possible overtopping of the dams and dikes during an extreme storm event.

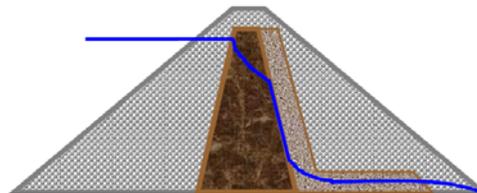
The spillway will also provide improved flood protection to the Lower American River watershed in conjunction with downstream levee improvements.

**STATIC RISK** – Reclamation will construct modifications to prevent a breach of any of Folsom Dam’s earthen embankments caused by water seepage through an embankment.



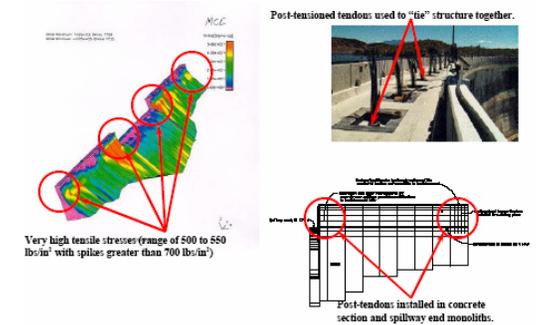
Figure 2. Sequence of internal erosion: a) initiation, b) 5 minutes, increase in flow and downstream opening (note: headcut development internally) c) 8 minutes, continued increase in flow and downstream opening, d) 13 minutes, continued increase and flow and downstream opening, e) 13 minutes, collapse of arch and initiation of breach widening, f) 60 minutes, continued widening

### Test of uncontrolled seepage



**Filter elements allow water to safely pass and prevents internal soil erosion**

**SEISMIC RISK** – Reclamation will construct modifications to prevent an uncontrolled breach caused by a large earthquake event. Modifications include installing anchors and bracing at the concrete dam and further stabilizing the foundation and construction of a berm at Mormon Island Auxiliary Dam.



### Stress analysis under earthquake loads indicate areas needing reinforcement

Liquefaction is a phenomenon in which the strength and stiffness of a soil is reduced by earthquake shaking or other rapid loading. Liquefaction and related phenomena can trigger landslides and cause the collapse of dams.

