

# California Department of Water Resources Division of Safety of Dams



Photo courtesy of California Department of Water Resources

**The California Department of Water Resources Division of Safety of Dams (DSOD) has jurisdiction for 1,246 dams in California. The California Water Code entrusts this authority to the Department of Water Resources, which delegates the program to the Division of Safety of Dams.**

DSOD inspects each dam on an annual basis to ensure the dam is safe, performing as intended, and is not developing problems. Roughly a third of these inspections include in-depth instrumentation reviews of the dam surveillance network data. DSOD periodically reviews dams and their major appurtenances as the state-of-the-art practices advance in dam safety with respect to analysis, tools, and design requirements, as well as new findings regarding earthquake hazards and hydrologic estimates in California.

## **DOWNSTREAM HAZARD CLASSIFICATION**

The downstream hazard is based solely on potential downstream impacts to life and property should the dam fail when operating with a full reservoir. This hazard is not related to the condition of the dam or its appurtenant structures.

- **LOW** - No probable loss of human life and low economic and environmental losses. Losses are expected to be principally limited to the owner's property.
- **SIGNIFICANT** - No probable loss of human life but can cause economic loss, environmental damage, impacts to critical facilities, or other significant impacts.
- **HIGH** - Expected to cause loss of at least one human life.
- **EXTREMELY HIGH** - Expected to cause considerable loss of human life or would result in an inundation area with a population of 1,000 or more.

## RESERVOIR RESTRICTIONS

DSOD may direct or order a dam owner to operate the dam's reservoir to a specified water surface elevation level that is lower than the maximum storage level. In addition, a dam owner may self-impose a restriction as a result of an owner-initiated study that identifies a dam safety issue. As a risk reduction measure, reservoir restrictions are typically imposed for deficiencies related to the dam, spillway, low-level outlet, or other appurtenances with respect to dam safety.

## CONDITION ASSESSMENT

California DSOD uses the US Army Corps of Engineers' National Inventory of Dams (NID) condition rating definitions, with additional criteria, as a guideline in assigning condition assessments.

The NID database condition assessment rating definitions, with DSOD's additional criteria, are as follows:

- **SATISFACTORY** – No existing or potential dam safety deficiencies are recognized. Acceptable performance is expected under all loading conditions (static, hydrologic, seismic) in accordance with the applicable regulatory criteria or tolerable risk guidelines
- **FAIR** – No existing dam safety deficiencies are recognized for normal loading conditions. Rare or extreme hydrologic and/or seismic events may result in a dam safety deficiency. Risk may be in the range to take further action. Additional DSOD criteria can include the following:
  - Dam has a long-standing deficiency that is not being addressed in a timely manner
  - Dam is not certified and its safety is under evaluation
  - Dam is restricted and operation of the reservoir at the lower level does not mitigate the deficiency
- **POOR** – A dam safety deficiency is recognized for loading conditions that may realistically occur. (Loading conditions refer to the stress to a dam from seismic activity or major storm events.) Remedial action is necessary. A poor rating may also be used when uncertainties exist as to critical analysis parameters that identify a potential dam safety deficiency. Further investigations and studies are necessary. The DSOD also requires that a dam with multiple deficiencies or a significant deficiency that needs extensive remedial work will be rated poor.
- **UNSATISFACTORY** – A dam safety deficiency is recognized that requires immediate or emergency remedial action for problem resolution.
- **NOT RATED** – The dam has not been inspected, is not under State jurisdiction, or has been inspected but has not been rated.

## FAQ

- Should the public be concerned if the dam in their community has an “Extremely High”, “High”, or “Significant” hazard potential rating?

**Answer:** No. The downstream hazard classification is based on the size of the reservoir and the number of people who live downstream of a dam, not the actual condition of the dam or its critical structures.

- Where can I find flood inundation maps related to dams?

**Answer:** The department will make available to the public approved inundation maps. Typically, local public agencies responsible for public safety, such as city or county office of emergency services, have flood inundation maps for the dam(s) for their communities.

- Who is responsible for maintenance and repair of dams?

**Answer:** The legal dam owner is responsible for operations, maintenance and repair of dam and its facilities, as well as for the cost. Dam owners include Federal, State and local public agencies, utilities, as well as private landowners, water and irrigation agencies.

## OUR MISSION

To protect people against loss of life and property from dam failure.

The California Water Code entrusts this regulatory power to the Department of Water Resources which delegates the program to the Division of Safety of Dams.