

Wildfire impacts on dams: What dam owners need to know

As a dam owner, you are responsible for the proper care and management of your dam. With wildfires in Washington state on the rise, it is important to understand the potential impacts of wildfires on your dam, especially if heavy rains follow.

Impacts of wildfires and heavy rains

Although only owners of dams classified as significant hazard and high hazard are *legally* required to have Emergency Action Plans (EAPs) in place, all dam owners should have plans for emergency situations. Being aware of the potential impacts of wildfires is an important part of that planning. Here are some basics.

Wildfires can damage:

- The surface of dam or spillway, especially grass cover on embankment slopes or grass lining in spillway channel.
 - Ground surface will be more vulnerable to erosion.
- Associated facilities, especially wood structures or plastic pipes.

Wildfires change the water conditions of a watershed, such as how fast water can move, and how vulnerable the land surface is to erosion.

Heavy rains in a burned area can create:

- More and faster runoff from rainfall events, especially high-intensity storms.
- Large amounts of sediment, which may reduce storage capacity in reservoir.
- Debris flows (mudslides) or downed timber, which may obstruct access to the dam.
- Debris flows from hill slopes near spillways, which may obstruct spillways.
- More floating debris (dead trees, branches, sticks) in reservoir, which may obstruct spillways.

WHY IT MATTERS

In 2014, wildfires burned six times as many acres as usual: 363,000 acres.

For comparison, the average amount of acres burned in each of the past five years was about **61,000**.

Rising temperatures, more and longer lasting heat waves, and drier summers are expected to contribute to larger, more severe and more frequent wildfires in the future.

For the safety of your dam – and the lives and property around it -- it is important that you understand the potential impacts of wildfires, especially if heavy rains follow.

For more information

Water Resources Program:
360-407-6872

Dam Safety Office contact list:
<http://www.ecy.wa.gov/programs/wr/dams/Contacts.html>

Dam Safety Office web pages:
<http://www.ecy.wa.gov/programs/wr/dams/dss.html>

Special accommodations

If you need this document in a format for the visually impaired, call the Water Resources Program at 360-407-6872.

Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.

In the event of wildfire and rain

The Dam Safety Office uses three levels to describe emergency situations. Level 1 incidents are characterized as non-emergency, unusual events, which need a response to reduce the risk or likelihood of a more serious problem (Level 2 or 3 incident).

Wildfire at or near your dam or within the watershed where your dam is located is a Level 1 incident. Remember that water moves differently through a burned watershed than it does through an undamaged one. This is true even for rainfall events that previously would have been considered rather minor.

Pay careful attention to rain predictions and events

If rain is forecast, especially heavy rain or flash flooding, you must closely monitor actual rainfall near your dam or in your watershed.

If rain actually occurs, especially heavy rain or thunderstorms, you must closely monitor actual runoff and spillway performance. Be prepared to implement your Emergency Action Plan in case spillway capacity is exceeded.

Your watershed will need assessment by a qualified engineer or engineering hydrologist to assess the increased hydrologic risk. This is especially important when a dam is classified as “high hazard” or “significant hazard.” We have prepared Burned Watershed guidance as a starting point for hired consultants to assess dam safety in the event a forest fire occurs at or near the site of a specific dam: <http://www.ecy.wa.gov/programs/wr/dams/GuidanceDocs.html>