



Whatcom Waterway Site, Bellingham Georgia-Pacific Log Pond

Amendment to Agreed Order for Interim Action

The Washington Department of Ecology (Ecology) is proposing to amend an existing legal agreement (Agreed Order for Interim Action) with Georgia-Pacific (G-P) to provide Ecology access to the Georgia-Pacific Log Pond (Log Pond) to conduct a sediment treatment pilot study. The Log Pond is located in Bellingham Bay adjacent to the G-P facility at 300 W. Laurel Street, Bellingham. Under the amendment, Ecology and other partners will conduct a sediment treatment pilot study on a small area of the Log Pond.

Opportunity to Comment

Before finalizing the Agreed Order Amendment, we offer you the opportunity to review the document and give us your input. The shaded box on this information sheet indicates where the document is available for review and where to send your comments. All written comments must be received by August 29th, 2001.

Background

The Log Pond is a sub-unit of the Whatcom Waterway Site and consists of intertidal and subtidal aquatic lands adjacent to the Whatcom Waterway Federal Navigation Channel in Bellingham (Figure 1).

Ecology, the Washington Departments of Transportation, and Natural Resources, the U.S. Environmental Protection Agency, King County, and

Weiss Associates propose to conduct a treatment pilot study on a small area of contaminated sub-surface sediments at the G-P Log Pond in Bellingham Bay.

The pilot study will test electrochemical remediation technologies (ECRTs), a relatively new set of technologies that utilizes electrical current to remediate contaminated sediments. See page 2 for more detailed information on ECRTs.

Work Performed by G-P

Under the Agreed Order, G-P will provide access to the Log Pond for the execution of the sediment treatment pilot study. G-P is not responsible for any other work associated with the treatment demonstration.

Related Documents

In addition to the Amendment to the Log Pond Interim Action Agreed Order, a number of other reference documents related to the pilot study are available at the locations listed in the shaded area above, including:

- Whatcom Waterway RI/FS
- Bellingham Bay Comprehensive Strategy EIS
- Completion Report: Log Pond Capping and Restoration Action
- Puget Sound *In Situ* Sediment Treatment Pilot Study Joint Aquatic Resources Permit Application (including the Biological Evaluation)

Comment Period
July 30 to August 29, 2001

Review Documents at:

Department of Ecology
Bellingham Field Office
1204 Railroad Avenue, Site 200
Bellingham, (360) 738-6250

Bellingham Public Library
Main Branch
210 Central Avenue, Bellingham

Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue (425) 649-7190

Dept. of Ecology website:
www.ecy.wa.gov/programs/tcp/sites/sites.html

Send Comments to:

Lucy McInerney
Site Manager
3190 - 160th Avenue SE
Bellevue (425) 649-7272
E-mail: lpeb461@ecy.wa.gov

*Ecology is equal opportunity agency.
For special needs or language translation
assistance, call 425-649-7272 or
425-649-4259 (TDD).*

What Happens Next

Following this 30-day public comment period on the Amendment to the Log Pond Interim Action Agreed Order, Ecology will review the comments received and prepare a response. Those who submit comments will be notified when the response to comments is available. If substantive changes are made to the Agreed Order Amendment, the revised document will be issued again for public review. If no substantive changes are made the Agreed Order Amendment it is considered final.

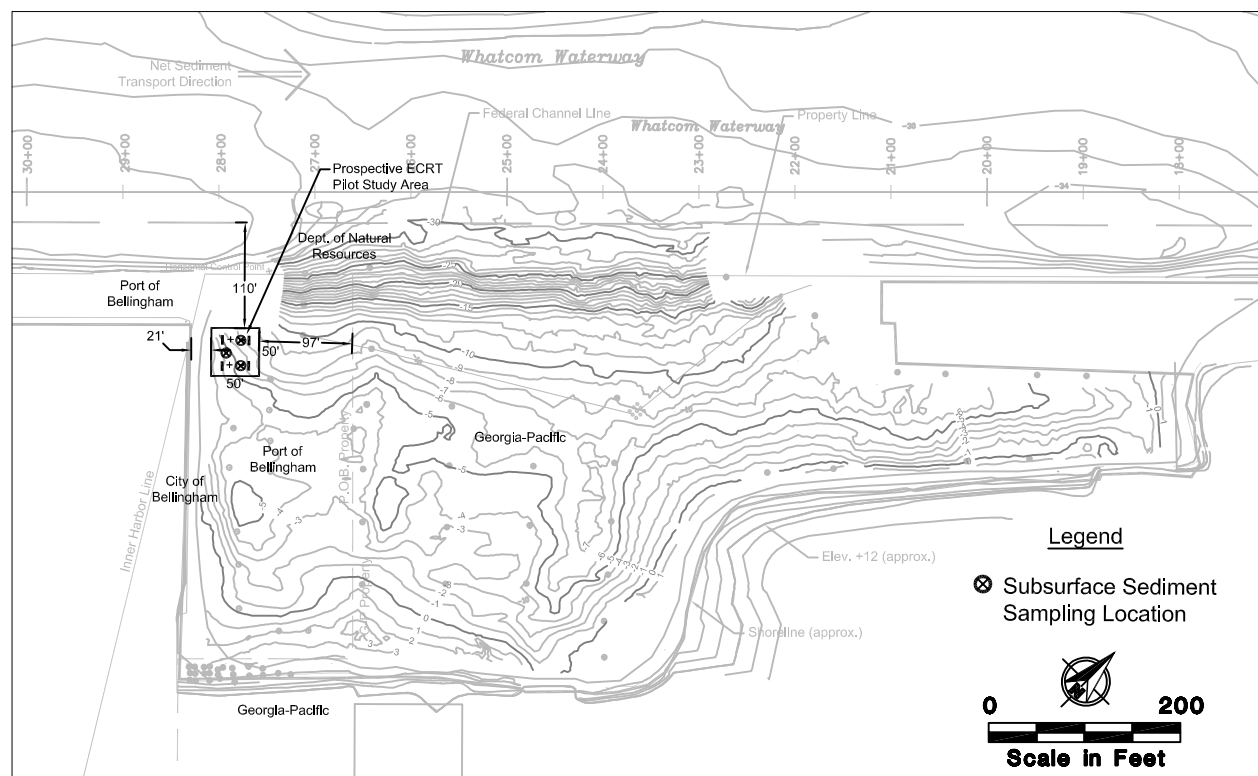


Figure 2. Proposed Pilot Study Location

Pilot Study of ECRTs: A Test of *In Situ* Sediment Treatment

The proposed pilot study is designed to determine the viability of electrochemical remediation technologies (ECRTs) to treat marine sediments contaminated with mercury, phenolic compounds, and polynuclear aromatic hydrocarbons (PAHs).

Background

As an Interim Remedial Action under the authority of the State Model Toxics Control Act (MTCA; Chapter 173-340 WAC; RCW 70.105D), contaminated sediments in the Log Pond were covered with a clean cap in 2001. The Log Pond is also a suitable pilot study location for electricity-based *in situ* remediation technologies in Puget Sound.

These technologies use electrical current to either mobilize or break down

contaminants in soils or sediments and can be applied to both organic and inorganic contaminants. ECRTs were developed in Germany in 1992 and have been employed at many sites in Europe under a range of soil and sediment environments.

The ECRT project area will be approximately 50 feet by 50 feet within the Log Pond.

Technology Description

ECRT uses two electrical processes called electrochemical geooxidation (ECGO) and induced complexation (IC). Both ECGO and IC operate by imposing an electric current between electrodes (cathodes and anodes) installed in the sediments to be remediated. Electric power is passed through a proprietary direct current (DC)/alternating current (AC) converter that produces a low-voltage and low-amperage

DC/AC current. When this modified electrical current is passed through the sediment through the electrodes, the sediment particles become polarized and are purported to develop electrical properties similar to a capacitor. According to the technology developer, when the polarized particles discharge electricity in the ECGO the energy given off induces chemical reactions (redox reactions), which decompose organic contaminants. The remediation of metals is reported with IC technology, which relies on ECGO to convert metals to mobile ions that then migrate to the electrodes where they accumulate and are removed.

Project Area:
Latitude: 48° 44' 47.37"
Longitude: 122° 29' 31.17"

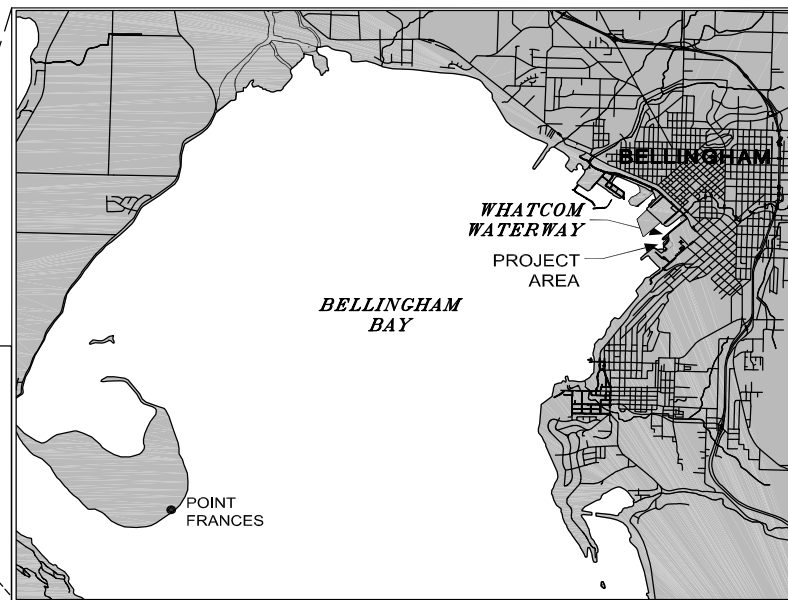
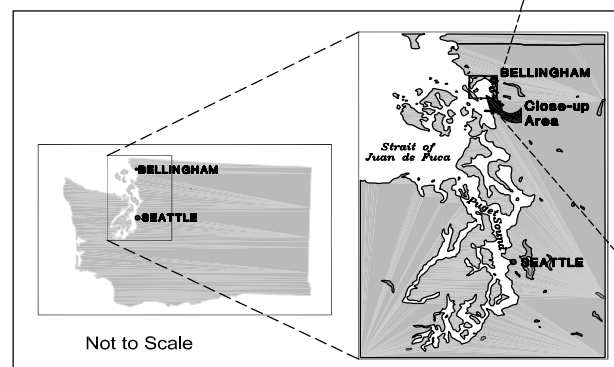


Figure 1
Georgia-Pacific Log Pond
Whatcom Waterway Site
Bellingham Bay, Washington

Objectives

The primary objective of this pilot study is to obtain more data on ECRT processes to determine their effects on contaminants and other elements of the environment.

If successful, this pilot study could lead to development of large-scale *in situ* sediment treatment in Bellingham Bay and other areas of Puget Sound that are contaminated with similar pollutants. The following objectives have been identified for the pilot study:

- Document the effectiveness of the ECRTs (ECGO and IC) in treating metal and organic contaminants within Log Pond sediments and that are common to Puget Sound sediments.
- Evaluate possible environmental effects of *in situ* treatment, including mobilization of contaminants during or following treatment, benthic infauna effects, and possible behavioral effects on sensitive fish.
- Collect data during the pilot study to determine the full-scale costs to implement ECRT as an *in situ* treatment technology for Puget Sound sediments.

Monitoring will be conducted throughout the duration of the ECRT pilot study to assess whether the objectives are met. Monitoring activities will include:

- Sediment chemistry monitoring to document

expected reductions in chemical concentrations over time.

- Contaminant flux monitoring from sediments into the overlying water column.
- Benthic infauna population monitoring to assess changes in surface sediments within the ECRT treatment area.
- Assessment of longer-term alterations of contaminant leachability due to ECRT application.
- Fisheries monitoring using a combination of hydroacoustical and trawl sampling methods to monitor possible behavioral effects of the ECRT process on electrosensitive fish.

Schedule

The ECRT apparatus is proposed to be installed as soon as September 2001 and removed no later than February 2002.

Installation of the pilot study infrastructure will involve placing 2 pairs of sheet pile electrodes into the sediment

(4 sheet piles: 2 positive and 2 negative electrodes). The sheet piles will be placed in parallel at a distance of 30 to 50 feet. The sheet piles will be placed into the sediment by vibratory hammer equipment in such a manner as to minimize any disturbance of contaminated sediments and the sediment cap.

Operation of the ECRT apparatus, along with monitoring activities outlined above, will continue until February 2002 or until the

objectives of the pilot study have been met, whichever is earlier.

State Environmental Policy Act Compliance

As the State Environmental Policy Act Lead Agency, Ecology has prepared an Environmental Checklist and issued a Determination of Non-Significance for the ECRT pilot study. These documents are also available for 30-day concurrent public review with the draft Agreed Order Amendment at the locations listed in the shaded box on page 1.