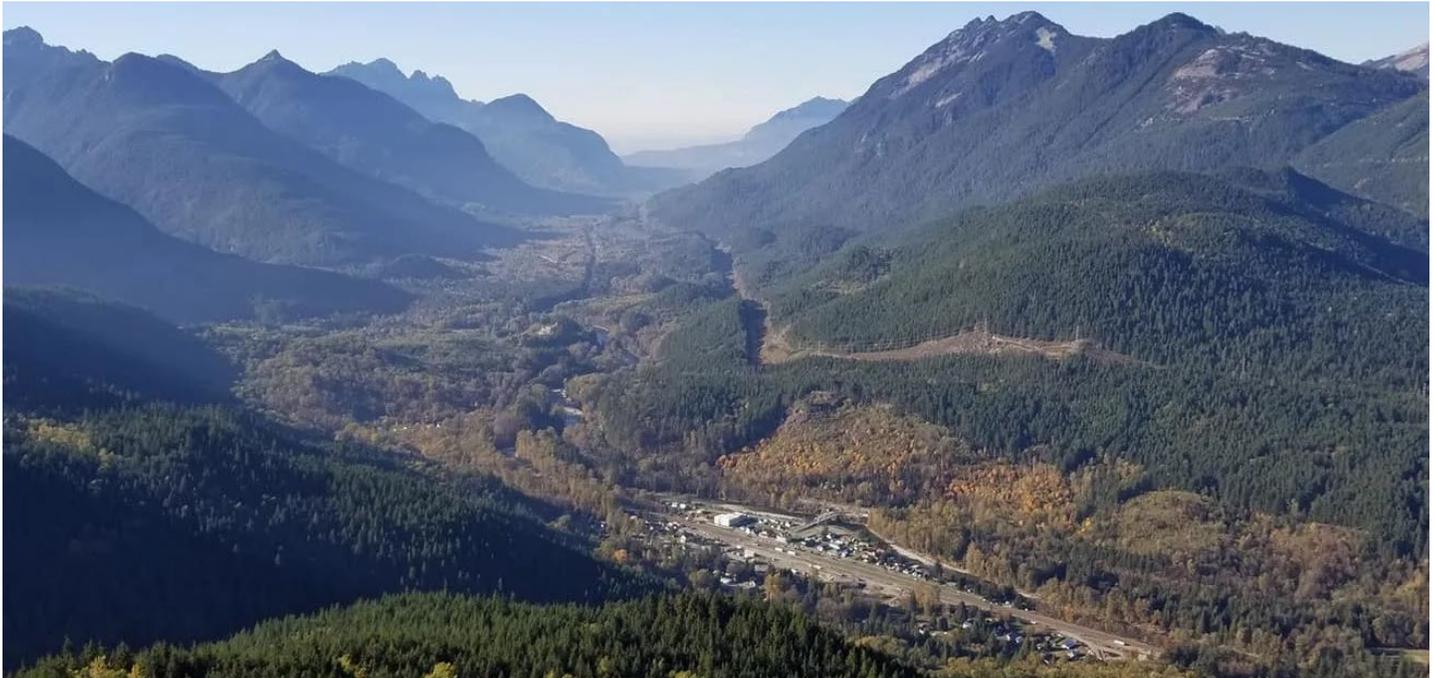


BNSF Railway Skykomish Cleanup



Town of Skykomish

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Site information

www.bit.ly/Ecology-BNSFSkykomish

Facility Site ID: 2104
Cleanup Site ID: 34

2022 Cleanup Update

The community of Skykomish came together and worked with the Department of Ecology and BNSF Railway to accomplish a very complicated cleanup. Monitoring and efforts to improve efficiency continue to this day.

This fact sheet provides an update on efforts at the Skykomish School (page 3), the railyard groundwater containment system (pages 4 – 5), and the containment system’s passive operation pilot study (page 5).

Join Ecology at the April town council meeting and read on for details.

Virtual town council meeting

Ecology’s site manager and outreach specialist will virtually join the Skykomish Town Council meeting to provide an update on the cleanup and answer questions.

Skykomish Town Council Meeting

Monday, April 11 at 5 p.m. (via Microsoft Teams)

<https://bit.ly/SkykomishTownCouncilApril11>

Or call in (audio only):

- Dial: 1 (855) 569-9958
- ID: 911 584 83#

Background

The Town of Skykomish has a rich history associated with railroads. A big part of that history was the Town being home to railway maintenance and fueling facilities since the 1890s. Until 1974, the Great Northern Railway (a predecessor company to BNSF Railway Co.) operated the facility. Activities there resulted in petroleum contamination extending underground from the railyard, beneath the town, and into the South Fork of the Skykomish River.

Many years of study, characterization, and visioning since the 1990s went into building a cleanup plan for the town. Major cleanup efforts happened between 2006 and 2017. The cleanup featured innovative and cutting-edge technologies:

- 21 homes and structures were temporarily moved so that underlying soil and groundwater could be excavated and replaced throughout town.
- The Skykomish River bank and part of Maloney Creek were excavated and replaced with clean soil.
- Some areas were treated biologically (bio-remediation) and with air-sparging technologies.
- Hot-water flushing was used under the historic Skykomish School.
- A barrier wall and treatment system were constructed along the north side of the railyard that runs along Railroad Avenue in Skykomish. The wall was designed to prevent the spread of any petroleum contamination back under the town.

The cleanup in Skykomish was very disruptive for residents to endure. However, the community came together and worked with Ecology and BNSF Railway to get it accomplished.



Historic Skykomish Railyard



Skykomish River bank work, 2006



Temporarily moving the Skykomish Hotel, 2009



Skykomish School construction site plan

Skykomish School

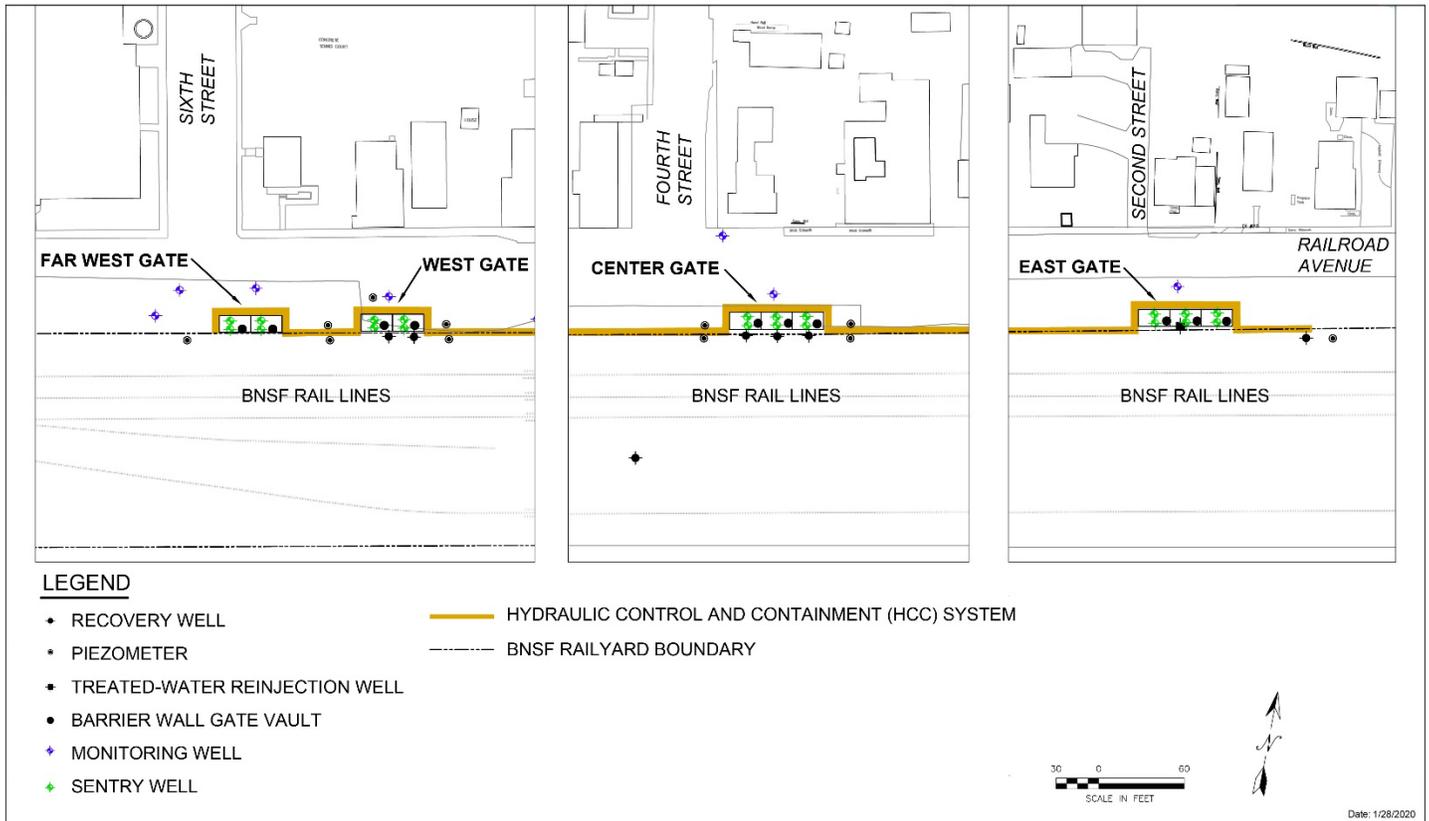
Hot water underground flushing technology was used to treat the petroleum contamination underneath the school. A system was installed that utilized a series of injection and extraction wells. Hot water was injected on the south side of the school, flushed under the school, and then extracted on the north side. The contaminated water was then treated with a water treatment system, and clean water was sent to the Town’s storm water treatment system, which drains into the Skykomish River.

Indoor air monitoring of the school building was done throughout operation of the hot water flushing system to ensure safety, and continued through September 2020. The results from eight quarterly sampling events were less than clean-up levels established for the Town, and all scheduled indoor air monitoring has been completed and indicates the School can be safely occupied.

In 2018 Ecology approved the removal of the hot water flushing system and restoration of school property. Monitoring of groundwater wells on and around school property continues as required in the Long Term Monitoring Plan.



Hot water flushing system well installation, 2015



Hydraulic Control and Containment (HCC) System

The barrier wall and treatment system along the railyard is a major feature of the Skykomish Cleanup Project. It’s called the Hydraulic Control and Containment, or HCC, System.

In the early part of the Cleanup Project, investigations confirmed that the source of petroleum contamination in the Town was the railyard. It was agreed that excavation and disposal of the soils beneath the railyard would be very long and costly, and would interrupt railway operations. The parties opted instead to construct the HCC barrier wall along the north side of the railyard to capture and remove as much impacted groundwater as possible, and contain the impacts to the railyard.

The HCC System consists of a barrier wall and groundwater extraction and treatment system. The objective of this system is to ensure groundwater meets the appropriate remediation level as it leaves the railyard. The 1,183 foot barrier wall and interception trench are located along the north side of the railyard. There are four flow-through treatment gates within the barrier wall, which contain oil-water separators and a mixture of activated carbon and pea gravel filters. There are nine groundwater extraction wells connected to a water treatment system. The “active” part of the HCC System involves pumping groundwater to the treatment system. Petroleum-impacted water is then treated by the treatment system, and clean water is discharged to the Town’s storm water system, which drains into the Skykomish River.

HCC System “passive/active” features

A “passive” feature is incorporated in the HCC System as well. This utilizes the barrier wall and the four carbon/pea gravel filled flow-through gates to treat groundwater flowing from the railyard. (See figure on page 4 and pictures to the right.) The “passive” barrier wall was installed as a redundant backup to the “active” extraction system, in case of mechanical failures and maintenance. Operational data collected since 2009 suggests the barrier wall is a vital part of the containment system, not only a redundancy measure.

The HCC System was installed in 2008, and the active groundwater pumping-system operated from 2009 to 2019. In 2018, BNSF proposed operating it with the passive system components only, plus the light non-aqueous phase liquid (LNAPL or petroleum products that float on top of groundwater) skimmers. Prior to the HCC System installation, isolated areas of LNAPL were observed across the railyard. Operation of the HCC System was successful at concentrating areas of LNAPL to the system’s collection trench, oil-water separators, and extraction wells. Proposed “passive” operation of the HCC System included the operation of skimmers to collect LNAPL from the extraction wells and oil-water separators at the gates. Over the years of HCC System operation, LNAPL has diminished to trace amounts in the recovery wells and oil-water separators such that active skimming and pumping from recovery wells may no longer be necessary in the future. Dissolved phase petroleum is removed from groundwater leaving the BNSF property by the activated carbon filters installed in the barrier wall gates. The HCC System was designed to provide the flexibility to allow incremental shutdown of portions of the system as remediation progresses. Passive operation provides an opportunity to meet cleanup standards, while reducing the operational environmental footprint.



Installation of HCC treatment gate system, 2008



HCC System construction on Railroad Avenue, 2008

HCC System Pilot Study

Ecology approved an HCC System Passive Operation Pilot Study (Pilot Study) in January 2019. The Pilot Study was extended from 12-months to 24-months to gather more data. The purpose of the Pilot Study was to evaluate the HCC System’s ability to meet the cleanup objectives through passive operation (allowing the carbon media to treat groundwater). During the passive Pilot Study the groundwater pumps were turned on for approximately 4 hours every 2 months, to ensure ease of restart. Data available to date indicates passive operation of the barrier wall has met Site cleanup standards.

What happens next?

Results of this Pilot Study will be used to inform Ecology’s decision on the future method for operating the HCC System. A significant change in the long term operation of the HCC System will require an amendment to the Consent Decree, the legal document directing clean up at the Site. If an amendment to the Consent Decree is proposed, a public comment period will be held prior to finalizing the changes.

Toxics Cleanup Program
913 Squalicum Way, Unit 101
Bellingham, WA 98225

BNSF Railway Skykomish Cleanup 2022 Cleanup Update

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Monday, April 11 at 5 p.m.**

Skykomish Town Center



ADA accessibility

To request an ADA accommodation, contact Ecology by phone at 425-324-5901 or email at ian.fawley@ecy.wa.gov, or visit ecology.wa.gov/Accessibility. For Relay Service or TTY call 711 or 877-833-6341.