

Winter 2009 –2010

Department of Ecology's Preparation and Response Plan for Green River Flooding



WA Department of Ecology

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Department of Ecology

Preparation and Response Plan for Green River Flooding

Date of Plan: September 9, 2009

Date of First Revision: December 14, 2009

Background: The US Army Corps of Engineers (Corps) and the King County Flood Control District have warned residents, businesses and farms below the Howard Hanson Dam to prepare for a higher risk of flooding.

The higher risk is due to water seeping more rapidly through the earthen bank next to the dam after record high water last winter. The Corps took immediate steps to address the problem and installed a grout curtain in the leaking right abutment. The grout curtain has reduced the probability of flooding, but is not a permanent solution. Until the Corps can make permanent repairs, it will limit the amount of flood water it stores behind the dam. The restricted flood storage means a greater chance of flooding in the Green River valley if heavy and prolonged rain occurs, and homes, businesses and agricultural lands that don't typically flood could be flooded by several feet of water. The Green River could have flows greater than 12,000 cubic feet per second (cfs) for the first time since the dam and levees were built in the 1960s. The high flows could cause flooding in four ways, either singly or in combination: overtopping of the levees, weakening of the levees due to saturation and water level fluctuation, catastrophic levee breach or failure, and levee breach or overtopping due to debris damage. Areas that could be flooded include parts of Auburn, Kent, Renton, Tukwila and South Seattle.

Planning – Local:

The Corps has kept all of cities in the Green River valley and King County well informed about the situation at the dam. The local jurisdictions formed the Howard Hanson Dam Planning Group, which devised an Operation Action Plan (OAP) based on Incident Command System (ICS) organization.

Jurisdictions involved in local planning:

- King County: Lead in emergency management
- City of Tukwila
- City of Kent
- City of Auburn
- City of Renton
- US Army Corps of Engineers
- Public Health of Seattle & King County
- State of Washington Emergency Management
- State of Washington Department of Ecology

Planning – State:

On September 14, 2009, Governor Gregoire issued Directive 09-14, “Preparing for Potential Green River Flooding.” This Directive guides all state agencies to implement their assigned duties as specified in the Washington State Comprehensive Emergency Management Plan (CEMP), and to complete specific tasks. Ecology’s tasks are as follows:

1. Work with affected jurisdictions to prepare a hazardous material and waste management flood prevention plan.
2. Offer technical assistance to affected jurisdictions to help identify and protect critical wastewater treatment infrastructure.

Governor’s Directive to Ecology: Task #1:

Work with affected jurisdictions to prepare a hazardous material and waste management flood prevention plan.

Ecology’s Hazardous Material and Waste Management Plan and Actions Taken to Date:

1. Work with King County: Ecology has worked with King County to coordinate, share information, and assist the local hazardous waste management program. Ecology attends meetings of the Green River Valley Flooding HazMat Task Force, which is chaired by the County and attended by representatives from all the local jurisdictions (Kent, Auburn, Tukwila, Renton, Seattle, and Public Health).
2. Hazardous material data to King County and cities: Ecology provided data to the King County Local Hazardous Waste Management Program, Public Health-Seattle & King County and local jurisdictions’ emergency planning staff. The data is compiled from businesses that submit information on chemicals stored and released to Ecology representing the State Emergency Response Commission under the Emergency Planning & Community Right-to-Know Act (EPCRA). This information is useful for emergency preparedness and planning before an event and to enhance emergency response capabilities when a chemical incident occurs.
3. Development of information on flooding for business owners and residents: King County Industrial Waste and Ecology produced information sheets for both residents and business owners regarding appropriate actions to prepare for flooding, prevent and minimize the discharge of toxic materials, and tips on cleanup after a flood.
4. Education and Outreach and Site Visits: Disseminated the information and outreach materials developed by King County and Ecology. Ensured that all businesses that generate, use, store, or otherwise have on site any hazardous materials have been contacted regarding preventive measures they can take. Inspections or site visits have been conducted by Ecology, King County, or the local jurisdiction’s fire marshal. *See Figure 1.*

- All large quantity and medium quantity generators (approximately 120) located in the Green River valley have been inspected or visited by Ecology.
 - All high-risk small quantity generators (at least 600) have been inspected by King County, Ecology, or the local jurisdiction.
5. Maps of hazardous waste sites: Ecology produced a GIS map showing the locations of hazardous waste sites and underground storage tanks, and has provided a spreadsheet to King County with the type and quantity of waste generated. King County has incorporated the data into its base map and GIS, which are available to all local agencies.
 6. Auto Recyclers: Ecology and King County have met with the auto recyclers located in the Green River valley, and Ecology stormwater inspectors have conducted inspections at each facility. King County has taken the lead in devising a containment structure to minimize the movement of contaminated floodwater from the auto recycler properties near the Horseshoe Bend area to adjacent agricultural land. Ecology has earmarked \$60,000 in emergency funds to assist this effort.
 7. Worked with closed facilities unable to pay for proper management of hazardous waste: US Environmental Protection Agency (EPA) Region 10 CERCLA Emergency Response staff have agreed with Ecology's recommendation to direct public funds to remove more than 30,000 gallons of waste from a defunct metal plating operation located within 1000 feet of the Green River.
 8. Contaminated Sites Briefings: Ecology's Toxics Cleanup Program has identified 66 contaminated sites within the potential flood area of the Green River. Ecology sent letters to the site owners telling them how to get assistance in securing their sites against flooding impacts and reminding them of potential liability if contaminants were carried off-site. Twelve of the 66 sites are considered to have a higher potential to spread contamination in the event of flooding. For these 12 sites, Ecology prepared a briefing manual to assist first responders that includes maps, photos of the sites and chemicals of concern. King County has this manual and has placed it on its website for distribution to agency personnel.
 9. Underground Storage Tanks: Ecology staff from the Underground Storage Tank (UST) unit attend King County's Hazardous Materials Task Force meetings. Ecology has provided the task force both a list and a map of potential UST/LUST (Leaking Underground Storage Tank) sites that are within 250 feet of the 100-year floodplain. There are approximately 84 UST sites and 124 LUST sites.
Information for storage tank owners: Ecology developed and distributed information sheets on how to properly manage underground storage tanks before, during, and after a flood. The informational sheets are:
 - Focus on Flooding Prevention: Flood Prevention for Underground Storage Fuel Tanks in the Green River Valley

- Focus on Flooding: Evaluating Your Underground Storage Tank System Before Restart
- Focus on: Instructions for Service Providers: Underground Storage Tank System Restart After Flooding

Site visits: Ecology has visited UST facilities in the potential flood area – primarily gas stations and fleet fueling facilities – to deliver information and review the flood preparation and recovery procedures they will need to follow. Ecology will also inspect tank sites after flooding occurs.

10. Hazmat and Oil Response Plan for Green River Flooding: Staff from Ecology’s Spill Prevention, Preparedness and Response (SPPR) Program and the US Environmental Protection Agency, Region 10 Emergency Response Unit have produced a document “Hazmat and Oil Response Plan for Green River Flooding,” dated November 2, 2009. Ecology and EPA are visiting the local emergency management staff at each city to discuss the plan and answer any questions.
11. Helicopter reconnaissance: After a flood, Ecology’s SPPR Program can arrange for helicopter overflights to photograph the flooded area. This helps to locate and identify oil spills and sheens, above-ground tanks, and other areas that may need cleanup assistance to protect from hazardous materials.
12. Cleanup crews: Ecology’s SPPR Program can request assistance from Ecology’s Washington Conservation Corps (WCC) crews from the Shorelands and Environmental Assistance (SEA) Program. The crews are Hazwoper trained and can assist with cleanup efforts.
13. Assistance with water quality sampling: Ecology will deploy personnel to assist water sampling efforts after a flood to monitor for fecal coliform, metals and petroleum contamination.
14. Solid waste: Ecology is supporting local government and private industry that have primacy in solid waste handling. We have participated in local meetings, reviewed documents and commented as appropriate. Ecology has verified that local government and private solid waste handlers are capable of hauling the volume of solid waste after a flood. We have also taken a wider assessment of the statewide solid waste system and have been working to assure that solid waste disposal outside King County will not be impacted by a flood. In addition, Ecology has developed information regarding proper disposal of sand and sandbags after a flood and has made this information available to local jurisdictions.

15. Animal Mortalities from Flooding: Estimates of the total number of livestock in the Green River Valley are being tabulated by the Department of Agriculture. The solid waste collection and transport companies doing business in the Green River valley all have stated that they have the capacity and ability to transport dead animal carcasses to Cedar Hills landfill or elsewhere if necessary. Containers for solid waste are being pre-staged in the area and can be used to transport animal carcasses. If transportation systems are down, Department of Agriculture has a protocol for burying animals on site. It is anticipated that animal disposal will not be a major activity in the event of a flood, but if it is, existing systems will be able to handle it.

Governor’s Directive to Ecology: Task #2:

Offer technical assistance to affected jurisdictions to help identify and protect critical wastewater treatment infrastructure.

Ecology’s technical assistance to King County Department of Natural Resources and Actions to Date:

Ecology has coordinated with King County’s Department of Natural Resources Wastewater Treatment Division, owner and operator of the South Wastewater Treatment Plant (“South Plant”) in Renton. All of the wastewater in the Green River valley goes to the South Plant. The service area also includes many other jurisdictions, including Bellevue, Issaquah, and Redmond. The sewer lines are not combined with stormwater. Ecology has reviewed the Wastewater Treatment Division’s contingency planning. The Wastewater Treatment Division has taken the following emergency preparedness actions for the South Plant:

1. **Backup electrical system:** A backup electrical supply has been installed and wired in at the South Plant, and there is a plan for an adequate fuel supply for the generators.
2. **Floodwall:** The County has installed a water-filled floodwall (“aqua-barrier”) along the east side of the South Plant to prevent floodwater from encroaching into areas of low elevation.
3. **Industrial discharge to sewer system:** The County’s Industrial Waste Program has contacted all of the businesses and industries that are permitted to discharge industrial waste to the system to inform them that they may be instructed to cease discharge during a flood event. Businesses that discharge industrial waste to the South Plant may be affected by the flooding even if they are not in the flood zone, if the plant is not able to accept the waste. One of the largest industrial dischargers to the South Plant is the Port of Seattle. Ecology is working with the Port to review their contingency plan in the event of a flood.
4. **Re-routing plan:** A plan and sequence of events for re-routing flows has been developed. Overflow discharge points have been identified and prioritized so that overflows go to the least environmentally harmful location first (Puget Sound, Lake Washington, then smaller waterbodies).
5. **Meeting with all cities:** The County hosted a meeting for utilities and public works staff from each of the affected jurisdictions and Ecology to discuss the County’s flood preparation activities for the South Plant, and inform everyone of the appropriate actions each jurisdiction should take. The County has set up a dedicated phone line and developed a “Local Sewer Agency Emergency Communication Plan” so that emergency calls to the plant have the correct information.

6. Providing information: The County has informed local jurisdictions that in a flood event, flood water should not be directed to the sewer system through manholes. It is believed that individual residents and businesses may remove the manhole lids to relieve the street flooding, which would inundate the South Plant.
7. Wastewater sampling: King County Wastewater Treatment Division will be sampling the South Plant influent and effluent on a routine basis.
8. Environmental Water Quality Sampling: King County, EPA Region 10, and Ecology have met to discuss environmental sampling efforts during and after a flood event. On-going discussions continue. Ecology has committed to provide labor and equipment to aid in this effort. Ecology's laboratory in Manchester will aid in analyses should the County's laboratory become overwhelmed.

Department of Ecology: Summary of Key Actions

<p style="text-align: center;"><u>Mapping:</u></p> <p>Ecology has mapped locations of underground tanks and hazardous waste sites in Green River valley and shared these with other agencies.</p>	<p style="text-align: center;"><u>Cleanup crews:</u></p> <p>Ecology's Spill Response Program can deploy WCC crews able to assist with cleanup efforts.</p>	<p style="text-align: center;"><u>Helicopter overflights:</u></p> <p>Ecology's Spill Response Program arranges for helicopter overflights to photograph flooded areas to locate sheens, oil spills, and visible hazardous releases.</p>
<p style="text-align: center;"><u>Interagency coordination:</u></p> <p>Ecology staff are participating in the County's Hazardous Materials Task Force.</p>	<p style="text-align: center;"><u>Site inspections:</u></p> <p>Inspectors have visited hazardous waste sites, and will inspect underground storage tanks after flooding.</p>	<p style="text-align: center;"><u>Information for tank owners:</u></p> <p>Ecology's Toxics Cleanup Program tank unit developed and distributed information sheets for underground storage tank owners.</p>

General Ecology Flood Information

The Department of Ecology has a website with information on flooding, with links to other agencies: <http://www.ecy.wa.gov/programs/sea/floods/index.html>

Other Ecology involvement:

Shorelands and Environmental Assistance (SEA) Program:

- Flood insurance: Ecology works closely with FEMA to encourage participation by communities in the National Flood Insurance Program's Community Rating System (CRS). The City of Auburn participates in CRS, so residents in the City receive a 25% reduction in their flood insurance premiums. The City of Renton also participates in CRS and their residents receive a 20% reduction in premiums. The City of Kent has applied for participation in CRS and they should become eligible shortly. King County receives the highest reduction of any county in the US, a 40% reduction for policies in unincorporated parts of the county.
- City of Kent Horseshoe Bend levees: The legislature appropriated \$10 million for the City of Kent to address levees in the Horseshoe Bend area on the Green River. More than \$ 8 million will be for property acquisition and setback levees. Ecology is the grant manager and has developed a grant agreement with the City of Kent in coordination with King County and the Corps of Engineers.
- Flood Protection Study: A Flood Protection Study was funded in the last legislative session. Ecology will research the levee certification process, identify which levees are certified and which are not certified, and point out the long term implications. The Green River levees are a high priority. Ecology is scheduled to deliver a report to the legislature in June 2010.

Water Resources:

- Water Right and Availability Related Actions: Ecology can work with jurisdictions if situations arise from the flood scenario that may involve a water right or emergency approval. For example, the City of Kent requested and received a temporary water use authorization from Ecology earlier in 2009 to use Green River water to fill "aqua dams" to elevate several miles of levees in advance of a major flood. (Note: The City subsequently determined this is not the approach they would be taking.)
- Drinking Water: Water Resources Program does not regulate or monitor drinking water quality. The Department of Health oversees large municipal water supplies, and King County oversees smaller public water systems.
- Dam Safety: Ecology does not inspect federal dams in Washington State and has no regulatory role in the operation or maintenance of the Howard Hanson Dam. As a courtesy, the Corps is keeping Ecology informed of its efforts to repair the seepage problem and also has involved Ecology's dam inspectors in table top exercises dealing with flooding scenarios during the rainy season this winter.

Other:

- Continuity of Operations: The Department of Ecology’s Northwest Regional Office in Bellevue has developed a Continuity of Operations Plan for Green River flooding. This plan is an annex to Ecology’s Comprehensive Emergency Management Plan.
- Communications: The NWRO public information officer participates in weekly communications planning meetings with colleagues from King County, Green River Valley cities and other state, local and federal agencies involved in flood response planning. Ecology’s public information staff will coordinate with and support joint information center activities that will be established under the command structure for flooding incidents. Ecology is prepared to provide public information coordination and support to the state emergency operations center and the Governor’s Green River sub-cabinet.

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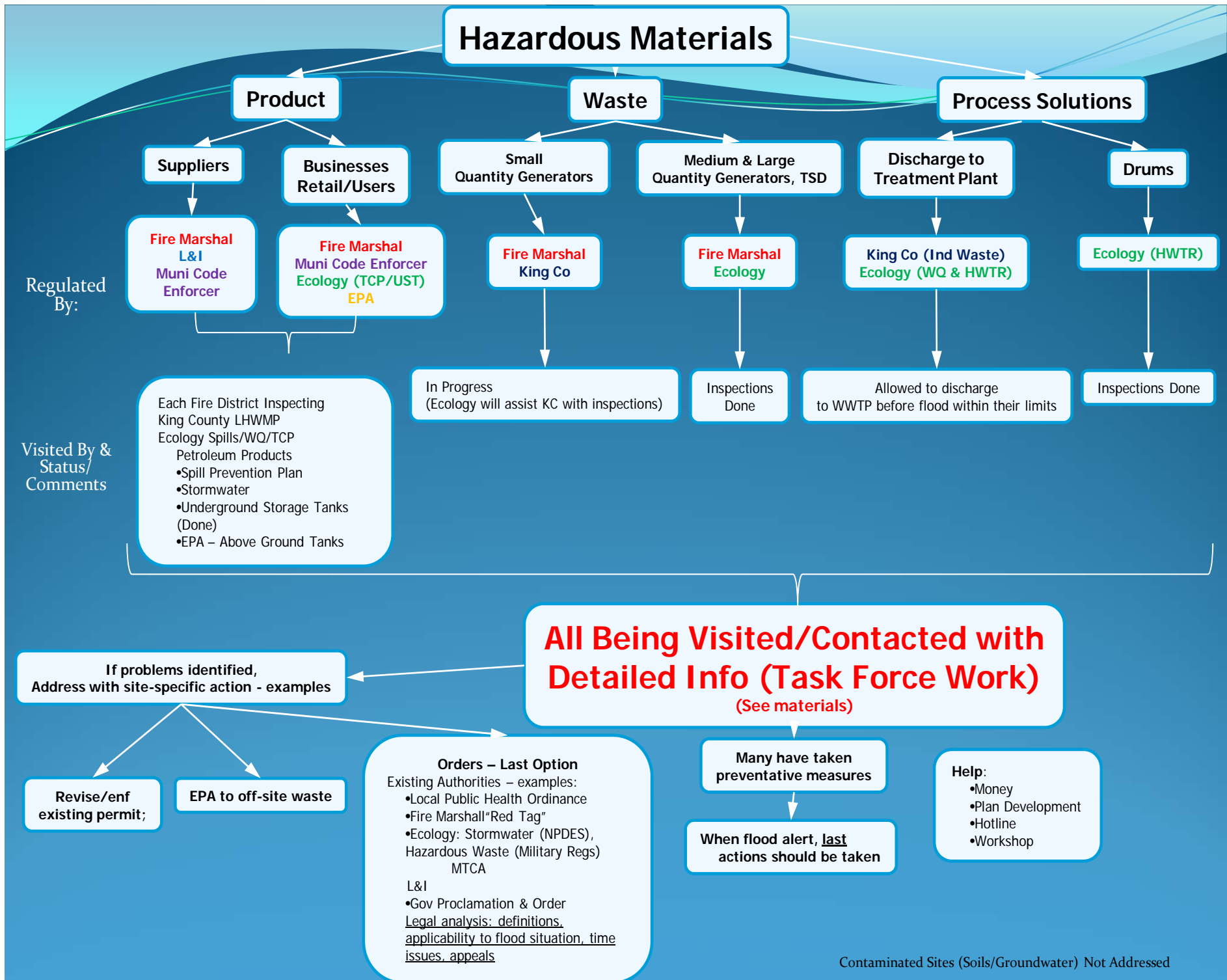


Figure 1