

# State Route 530 Flooding and Mudslide Incident Public Health and Environmental Fact Sheet

April 22, 2014

## **Public Health**

Public health partners have worked together to evaluate potential health threats to workers and residents as a result of the landslide, and found appropriate protections are in use. Surface water samples from the area have been analyzed for potential biological and chemical contaminants. Use of personal protective equipment and dilution of any potential contaminants combine to keep exposure risk very low. In addition to personal protective equipment used by worker doing recovery tasks, a HAZMAT technician is assigned to each work team to monitor exposure risk. Snohomish Health District, the lead health agency at the scene since the slide occurred, collected surface water samples from multiple sites in addition to samples collected by the Environmental Protection Agency over a period of several days. These samples were analyzed by state health officials; the analysis shows the waters don't pose a threat to people who may work or recreate within them. Snohomish Health also is helping area residents with concerns about well water, provided septic tank and drainfield records to responders, assisted with monitoring and advising on worker and environmental health issues, including food and drinking water safety, and more. The local health district has asked the state Emergency Operations Center for additional financial support for supplemental monitoring to verify that the risk to workers and residents remains low.

Many residents along the river have private wells for their drinking water that pull from aquifers, not the river. Well water may be affected in areas of flooding upriver from the slide. Recommendations for well disinfection are on the Snohomish Health District website, [www.snohd.org](http://www.snohd.org).

Homes in the area that may have experienced flooding should take precautions with drinking water wells, septic systems, and cleaning buildings that may have been impacted.

## **Worker Safety**

Personnel working in the debris field are using personal protective equipment. Workers in areas known to contain or that possibly contain hazardous materials are using personal protective equipment with standard medical precautions. Workers that encounter known or potential hazardous materials are asked to withdraw and report the known or suspected type and amount.

A team of landslide geologists from the county, state, and the USGS are continuing to monitor landslide hazards. The USGS deployed three "spiders," which are portable instrumentation packages that contain high-precision GPS units for detecting landslide movement as well as geophones for detecting small vibrations. Data from the spider units are transmitted by radio to USGS computers and made available to the monitoring team. An engineering lookout is posted during work hours to maintain a visual of the slide. In addition, the county has established survey points that are measured hourly.

There have been minor injuries are from slips, trips and falls from the searching. Some have cuts and puncture wounds. Most have been treated on site. There is very little illness among workers. Public health officials are working with field medical staff to monitor illness reports.

All work teams are overseen by Safety Officers. Safety Officers monitor both working conditions and workers. They observe workers for signs of fatigue and stress, replace workers as needed, and rest them before resuming a shift.

In light of the stress and grief that workers experience over sustained periods of time, mental health counseling is available for all workers.

### **Decontamination**

All personnel and equipment within the debris field operational area are decontaminated prior to leaving the operational site. Personnel and search dogs are rinsed with a low-pressure water soap solution spray to remove mud and possible contaminants. All work uniforms should be washed separately from normal household clothing. All equipment is rinsed with low-pressure water soap solution.

## **Hazardous Materials of Concern**

Hazardous materials associated with this incident are those normally found in households. The release of these materials could be caused by a combination of flooding and debris flow.

Hazardous materials that have been found on site include petroleum products, compressed gas cylinders, biohazards, and household hazardous waste. These materials have been found in isolated areas and emergency responders are identifying and taking precautions within those areas.

### **Household Hazardous Waste**

The average U.S. household generates more than 20 pounds of household hazardous waste per year, and as much as 100 pounds or more can accumulate in the home. Common household hazardous waste include adhesives; automotive oil and fuel additives; metal and wood cleaners; grease and rust solvent; propane and gas cylinders; paint, paint thinners, paint strippers, and paint removers; pesticides; wood and metal cleaners; electronic wastes; white goods (refrigerators, freezers, washers, dryers); and furnaces.

### **Biohazards**

The debris field will contain biohazards associated with a residential disaster area. The affected homes used septic tanks and we estimate there were about fifty tanks in the community. If those tanks ruptured, they may have released human waste into the debris. Workers are taking precautions if they come upon sewers, and leach fields, or other biological hazards which may contain harmful bacteria.

Additional hazardous materials associated with a residential area may include asbestos, firearms, ammunition, and PCBs.

To date, Ecology crews have coordinated the staging and removal of the following materials:

- (63) 5-gallon propane tanks
- (23) 6-25-gallon propane tanks
- (14) 120-gallon propane tanks
- (2) 250-gallon propane tank
- (6) Oxygen cylinders
- (6) Acetylene tank
- (2) 5-gallon helium tank
- (3) Small carbon dioxide tank
- (220) Hazardous liquid containers, primarily gasoline and motor oil
- (1) NH4 coil over pack
- (20) Small flammable gas containers, propane and butane.

## (13) Electrical Pole and Pad Mounted Transformers

### **Mudslide Debris**

Work crews are using a grid system to search through mudslide debris. After crews carefully go through all the debris in an area, they move it to a section that has already been searched, and repeat this process for each section of the grid. No debris is being moved away from the site, other than hazardous materials that will be appropriately disposed of. Federal, state, and local agencies are considering options for clearing and removing the debris.

### **Water Quality**

Environmental and health agencies have conducted limited water sampling and are awaiting results. Water quality monitoring has not indicated levels that would require action to protect human health.

### **Aquatic Habitat**

The mudslide has impacted fish habitat in the immediately affected area. Chinook, coho, pink, and chum salmon use the Stillaguamish River along with steelhead and cutthroat trout during different phases of their lifecycles. Winter steelhead, Chinook salmon, and summer steelhead are listed as threatened under the federal Endangered Species Act. Fish biologists are assessing impacts to fish populations.

Winter steelhead are beginning to move into the river, with a peak spawning window of late April through early May. An initial survey found no adult steelhead in three tributaries above the slide. The Washington Department of Fish and Wildlife (WDFW) has begun weekly spawning surveys, which will continue through June. As this information comes in, WDFW will assess any apparent changes in the number and behavior of the steelhead adults as a result of the SR 530 slide.

The mudslide impacts fish life by impeding the passage of adult fish upriver and smolts downriver, smothering eggs and fry downriver from the slide, and damaging riparian habitat for future generations of fish.

It is too early to speculate on the impact of the slide on fish life in the North Fork Stillaguamish.