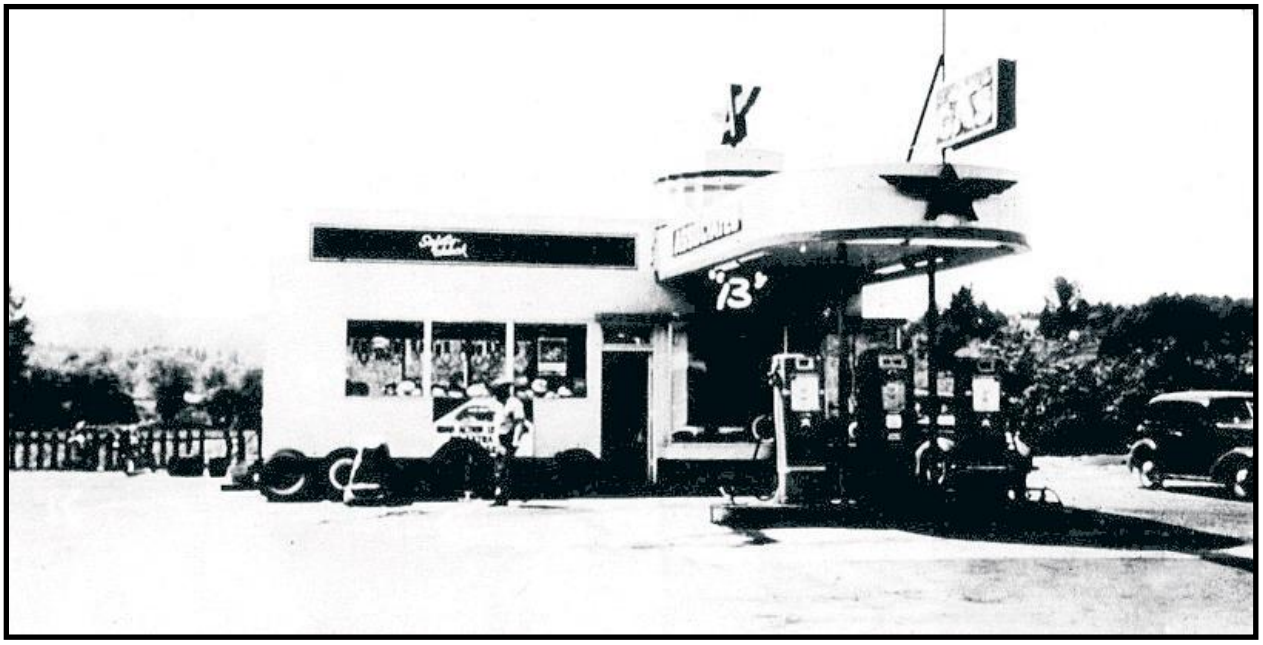
DEPARTMENT OF ECOLOGY
State of Washington

Bothell Riverside Site

Public Comments



Comment Period:

October 20 – November 20, 2017

Northwest Regional Office – Toxics Cleanup Program 3190 160th Ave SE
Bellevue, WA 98008

Hi Aparna,

I appreciate your interest in our Bothell Riverside cleanup effort in downtown Bothell. Ecology has responded to your questions, please see below.

Question 1

How is the HVOC plume effecting the Sammamish River?

a. Are there surface water samples that have been taken?

i. Where is that data?

Ecology's Response:

No surface water samples has been taken at the Sammamish River. Since 2008, groundwater samples from various groundwater monitoring wells (MW) have been taken. Groundwater monitoring well RMW7 is located closest to the Sammamish River. (See attached map). The data from RMW7 could, to some extent, represent the plume flowing into the Sammamish River. This well has shown solvent contamination. The pump and treat system is minimizing this discharge.

b. I have seen dogs drink and play and in the water, is that safe?

Ecology's Response:

Even though there is no risk assessment done for dogs drinking and playing in the water. The excess solvent, if any present, in the water poses minimum threat. Solvent is volatile. It tends to evaporate when exposed in a surface waterbody.

Since 2014, a groundwater pump and treat system has been installed at HVOC site. The vinyl chloride concentrations in monitoring well RMW7 has been reduced from 27ppb (parts per billing) to 0.86ppb. The vinyl chloride cleanup level currently being used for HVOC site is 0.2 ppb.

c. Are there any groundwater monitoring wells on the South side of the Sammamish River?

i. Has any data been taken on the South side of the Sammamish River?

Ecology's Response:

There is no groundwater monitoring wells on the South side of the River to my knowledge. I am not aware of any data collected on the South side of the River.

The source of the solvent contamination is located on the North side of the River. It is unlikely that ground water from one bank of the river could reach the other side, either via the surface water, or via ground water underneath it.

Question 2

What basis were the MCTA clean-up levels calculated on?

Ecology's Response

The Model Toxics Control Act (MTCA) cleanup level currently used for HVOC site is based on protection of groundwater as a drinking water resource.

Question 3

What is the proposed land use of the remediated areas for the TPH site and the HVOC site?

Part of the TPH site is now under the new Highway 522, and the other part is part of Lot EFG. The city is interested in getting Lot EFG developed. (See attached map)

The HVOC site will remain as a city park.

Public Meeting Request

Additionally, I and my husband Craig would like to formally request a public meeting.

Ecology's Response:

I've made a note that you and your husband requested a public meeting. Ecology will hold a public meeting if there are 10 requests from the public.

The public comment period for Bothell Riverside for the TPH ends on November 20, 2017. There will be another public comment period for Bothell Riverside HVOC site. Once we evaluate the current groundwater pump and treat system, we will decide if there is additional cleanup required at HVOC site.

Please feel free to contact me if you have any other questions regarding the cleanup efforts at Bothell Riverside site.

Sincerely,

Sunny Becker, Site Manager
Ecology Northwest Regional Office -Toxics Cleanup Program
3190 160th Ave SE,
Bellevue, WA 98008
Phone: 425 649-7185

Bothell Riverside website:
https://fortress.wa.gov/ecy/gsp/CleanupSiteDocuments.aspx?csid=6240

Dear Mr. Gregory F Smith,

I appreciate your interest in our Bothell Riverside cleanup effort in downtown Bothell. Ecology has responded to your questions, please see below.

Question 1: What was the process that resulted in authorization of completion of the re-routing of SR522 through the site after the site was cleared of TPHs, but before it was cleared of HVOCs? Especially since the source of the HVOCs is unknown.

Ecology's Response:

Prior to SR 522/SR527 road construction, City of Bothell (City) and Washington State Department of Ecology (Ecology) did the following:

- Investigate the nature and extent of the contamination at the site.
- Conduct an interim action removing the TPH contaminated soil before the SR522/SR527 construction.
- Conduct a second interim action "pump and treat" for the HVOC plume.

The HVOC impacts were not anticipated to require excavation, therefore were not placed on the critical path schedule for roadway construction. The data collected during the investigation do not show any HVOC exceeding Washington State Model Toxics Control Act (MTCA) cleanup level in the soil beneath SR522. There is only one bore hole B14, with PCE concentration of 5.9 ppb in the groundwater. This contamination slightly exceeds the Model Toxics Control Act (MTCA) cleanup level of 5 ppb.

Even though additional groundwater investigations were conducted after the pump and treat system was installed, we still do not know the exact source to the HVOC plume as of today.

Question 2: What was the process that resulted in a five year (2008 – 2013) delay between discovery of the HVOC contamination in the site and the activation of the pump and treat system?

Ecology's Response:

The Model Toxics Control Act (MTCA) Cleanup Regulation, Chapter 173-340 WAC is Washington state law for assessing and conducting environmental cleanups. The MTCA process consists of site characterization, evaluation of cleanup alternatives, selection of cleanup methods, cost evaluation, etc.

Each step requires negotiations between Ecology and the City. Ecology and the City together decided to move forward with the pump and treat system as an interim action to prevent continued HVOC discharge into Snohomish River. Ecology and the City continues monitoring the effectiveness of the current pump and treat system, and will determine if the pump and treat system will become the final cleanup action for the HVOC plume.

Model Toxics Control Act, is the Washington State Cleanup law, for more information:
https://fortress.wa.gov/ecy/publications/SummaryPages/9406.html

Question 3: On Page 6 of the RI rev 3 May 23 2017 the last two lines of section 2.1 identify the HVOC area, while not specifying the part underneath the new SR522. Figure 2 does show the HVOC area as

including the new SR522 section. How will it be established that this part of the HVOC area has been cleared of HVOCs?

Ecology's Response:

- Groundwater data collected to date confirmed HVOC exceedances south of the new SR522.
- Groundwater data were collected beneath SR522 before the roadway construction. The data do not show any HVOC exceedances, except one bore hole B14 with PCE concentration of 5.9 ppb. This contamination slightly exceeding the MTCA cleanup level of 5 ppb.
- Groundwater data were also collected north of SR522 after the road construction. These data do not show any HVOC exceedances.

We have revised the Figure 2, and included it in the most recent RI report.

https://cityofbothell-my.sharepoint.com/personal/nduta_mbuthia_bothellwa_gov/_layouts/15/guestaccess.aspx?folderid=074aaff2bc16e432d85063c1811638f54&authkey=AeZgIT0JBH7pA0vBEKs4xlQ&expiration=2017-12-22T08%3A00%3A00.000Z&e=9fca37f9c2bc4d828701345e202e1763

The final report will be posted on-line at https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=427 and available at the repositories.

Further, this area may not be cleared of HVOCs. The City will be required to file deed restrictions for this area.

Question 4: On Page 7, calculation methods are shown for particle velocity. What qualifies as a "particle"?

Ecology's Response:

The term "particle velocity" is a bit of technical jargon. It describes the average horizontal speed at which something inert contained in the ground water (an imaginary "particle", such as a molecule of H2O) travels. This is in contrast to the speed at which some chemicals travel in ground water. It may be faster or slower than the "particle" velocity. This is due to physical processes such as dispersion, or slowing down of the contaminants. An example is sticking to soil particles.

Question 5: On Page 9 methods of gathering screening information involving soil color, odor and photoionization readings are described. Such information was used to help establish the boundary of the TPH contaminated area. Are color and odor sensitivity thresholds sensitive enough for all contaminants of interest? Is photoionization sensitive to both gasoline and "lubricants" and other contaminants of interest? What happens next if screening information for a soil specimen is not positive?

Ecology's Response:

Field screening is generally used to:

1) decide which samples to send to the laboratory, for chemicals that are detectable by these methods,
2) help guide excavation during cleanup.

For example, if a lab sample shows contamination in a distinct, gray-colored, odorous lens of soil, then we dig out that lens based on visual/odor cues. We test it again using the lab when we think it is all removed.

Volatile chemicals such as gasoline are more readily detected with a photoionization detector, but in many cases non-volatile petroleum like oil can still exhibit odor and visual staining. With or without field screening indicators, we always rely on the lab testing results to establish regulatory compliance.

If screening information is not positive, it usually means there is no contamination.

Question 6: In Table 2, Soil Results, in the benzene column, several measurements are reported with a preceding "<". The "<" likely indicates the laboratory is asserting that the benzene content of the sample is less than the indicated numerical value. When such an indicated numerical value was larger than an identified critical value, it appears that the information was used anyway, how? Was the testing laboratory asked to clarify the situation and to repeat the tests in these circumstances?

Ecology's Response:

The "<" indicates no benzene was detected. The lab's quantitation limit which is the value to the right of the "<". This is the same as a "U" flag (see below), e.g., <0.2 = 0.2U.

The latter is how the labs report, the former is how we show it, for clarity. Typically the reporting limit is higher than usual where other contaminants are present in the sample at high concentrations.

This is because 1) the other compounds "mask" the compound of interest, i.e., make it harder to extract and detect, and 2) the entire sample has to be diluted to measure those other chemicals, because if the concentration is too high, the instrument can't measure accurately.

All of the samples where quantitation limits are elevated and exceed the cleanup levels, represent soils that were excavated. There are no confirmation samples (used to verify that cleanup goals were met) where reporting limits exceeded the state cleanup levels.

Question 7: Figure 10 doesn't show results for vinyl chloride.

Ecology's Response:

Yes, you are correct. The figure does not show the vinyl chloride. The figure will be provided in the final Remedial Investigation (RI) report.

Question 8: Table 3.1 states "Cr standards based on Cr(III). With this sort of heading, if you report Cr, you should establish that the chromium is in the +3 oxidation state. That would be a separate experiment, but it is not reported that it was done. Different oxidation states of chromium present different degrees of hazard.

Ecology's Response:

The more reliable and standard lab test for chromium measures the total of Cr III and VI. It is generally accepted that hexavalent chromium (CrVI), which is more toxic and has lower cleanup levels. It is very unlikely to occur at sites where:

1) there is no known man-made source of chromium (e.g., a metal plating operation),

2) the geologic and chemical conditions don't favor that oxidation state. The absence of hexavalent chromium was established via specialized laboratory testing at other nearby sites.

This analysis wasn't required by Ecology at Riverside. Cr III is naturally occurring and very common in soils at the concentrations detected.

Question 9: In Appendix D note "U" is used, meaning the result is below the pql (practical quantification limit). Alternatively, the report of findings could be - "d" (for detected but below the pql). The pql is established by the repeatability of the test results. How were the pqls established? Were unknowns prepared and tested in duplicate?

Ecology's Response:

"U" is standard convention with analytical laboratories for when a compound is not detected, at a certain PQL. In some cases there is a detection below PQL (they can detect it, but can't accurately quantify it), which is notated with a "J" flag.

PQLs are established at the laboratory by comparing the instruments results to known standards. Using some statistics to establish the lowest value that can be reliably attained (i.e., to a specified statistical standard) by the lab's equipment. The labs quality control procedures include a variety duplicate samples, for different purposes, including establishing PQLs.

Question 10: Page 35 and 36 show spike recoveries. Low recoveries are allowed within limits which are shown. Trichloroethane seems to be the biggest challenge as reflected in both the testing results and in the table of allowable limits. When spike recoveries are low, how are the results handled differently?

Ecology's Response:

The trichloroethylene spike recoveries on pages 35 and 36 of the lab reports are slightly lower than the other HVOCs, but are still within acceptable ranges under the state cleanup regulations. Typically no action is taken or concern raised for QC results that fall within established control ranges.

If QC parameters are outside control limits, samples may be re-analyzed, or the results not used to make cleanup or compliance decisions. Often there is other supporting data (e.g., other analytes, other samples) that can be used to achieve the desired data quality objectives. For example, there are no samples where TCE was the only compound that exceeded the cleanup level.