

# UPRIVER DAM PCB SEDIMENTS SITE

(Spokane River PCB Sediment Contamination Project)



## How will PCBs in Sediments Behind Upriver Dam be Addressed?

### ***Capping and Removal of Sediments Recommended***

The Washington State Department of Ecology has reviewed investigations and the proposed cleanup alternatives for polychlorinated biphenyls (PCBs) in sediments at the Upriver Dam site. The investigation covers the river area from approximately river mile 80 by the dam, to river mile 85 east of the Centennial Trail footbridge in the city of Spokane Valley, Spokane County, Washington (Fig. 1). Two locations are identified for cleanup. Capping is proposed for contaminated sediments found underwater immediately behind Upriver Dam, and removal is proposed for sediment from a side channel at Donkey Island. The proposed capping and removal effectively eliminate risks posed by PCBs and co-occurring contaminants found in sediments within the site. Co-occurring contaminants in sediments include heavy metals (e.g., cadmium, lead and zinc) and woody materials (e.g., total organic carbon (TOC) and retene).

Avista Development, Inc. and Kaiser Aluminum & Chemical Corporation are cooperating with Ecology in this site cleanup. Liberty Lake Sewer District and Inland Empire Paper Company have also been identified as responsible parties but have chosen not to participate in the cleanup at this time. Ecology is accelerating this work to assure certainty and timeliness of cleanup, which is affected by Kaiser Aluminum & Chemical Corporation's bankruptcy.

***Polychlorinated Biphenyls (PCBs)*** are a group of manufactured, man-made chemicals historically used as insulating fluids or coolants and lubricants in transformers, capacitors or other electrical equipment. They have also been used in hydraulic oils, fluorescent lights, inks, carbonless paper and other uses. Manufacture of PCBs stopped in the U.S. in 1977 because of evidence they build up in the environment and may have harmful health effects. The main concern for PCB exposure to humans is from eating fish caught in certain sections of the Spokane River. Details about PCBs may be found on page 3.

### ***Six Documents Ready for Review and Comment***

***March 22 through May 6, 2005.*** The documents listed below are considered draft and do not become final until after the public comment period and any appropriate adjustments have been made. The box on page 3 has the locations for reviewing documents and sending comments.

- Remedial Investigation - What was Found at the Site;
- Feasibility Study - Proposed Cleanup Alternatives;
- Cleanup Action Plan - Ecology's Evaluation of Alternatives and Selected Cleanup;
- Consent Decrees (2)- Legal Agreements Between Ecology and Liable Persons; and
- State Environmental Policy Act (SEPA) Determination of Non-Significance (DNS).

***A public meeting*** will be held **March 28, 2005, from 7-9 p.m.** to provide information about the investigations and proposed cleanup followed by a question and answer period. Meeting details are found on page 3.

***Site History.*** Several factors contributed to the cleanup investigations behind Upriver Dam. Fish sampling conducted between 1978 and 1999 showed high levels of lead and PCBs in fish. This led Ecology, the Washington State Department of Health, and the local Spokane Regional Health District to issue a fish consumption advisory. Ecology sampled sediments immediately behind Upriver Dam in 2000 and results confirmed the presence of PCBs. Additional studies conducted by Ecology, and review of historical records, affirmed concerns that known wastewater discharges may also contribute contamination to fish and sediments in this area.

In the fall of 2002, initial investigations were conducted to determine where and how much PCB contamination was in sediments behind Upriver Dam. Results demonstrated to Ecology that a formal Remedial Investigation/Feasibility Study was necessary to protect human health and the environment.

In January 2003, Ecology, Avista Development, Inc. and Kaiser Aluminum & Chemical Corporation entered into a legal agreement to further evaluate the extent of PCB contamination in the Upriver Dam area.

#### ***Contaminants Identified in Draft Remedial***

***Investigation Report.*** The purpose of the Remedial Investigation was to evaluate the extent of PCBs in sediments at the site. The report identified PCBs along with cadmium, lead, zinc, total organic carbon (TOC) and retene as contaminants of concern in sediments. The report also concluded that PCB contamination occurs mainly in two areas. These areas are identified as Deposit 1 and Deposit 2 (See Fig. 1). Deposit 1 begins directly behind the dam, in deep water on the north side of the river, and covers approximately 3.7 acres in an easterly, up-stream direction. Deposit 2 covers a smaller 0.2 acre shallow-water area, along the north bank of the river, within a side channel, near what is called “Donkey Island” (See Fig. 1).

Surface water sampling to investigate Deposit 1 showed fluctuations in PCB levels. Results showed higher concentrations of PCBs during lower flow periods in September 2003.

All groundwater results collected near Deposit 1 indicate PCBs are significantly below required state and federal drinking water contaminant levels.

#### ***Four Alternatives and Five Sub-Alternatives for Deposits 1 and 2 Evaluated in Draft Feasibility Study***

- ***Alternative 1: Monitored Natural Recovery.***  
This option relies on the natural deposition of sediments over existing PCBs to isolate them and reduce exposure and risks associated with contamination.
- ***Alternative 2: Enhanced Natural Recovery.***  
This option places a 6-inch layer of clean sand on top of the PCB-contaminated sediments.
- ***Alternative 3: Sediment Capping*** has 5 sub-alternatives 3A-3E that place sand, gravel, and/or coal and clay products in varying thicknesses over the PCB-contaminated sediments mainly at Deposit 1. To varying degrees, these sub-alternatives include stabilizing PCBs in sediments, preventing possible erosion, creating a clean environment for bottom-dwelling organisms, and eliminating or reducing transport of dissolved PCBs into the overlying water column or underlying groundwater. Long-term monitoring is also included.

- ***Alternative 4: Dredging, Off-site Disposal and Residuals Capping*** would remove an estimated 3.5 feet of sediments in Deposit 1 and 2 feet in Deposit 2. Under this alternative nearly 95 percent of the PCB-contaminated sediments are removed and disposed off-site at a licensed disposal facility. Two feet of sand would then be placed over the remaining PCBs that could not effectively be removed by dredging. Under this alternative, a mechanical clamshell is used to remove sediments and debris from Deposit 1 and materials are dewatered. Water from the dewatering process may require treatment to remove PCB particles before being discharged.

All alternatives assume there will be water quality controls implemented upstream to deal with other sources of PCBs under existing wastewater discharge permits and future total maximum daily load (TMDL) limits. Each option also includes some type of performance monitoring.

#### ***Ecology Selects Capping and Removal in the Draft Cleanup Action Plan.***

Ecology evaluated the proposed cleanup alternatives in the Feasibility Study and selected the following capping and removal cleanup methods for PCBs and co-occurring contaminants. The proposed actions are draft until public review and comment are considered.

***Deposit 1 - Capping.*** Ecology selected Alternative 3D as the proposed cleanup option. There is a contingency remedy outlined in the DCAP that may be used instead of Alternative 3D if appropriate performance cannot be achieved during pre-design testing. The selected Alternative 3D actions below create a protective cap over the contamination at this location by doing the following:

- Placing a 6-inch layer of granular bituminous coal, not to be less than 4 inches at any location, over the PCB-contaminated sediments.  
Note: Granulated coal is an “active” capping material that strongly adsorbs and effectively captures dissolved PCBs that may move upward.
- Covering the coal with a 6-inch layer of sand.
- Covering the sand with a 3-inch layer of protective gravel armor.

Long-term monitoring will be used to assure effectiveness and integrity of the cap. Institutional controls may be applied, if necessary, to further protect the integrity of the cleanup action over time. Five year reviews will be conducted to ensure that the selected clean up action continues to provide adequate protection

of human health and the environment. All permit requirements including federal, as well as state and local substantive requirements, will be met for work conducted at Deposits 1 and 2.

**Deposit 2 - Removal and Replacement.** Ecology selected a cleanup action similar to Alternative 4 as the proposed cleanup for the Donkey Island location. This option requires the following actions:

- Removing approximately 2 feet of fine-grained sediment down to cobble substrate.
- Replacing sediment that has been removed with approximately 2 feet of clean sand.
- Transporting excavated material to a licensed disposal facility.

**Draft Consent Decrees.** Two draft Consent Decrees are proposed as legal agreements between the involved parties. The decrees ensure details of the draft Cleanup Action Plan are implemented in accordance with all applicable laws and regulations. A decree between Ecology and Kaiser, to be entered in federal bankruptcy court, requires Kaiser to make a financial contribution toward the cost of the cleanup. Another decree between Ecology and Avista will be entered in State court and makes Avista responsible for implementing the Cleanup Action Plan. Both Consent Decrees have the same cleanup goals and objectives.

**Draft State Environmental Policy Act (SEPA) and Determination of Non-Significance (DNS) - No Probable Adverse Impact.** The State Environmental Policy Act, known as SEPA, requires government agencies to consider potential environmental impacts of a project before beginning the cleanup.

- After review of a completed environmental checklist and other site specific information, Ecology has determined the cleanup of PCBs will not have a probable adverse impact on the environment.
- This action will benefit the environment by reducing the release of toxic chemicals from the site.
- Therefore, Ecology has issued a Determination of Non-Significance.

**March 2005** Publication No. 05-09-021

**Comments Accepted:** March 22 through May 6, 2005

**Public Meeting:** Monday, March 28, 2005 7-9 p.m.  
Spokane Community College, 1810 North Greene Street  
Lair Auditorium, Bldg 6, Spokane, WA

A public hearing will be held if at least ten people request one.

**Document Review Locations**

**WA Department of Ecology**  
Eastern Regional Office, 4601 North Monroe  
Spokane, WA 99205-1295  
Mrs. Johnnie Landis 509-329-3415

**Spokane Public Library**, 906 West Main Ave  
Spokane, WA 99201 509-444-5300

**Argonne County Library**, 4322 North Argonne  
Spokane, WA 99206 509-926-4334

**Spokane Valley Library**, 12004 East Main  
Spokane Valley, WA 99216 509-926-6283

Ecology's Toxics Cleanup Website:

[http://www.ecy.wa.gov/programs/tcp/sites/spo\\_riv/spo\\_riv.htm](http://www.ecy.wa.gov/programs/tcp/sites/spo_riv/spo_riv.htm)

**Comments/Technical Questions:**

**Mr. John Roland**  
WA Department of Ecology  
Eastern Regional Office  
4601 North Monroe  
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509-329-3581 or 1-800-826-7716  
E-mail: [jrol461@ecy.wa.gov](mailto:jrol461@ecy.wa.gov)

**Public Meetings, Hearings and Mailings:**

**Ms. Carol Bergin**  
WA Department of Ecology  
1-800-826-7716 or 509-329-3546  
E-mail: [cabe461@ecy.wa.gov](mailto:cabe461@ecy.wa.gov)

**PCB details:** See Agency for Toxic Substances and Disease Registry <http://www.atsdr.cdc.gov/tfacts17.html>

**Fish and Sediment Advisories:**

[http://www.ecy.wa.gov/programs/tcp/sites/spo\\_riv/Spokane\\_River\\_hp.htm](http://www.ecy.wa.gov/programs/tcp/sites/spo_riv/Spokane_River_hp.htm)

**Если вам нужно помощь по русски**

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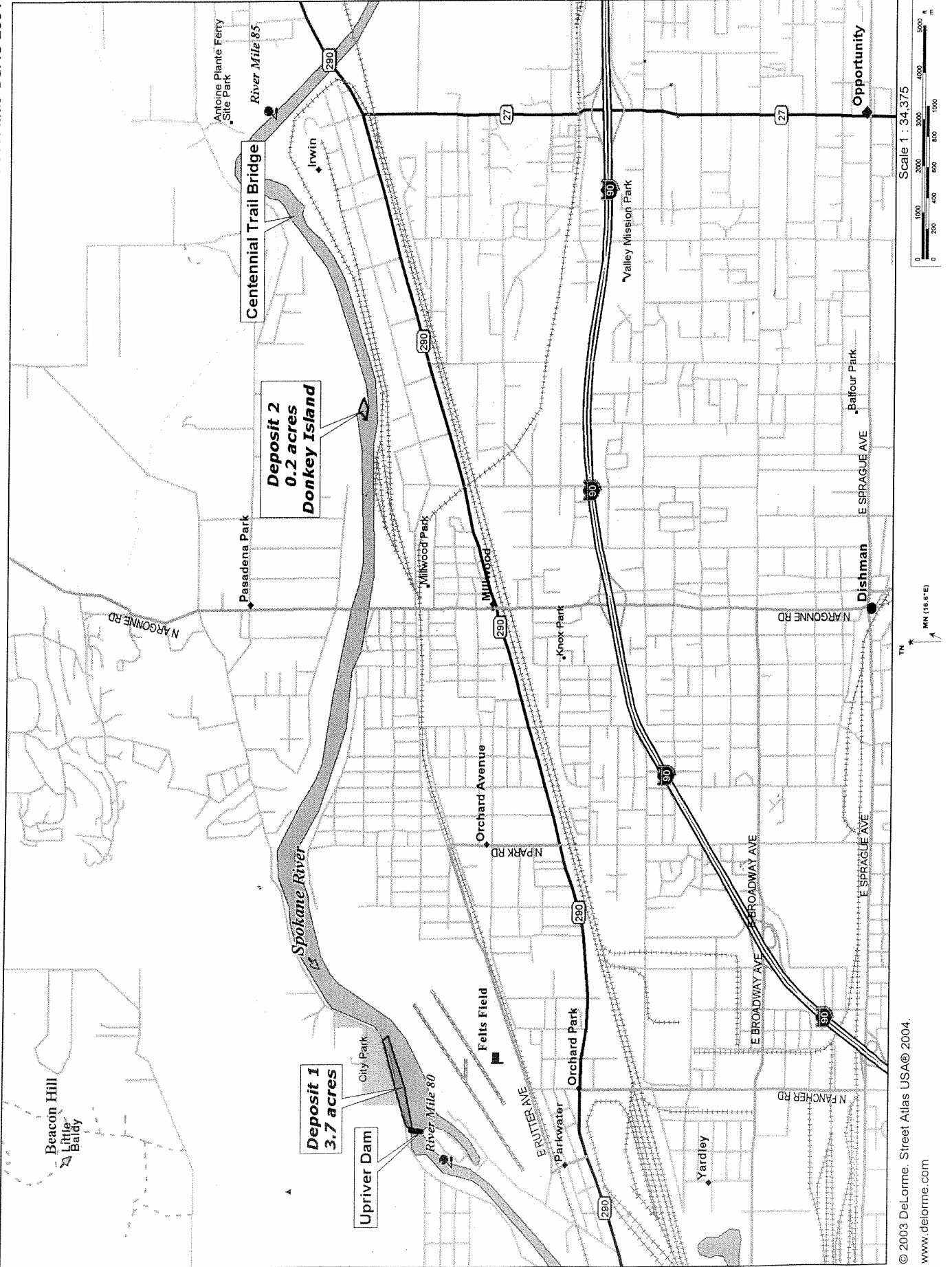


FIGURE 1

If you require this publication in an alternate format, please call Marilyn Summers at 509-329-3444 or call 711 or 1-800-833-6388 (TTY)