

## POTENTIAL FLOOD CRISIS FOR SEATTLE'S GREEN RIVER VALLEY

By Joe Stavish

Residents and businesses in the Green River basin area of Seattle potentially face a serious flood risk as a result of structural problems with the Howard A. Hanson Dam and the subsequent controlled releases of water that may be required to avoid catastrophic failure after heavy winter rains. This is a U.S. Army Corps of Engineers' flood control dam near the headwaters of the Green River in King County, WA. Its primary purpose is flood control in the winter and fish population enhancement in the summer.

Following a record high level of water behind Howard Hanson Dam in January 2009, the Corps became concerned after discovering two depressions on the right abutment, increased water levels in groundwater monitoring wells and the appearance of silty water entering the abutment drainage tunnel. While the dam itself is not in immediate danger of failing, there is increased risk to downstream communities until seepage issues with the right abutment have been addressed.

Preparations for the upcoming flood season include constructing an interim seepage barrier wall and improving the drainage of the right abutment. Work is scheduled to conclude prior to November 1. The Corps has installed additional monitoring equipment and continues testing to determine with more certainty to what elevation the reservoir pool can be raised without significant adverse

impacts to the abutment. Restricting the water allowed to collect behind the dam could have consequences for the Green River Valley below; keeping the water level low could mean controlled releases of 12,000 to 25,000 cubic feet of water per minute to alleviate hydraulic pressure on the dam.

Such controlled releases of water could cause flooding that could in turn overtop or breach levees in the lower valley. The Corps will continuously reassess the reservoir pool restriction as conditions change, and may change the restriction on pool elevation as the situation warrants.

The potential for flooding is not from a sudden dam failure or collapse, but from a combination of the dam releasing more water than it was designed to do, coupled with a downstream levee that may have not received sufficient maintenance over the years. A powerpoint pictorial presentation synopsis of the issue as presented by King County Emergency Management officials is available [online](#).

## FREQUENTLY ASKED QUESTIONS

**Q:** Will the Howard A. Hanson Dam collapse?

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**A:** Extremely unlikely – following record water levels in January 2009, sinkholes were discovered in the abutment adjacent to the dam. Although work is under way to stabilize and correct the issues with the abutment, in the interim water levels will not be allowed to reach the level of the sinkholes.

**Q:** Is flooding more likely now?

**A:** Since the dam cannot hold back as much water as in the past, water from storms will be passed through the dam instead of being held and released over longer periods, increasing the likelihood of downstream flooding from these storms.

**Q:** Am I in the flood zone?

**A:** The Federal Emergency Management Administration publishes flood maps referred to as Flood Insurance Rate Maps (FIRM). Maps can be viewed on-line and printed from their [website](#). These maps reflect *existing flood plains* and not the newly projected flood plains. FEMA is reportedly planning to issue new maps of the affected areas.

**Q:** How do I prepare my business for a flood?

**A:** The only way to handle any event is with pre-incident planning. The goal is to develop policies and procedures that will enable you to quickly respond to an event, recover your operations and identify the internal and external resources needed to manage the crisis.

When developing your plans, pay particular attention to ingress and egress issues. For example, what procedures do you have in place (or need to develop) for personnel to work from home or other remote sites? Suppliers and outgoing product delivery may be affected. Other hazards may also present themselves, such as power interruption, increased probability of fire, flammable liquid tanks, propane tanks and lightweight structures being lifted off their foundations and literally floated away. Remember, in any catastrophic event, fire department

communications and access can be reduced or non-existent. To assist you with a flood emergency plan, see our *Technical Advisory Bulletin* available on [www.willis.com](http://www.willis.com).

Attached are useful website links for additional valuable information.

<http://www.kingcounty.gov/safety/FloodPlan/GreenRiverValley.aspx>

<http://www.kingcounty.gov/environment/waterandland/flooding/maps.aspx>

<http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=hhd&pagename=mainpage>

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