Boeing Auburn Responsiveness Summary

Ecology held a public comment period for draft cleanup documents for the Boeing facility located in Auburn, Washington. This document presents the comments received and Ecology's responses to those comments.

Comment Period: September 12 – November 11, 2022

Boeing Auburn
Cleanup Site ID: 5049
Facility ID: 2018

Address: 700 15th St. SW
Auburn, WA 98001
County: King

Comments and Responses

Public comments are presented below, followed by Ecology's responses.

From: Don Moody on 9/14/22 at 8:58 A.M. using Smart Comment Manager

Good day,

Has the existence of shallow water wells been addressed in your plan? Many homes could have, without permit, hand or mechanically driven their own water wells. Commonly no deeper than 25 feet and accessing ground water for various purposes. Gardening, swimming pools or non-potable uses could still expose a risk to citizens in and around the contaminated site. Being familiar with the process and uses of ground water. Water quality could be across the spectrum of viability. From toxic to potable, depending on region, location and depth. Entering an unknown contamination that slowly crept into a productive home based and regularly used water well, could be far more dangerous for a private or an uncommunicative family. Notification and protective services should be included in your remediation process.

Ecology's Response

Dear Mr. Moody,

Groundwater in the Algona/Auburn area is shallow and could be accessed by hand-digging a well. We have notified all residents above the contaminated groundwater plume about the contamination. If they are choosing to access this water, they are knowingly incurring a slight risk from the remaining contamination. Well drillers and property owners have the responsibility to ensure that accessing groundwater is done in a safe and legal manner. The contamination in the groundwater is highest underneath the Outlet Collection Mall. Most of the remaining groundwater contamination is near levels considered safe for drinking water and is safe for watering gardens or swimming. However, because this groundwater enters surface water, we are requiring Boeing to clean up the groundwater contamination leaving their

property to the surface water quality criteria, a level about 10 times stricter than the drinking water standard.

Dr. Li Ma, Site Cleanup Manager
Janelle Anderson, Public Involvement Coordinator

From: John Noel on 9/16/22 at 11:43 A.M. using Smart Comment Manager

I have lived in Algona area for over 50 years Boeing has been polluting the water here and elsewhere for decades for as old as I am most likely. And you people in the government are doing what you're letting Boeing do the testing of surface water to see if there's anything contaminated anything poisonous do you people in the government even give a *** about the people of Algona why would you let the perpetrator of the cause of all this do the testing in the cleanup my God Boeing just got through killing 348 people in two plane crashes for money. I'm sure whoever you are running this agency you're as corrupt and scummy as inslee is. Our state is a **** now so all I really got to say to you you government *** is *** off. This b/s has been going on way too long with Boeing they should have been fined and sued into the ****** point of being broke for what they're doing but no they aren't. Corrupt **** you people are!

Ecology's Response

Dear Mr. Noel,

The regular collection and testing of groundwater from the Boeing Auburn wells is done by a consulting firm, and the samples are processed at an accredited laboratory. The data are reviewed for quality assurance and validated. Ecology then reviews the data and posts data on Ecology's website for public access. Sampling and analysis protocols follow Ecology-approved sampling and quality assurance project plans. Ecology has audited the sampling conducted by the consulting firm and has found that they adhere to the approved plans and quality assurance measures. Due to your concerns, we will audit groundwater sample collection again in 2023.

Dr. Li Ma, Site Cleanup Manager
Janelle Anderson, Public Involvement Coordinator

From: Christopher Barth on 10/27/22 at 8:17 A.M. via email

Hello,

The proposed remediation by Boeing at the Auburn site where TCE has polluted the surrounding areas will not be effective.

TCE is now classified as a known carcinogen. 0.4 µg/L for TCE is the EPA limit for human exposure. The September 2021 concentrations less than 2 µg/L are still too high. and 5 times the limit for human exposure. Groundwater is at surface level in the affected area. Surface water levels should be guarded.

The affected area has surface water present year-round. All measurements of contamination should comply with surface water standards.

Chicago Avenue Ditch exposes residents to contaminants. Bioremediation is unproven and not well studied for TCE contamination in the environment. The soil conditions in the affected area will not permit the movement of the Interim Remedial Action. These soils are not conducive to bioremediation without sufficient aeration. The plan does not include aeration. With the necessary aeration extensive monitoring would be necessary to assure that the final product of this remediation is not vinyl chloride. The draft does not include the required aeration necessary for bioremediation to work.

In summary, this draft is for a planned failure and continued contamination of a residential neighborhood.

Chris Barth Algona, WA resident.

Ecology's Response

Dear Chris,

Thank you for your concern and in-depth comments on the Boeing Auburn draft cleanup action plan (dCAP). Below is Ecology's response to your comment. We have addressed your comment in three parts.

Treatment Effectiveness:

Bioremediation[1] and Monitored Natural Attenuation (MNA)[2] are effective treatments for trichloroethylene (TCE) and its breakdown products, including vinyl chloride. The bioremediation being used at Auburn uses a type of bacteria that lives without oxygen. The anaerobic (without oxygen) bioremediation of TCE and its breakdown products has been in widespread use for more than 15 years. Bioremediation is a part of many state-regulated and EPA-approved cleanups at contaminated sites.

More importantly, anaerobic bioremediation was proven to be effective at the Boeing Auburn site. A bioremediation interim action at the Boeing Auburn site reduced TCE concentrations to levels below the cleanup standard within the treatment area.

A pilot study in Algona showed that the groundwater conditions there are a good fit for the bioremediation that happens without oxygen. You suggested using aeration, which adds oxygen to the groundwater. Aeration is used for contaminants that need oxygen to break down. However, the biological process to break down TCE in Algona is most effective when oxygen is **not** present. Since the groundwater here is naturally suited to the non-oxygen method, we don't want to add aeration and fight nature. The bacteria, in this case, need anaerobic (without oxygen) conditions.

After the bioremediation treatments, concentrations of TCE and its breakdown products in groundwater will be monitored until cleanup levels are reached.

[1] https://apps.ecology.wa.gov/publications/SummaryPages/2104019.html
[2] https://apps.ecology.wa.gov/publications/SummaryPages/2104020.html

TCE Cleanup Levels:

Ecology required a TCE cleanup level for the site's groundwater of 0.38 µg/L (0.38 micrograms of TCE contamination per liter of water), which is about 10 times more protective than the level of TCE allowed in drinking water (4.0 µg/L). EPA's limit for TCE in groundwater is 5.0 µg/L. The cleanup levels Ecology is requiring at Boeing Auburn are much more protective than the EPA criteria.

Surface Water and Shallow Groundwater in Algona Area:

As you stated, surface water is present year-round in the Algona residential area. To ensure residents' safety, Ecology required Boeing to monitor TCE concentrations in surface water, including the Chicago Avenue ditch, as well as in shallow groundwater.

The Washington State Department of Health evaluated surface water in areas where it connected to the contaminated groundwater. They concluded that exposure to the levels of volatile organic compounds (VOCs) found in the surface water was not expected to have harmful human health effects. For more information, see this Department of Health fact sheet: City of Algona Preliminary Evaluation of Exposures to Surface Water in Chicago Ave Ditch and Government Canal.[3]

Levels of contamination in Algona surface water are much lower than concentrations needed to protect people and animals from contact with the surface water. In general, TCE concentrations are higher in deeper parts of the groundwater. As groundwater is treated with bioremediation and cleaned up, the concentrations of VOCs in surface water will also be reduced. Concentrations of VOCs at the site continue to decrease.

Dr. Li Ma, Site Cleanup Manager
Janelle Anderson, Public Involvement Coordinator

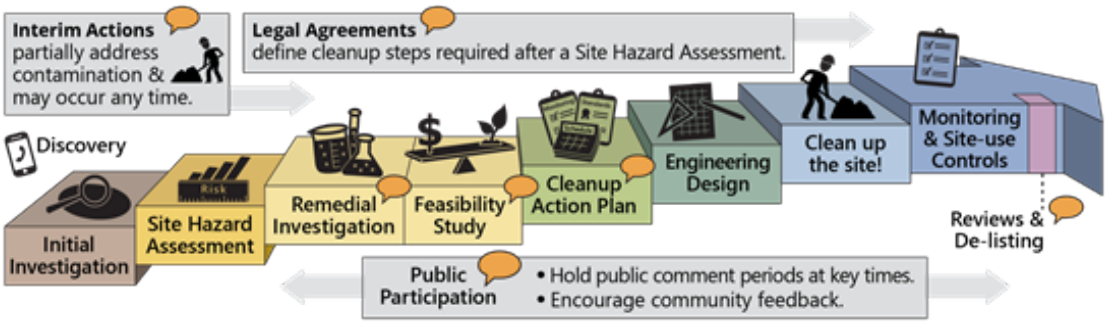

Figure 1: Steps in the MTCA cleanup process. Read a plain text version of Figure 1.[4]

[3] https://apps.ecology.wa.gov/cleanupsearch/document/19722
[4] https://apps.ecology.wa.gov/publications/parts/1909166part2.pdf

Documents for Review and Comment

Cleanup Action Plan[5]

Permit[6]

Enforcement Order[7]

SEPA checklist[8] and Determination of Nonsignificance[9]

Public Participation Plan[10]

Background

Since 1966, Boeing has owned and operated the Auburn facility. In the past, Boeing treated and stored dangerous waste at the facility. The federal Resource Conservation and Recovery Act (RCRA) requires Boeing to have a permit for these activities. In 1980, Boeing applied for their original RCRA part A permit for the storage of dangerous wastes as required by the U.S. Environmental Protection Agency (EPA). In 1987, Ecology and EPA jointly issued a dangerous waste permit (RCRA permit) to Boeing that allowed them to continue to treat and store waste at the Auburn facility. Boeing no longer has permitted dangerous waste management units, but they must keep their permit until site cleanup is complete.

Contamination

During the remedial investigation, we had Boeing test where people could contact the contaminated groundwater as it enters surface waters (e.g., ditches, ponds, and creeks) or the air (e.g., air in soil pockets or indoor air). We found that chemical levels are low enough that they do not present human health risks. The study found traces of the following chemicals:

- trichloroethylene (TCE): a liquid chemical once commonly used to clean metal parts.
- cis-1,2-dichloroethene: a chemical that results from TCE breakdown.
- trans-1,2-dichloroethene: a chemical that results from TCE breakdown.
- vinyl chloride: the last toxic chemical created when TCE breaks down.

Of these, the most toxic chemicals are TCE and vinyl chloride. Vinyl chloride naturally degrades to non-toxic end products. The groundwater flowing away from the Boeing Auburn facility is contaminated with TCE and its breakdown products. The contaminated groundwater flows north and northwest from the Boeing property, under portions of Algona and Auburn.

[5] https://apps.ecology.wa.gov/cleanupsearch/document/115643
[6] https://apps.ecology.wa.gov/cleanupsearch/document/78853
[7] https://apps.ecology.wa.gov/cleanupsearch/document/115973
[8] https://apps.ecology.wa.gov/cleanupsearch/document/115345
[9] https://apps.ecology.wa.gov/cleanupsearch/document/115975
[10] https://apps.ecology.wa.gov/publications/SummaryPages/2204034.html

Boeing has a network of monitoring wells to measure the concentrations of contaminants in groundwater over time. The wells are sampled regularly, and the results monitored by the assigned Ecology site manager, Dr. Li Ma. The areas of highest remaining contamination in groundwater are under the Outlet Collection Mall. TCE levels there are at about 9.6 parts per billion; this is about 2.5 times the concentration of TCE allowed in drinking water. Contamination at this site is declining at a steady rate due to natural breakdown and will be enhanced in certain areas by treatments applied under the Cleanup Action Plan.

Prepared by

Dr. Li Ma
Site Cleanup Manager

Janelle Anderson
Public Involvement Coordinator

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Translations Available

Español: Para solicitar una copia de este documento en español por favor envíe un correo electrónico a janelle.anderson@ecy.wa.gov.

[11] https://ecology.wa.gov/About-us/Accessibility-equity/Accessibility