



# Lower Duwamish Waterway Source Control Update

Summer 2007

## The Lower Duwamish Waterway

The Lower Duwamish Waterway (LDW) site is an approximately 5.5 mile portion of the Lower Duwamish River, which flows into Elliott Bay. The sediments along the waterway contain a wide range of contaminants due to years of industrial activity and run off from residential, commercial and industrial areas. These contaminants include PCBs (polychlorinated biphenyls), PAHs (polycyclic aromatic hydrocarbons), metals, and phthalates. The drainage basin for the LDW and areas identified requiring source control are shown on the map on page 7.

## What is source control?

Source control is the process of finding and then stopping or reducing releases of contaminants to waterway sediments (the mud located at the bottom of the waterway). The point of source control is to keep sediments from becoming contaminated again after being cleaned up.

## What is our Source Control Strategy?

Source control work is divided into four tiers. We are currently working on the first two tiers. Tier one consists of source control work associated with the 7 Early Action Areas (*See map on Page 7.*) Tier two consists of source control work associated with any final, long-

term sediment cleanup actions identified through the Phase 2 LDW Remedial Investigation work and the EPA Record Of Decision. (*See map on page 7 for Tentative Tier 2 Areas.*) If you are interested in more information on our approach to source control, the Source Control Strategy is available on our website (*see address at the bottom of this page.*)

## Who is working on source control?

The Department of Ecology (Ecology) leads the Source Control Work Group made up of Environmental Protection Agency (EPA), City of Seattle, King County, Port of Seattle, Puget Sound Clean Air Agency, and City of Tukwila. This group meets monthly to coordinate source control efforts. Its first priority is to address the early action areas identified for sediment cleanup. The group is working on controlling sources of contaminants that may pose health or environmental problems if they accumulate in waterway sediments.



For more, go to: [http://www.ecy.wa.gov/programs/tcp/sites/lower\\_duwamish/lower\\_duwamish\\_hp.html](http://www.ecy.wa.gov/programs/tcp/sites/lower_duwamish/lower_duwamish_hp.html)

# Recent Source Control Activities

## South Park

### Terminal 117

The Port completed a focused removal action on Terminal 117 (T-117) removing the higher concentrations of chemicals called polychlorinated biphenyls, or PCBs, from several locations on the upland property. Contaminated soil was removed, and the excavations were backfilled with clean soil and covered with asphalt to assure no contact by workers or the public.



*T-117 excavated upland*

The City of Seattle completed temporary actions to remove and cover PCBs found in dirt on streets adjacent to T-117, in a storage lot, and in two residential yards across the street from T-117.



*Conducting sampling at Early Action Area 2*

The Port and City of Seattle are working to develop a plan for evaluating permanent cleanup actions ensuring people and the environment are protected from coming into contact with PCBs.

The plan will likely include removing contaminated bank material and additional upland soils necessary in the terminal/roadway. A final cleanup is expected to occur in 2009 or 2010.

### Early Action Area 2

Ecology, with support from a private contractor, installed three new ground water monitoring wells along the south bank of the inlet off the main river channel. The purpose of the wells is to supplement information obtained from existing Ecology owned wells installed in the early 1990s. Ecology has taken several new soil, groundwater, sediment, and surface water samples. The sample results, due in August 2007, will help define the severity of contamination in this area. Plans include additional monitoring wells and sampling along the north side of the inlet in early fall of 2007.

## Georgetown

### Slip 4

Ecology will begin negotiating an administrative order with the City of Seattle, King County and The Boeing Company to investigate soil and groundwater contamination in the North Boeing Field/Georgetown Steam Plant area.

The initial focus will be to locate and control sources of PCBs.

The city of Seattle, The Boeing Company, and King County voluntarily started sampling of the area.



*Storm Drain line & Oil Water Separator replacement at North Boeing Field*

## Tukwila

### Jorgensen Forge

Jorgensen Forge preliminary sampling of soil and groundwater is complete and work has been done to limit contaminants in stormwater. More sampling is planned at Jorgensen under an administrative order with Ecology. The sampling is needed to determine if the contamination in soil or groundwater poses a threat to the sediments in the river.



*Jorgensen Forge, looking east from the waterway*



## 8801 E Marginal Way - Paccar

The former owner of this property, Paccar Inc., completed sediment sampling along the Lower Duwamish waterway. A second phase of sediment sampling will be implemented later this year.



*Ecology Site Manager, Maura O'Brien on a site visit at Paccar.*

Upland work included three tasks: groundwater monitoring; continued vapor extraction to remove volatile organic substances from the shallow soils, and water quality improvements for stormwater discharged at the site. Two groundwater monitoring events confirmed presence of selected chemicals in the shallow and deeper groundwater. The vapor extraction treatment is functioning well to remove volatile organic substances including TCE (trichloroethene), DCE (dichloroethenes) and vinyl chloride from the soils.

The water quality improvements focus on stormwater collection and treatment before discharge to the Lower Duwamish Waterway. The water quality improvements will be implemented under the City of Tukwila Public Works permit by the property leasee Insurance Auto Auctions Inc (IAAI). IAAI will also conduct Stormwater monitoring for selected chemicals for four quarters to evaluate the new improvements.

# Working Together to Control Sources

## Port of Seattle

### Terminal 108

The Port of Seattle sampled soil and groundwater at Terminal 108 to determine if the property could recontaminate the Diagonal Way/Duwamish Early Action Area.

Low levels of PCB contaminated soils pose a potential to recontaminate the adjacent sediment cleanup that occurred in 2004. The threat is by soils eroding from the bank. Results from the ground water samples indicate that groundwater does not pose a threat to the river. The port is preparing plans on how they intend to reduce the potential erosion risk.

## City of Seattle and King County

### Source Tracing

Source tracing is designed to identify sources by strategically collecting samples at key locations within the storm drainage/combined sewer service areas.

These include:

- Key manholes in the combined/sanitary sewer
- Sediment traps installed in the storm drain system
- Onsite catch basins
- Catch basins in the public right-of-way



*Pictures above and below show City of Seattle collecting samples at a catch basin.*



*Terminal 108*

## Tracking Down Sources

The City of Seattle continues to use sediment traps and catch basin sampling in storm drains in several areas that drain to the Lower Duwamish Waterway. King County continues to conduct key manhole sampling in sanitary/combined sewers. In addition, The Boeing Company has been sampling storm drains on North Boeing Field that discharge to Slip 4. The data for City of Seattle sediment and catch basin samples are in the King County and Seattle Public Utilities Source Control Program Progress Reports. The reports can be found on the Web at <http://dnr.metrokc.gov/wlr/indwaste/duwamish/library.htm> - reports



*Storm drain inline sediment trap*

## Inspecting Potential Sources

From 2003-2007, King County and the City of Seattle conducted over 1,009 business inspections in the Lower Duwamish Waterway (LDW) drainage/combined sewer service area. Inspectors check business practices like spill prevention/control, general housekeeping practices, and outdoor storage of materials. They work with owners to ensure that they use appropriate management practices to reduce the amount of pollutants discharged to the waterway. The Cities of Seattle and Tukwila will begin inspections in the Norfolk combined sewer overflow/stormwater basin in the coming months.



## Evaluating Air Deposition as a Pollution Source

King County and the City of Tacoma have been investigating sources of phthalates including product testing and conducting air deposition sampling.

Between October 2005 and April 2007, King County conducted 16 rounds of air deposition sampling in the Lower Duwamish drainage basin. The sampling stations are located at:

- Beacon Hill
- Duwamish Industrial Area
- Georgetown
- King County Airport
- South Park.

The samplers collected rainfall and any dry dust that fell into the sampler. The amount of chemicals that deposited into the sampler over time (i.e., the rate of deposition) was measured. The chemicals analyzed included phthalates, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs). The final report of the air deposition sampling is expected in Fall 2007.



## Exploring New Technologies

The City of Seattle and City of Tacoma have been testing a stormwater treatment device to determine whether this manufactured system is capable of removing contaminants affecting the Lower Duwamish Waterway, like phthalates and petroleum hydrocarbons. Field testing has been completed and work is underway to evaluate the test results.

## Street Sweeping Pilot

The City of Seattle started a pilot project to evaluate street sweeping as a tool to reduce the amount of contaminants discharged from City storm drains.



New high efficiency street sweepers are being used to remove street dirt and debris from designated streets in two residential areas and one industrial area. Unlike typical street sweepers, high efficiency sweepers can access the curb area where most of the dirt and debris accumulates. The one year test ended in June 2007. SPU will analyze the collected data and present its findings to the City Council.

*King County's Dana Heinz collecting air deposition samples*



## Department of Ecology

### Source Control Action Plans

Source Control plans present information on the source areas and the source control work that is needed. Ecology published Source Control Action Plans for:

- Duwamish/ Diagonal Way
- Terminal 117
- Early Action Area 2 –Trotsky
- Slip 4
- Early Action Area 7 - Norfolk Fall 2007
- Glacier Bay September Fall 2007
- Early Action Area 4 Fall 2007.

These plans can be found on Ecology's web site: [http://www.ecy.wa.gov/programs/tcp/sites/lower\\_duwamish/lower\\_duwamish\\_hp.html](http://www.ecy.wa.gov/programs/tcp/sites/lower_duwamish/lower_duwamish_hp.html)

### Urban Waters Initiative

This is part of the Puget Sound Initiative. The Urban Waters Initiative proposes a comprehensive, multi-program approach to:

- Identify potential sources of contamination.
- Ensure facilities that are required to be permitted are both permitted and in compliance with their permit terms.
- Increase inspections of regulated facilities.
- Assist in the development of appropriate source control measures.
- Provide assistance on toxic reductions and pollution prevention.

- Build capacity at the local level to safely manage and reduce toxics at small businesses and households.

The initiative provides staff for Spokane River, Commencement Bay, and the Lower Duwamish Waterway. For the Lower Duwamish, it requires that Ecology's Water Quality and Hazardous Waste Programs each dedicate one existing full-time staff member to support this work. The Water Quality Program has assigned a senior inspector to the project. The Hazardous Waste Program is working to create and fill the new staff position.

### Planning and Coordinating

Ecology staff and managers met with staff and managers from the City of Seattle and King County on June 15, 2007 to begin coordinating inspections to avoid duplication of effort. Three work groups were formed to address inspection procedures and checklists, identify facilities already inspected, and determine the overall strategy for ongoing inspections and coordination in the Lower Duwamish basin.

The Urban Waters Initiative also includes \$180,000 to contract with a local government for a local source control specialist. This position is in the Hazardous Waste Program's budget and will likely be involved with inspections and technical assistance.

### Work includes:

- Working with smaller businesses to assure appropriate disposal of their waste, and
- Response to issues covered by local ordinances and referrals to Ecology for investigation/action as appropriate.

Another element of the Puget Sound Initiative provides for additional source control specialists for King and other counties. The procedures for implementing these programs are being developed. Ecology's Environmental Assessment Program will conduct sampling in Elliott Bay. The purpose and scope of sampling in Elliott Bay and its relationship to the Lower Duwamish is still being discussed.



### Public Involvement and Outreach

#### Community Meetings

Ecology works together with EPA during community meetings to address the concerns and information related to the source control component of any public meeting. In addition, Ecology has held and will continue to hold public meetings related to source control at specific sites, as needed. Ecology will also coordinate source control update meetings for the entire Lower Duwamish Waterway site.

## Duwamish River Festival

Ecology collaborated with federal, state, and local agencies and community groups to develop the Duwamish River Festival.

The first Duwamish River Festival was held in August 2005. The size of the event nearly doubled for the second festival in August 2006. The third festival is scheduled for August 2007. This free fun educational outdoor event incorporates activities such as live local music, free food, homemade tamales, kids' activities, kayak tours, and a free water taxi, with relevant health and cleanup information on the Duwamish Waterway.



This approach to a public update meeting was developed in direct response to community comments that they would like to interact with agency representatives in a less formal setting. It has been a good opportunity to reach the culturally and economically diverse population. In 2006, the Source Control Work Group had a large inter-agency source control booth where members answered questions and provided handouts and displays (and Spanish interpretation) related to source control. The Source Control Work Group will have a unified booth at this year's festival.

## Source Control Fact Sheets

Ecology with assistance from the Source Control Work Group will continue to write a source control update fact sheet. The fact sheet will be updated and distributed annually.

## Source Control Work Group Member Agencies and Responsibilities

- **Department of Ecology**  
Overall lead for source control  
Lead for contaminated site clean-up, direct storm water or other direct discharges
- **King County**  
Lead for discharges to wastewater or combined wastewater/storm water system
- **City of Seattle**  
Lead for source control within their storm drain system
- **City of Tukwila**  
Lead for source control within their storm drain system
- **Port of Seattle**  
Lead for source control and contaminated property issues for Port properties
- **US Environmental Protection Agency**
  - Source Control Technical assistance
  - Coordination with EPA sediment investigation/cleanup
  - Source Control Lead for Boeing Plant 2 and Rhone-Poulenc

## Source Control Contacts

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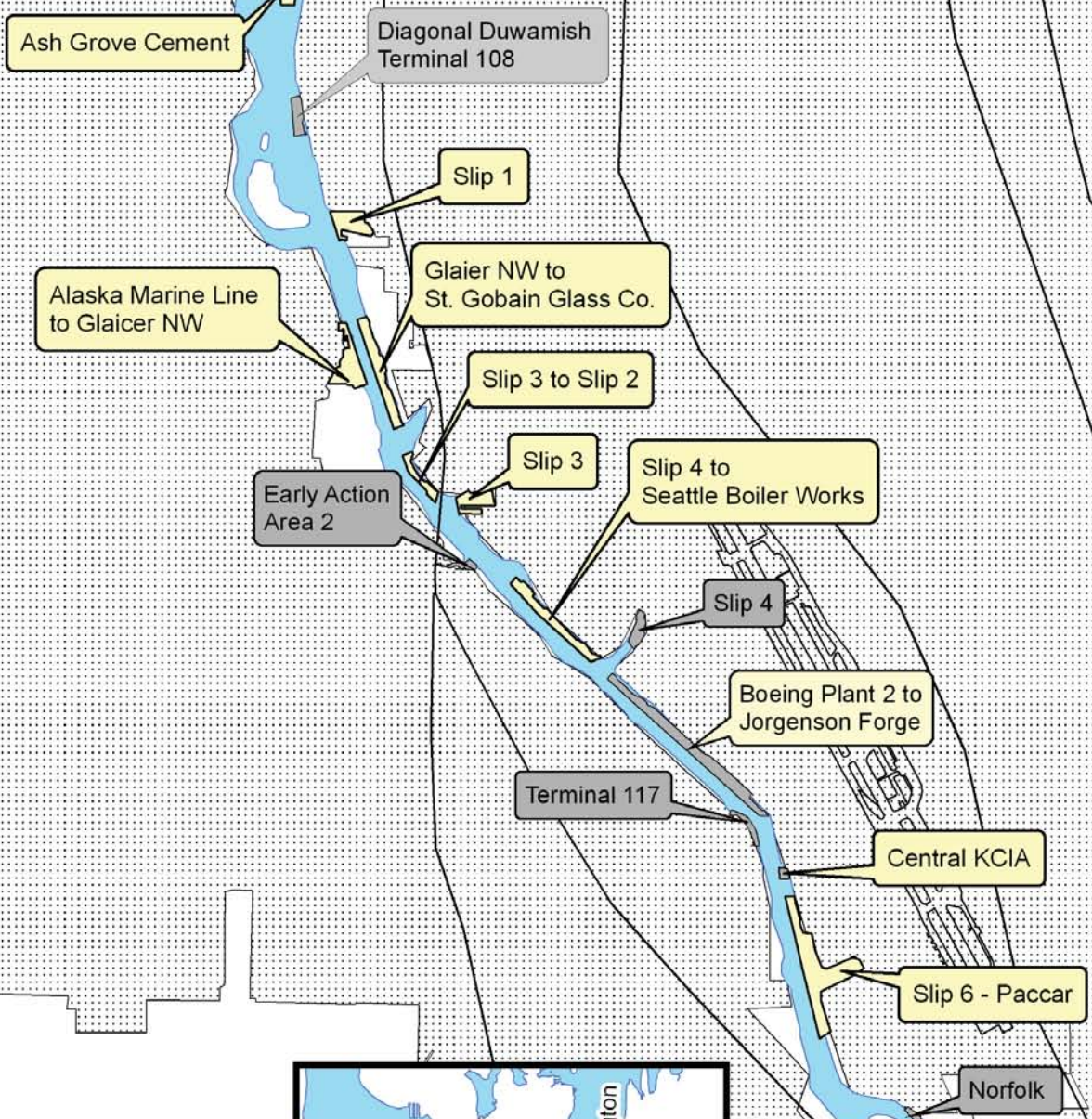
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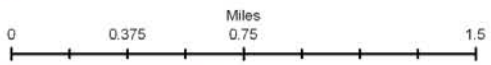
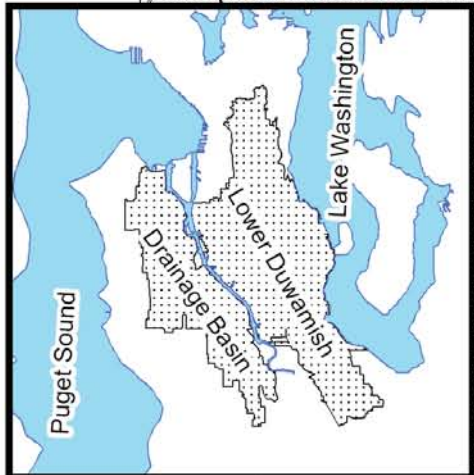


# Lower Duwamish Waterway Areas Identified Requiring Source Control



**LDW Source Control Areas**

- Early Action Areas
- Tier 2 Areas
- LDW Drainage Basin





# Lower Duwamish Waterway - Businesses Inspected from March 2003–December 2006

