

DEPARTMENT OF  
**ECOLOGY**  
State of Washington

## **Response to Public Comments**

### **Comment period for public participation plan and corrective action permit**

### **Boeing Auburn Fabrication Cleanup Site Auburn, WA**

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*Facility Site ID: 2018*

*Cleanup Site ID: 5049*

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# Publication and Contact Information

This document is available on the Department of Ecology's website at:  
<https://fortress.wa.gov/ecy/publications/summarypages/1904004.html>.

## Boeing Auburn Fabrication Website

For more information and to see all documents related to the Boeing Auburn Fabrication Site, go to: <https://ecology.wa.gov/BoeingAuburn>.

For more information contact:

Department of Ecology  
Northwest Regional Office  
3190 160<sup>th</sup> Avenue SE  
Bellevue, WA 98008-5452

Washington State Department of Ecology – [www.ecology.wa.gov](http://www.ecology.wa.gov)

- Headquarters, Olympia 360-407-6000
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Washington State Department of Ecology  
Northwest Regional Office  
Hazardous Waste and Toxics Reduction Program  
Bellevue, Washington

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## Public Outreach

From July 19, 2018 to September 7, 2018, the Department of Ecology (Ecology) solicited public comments on a revised public participation plan and a corrective action permit and application for the Boeing Auburn Fabrication cleanup site, at 700 15th St SW Auburn, WA.

Our public involvement activities related to this comment period included:

- **Fact Sheet:** US mail distribution of a Fact Sheet providing information about the public participation plan and corrective action permit public comment period to approximately 8,705 people including neighboring businesses and other interested parties. Email distribution of Fact Sheet to approximately 264 people, including interested individuals, local/county/state/federal agencies, and interested community groups.
- **Listserv:** Announcement of the public comment period sent to 264 people on Ecology's Boeing Auburn Clean up listserv and 178 people on the City of Algona's Boeing Auburn listserv.
- **Algona City Utility Mailer:** Announcement of the public comment period in the Algona utility mailer sent to 917 people.
- **Legal Notice:** Publication of display ads in the *Auburn Reporter* (July 13, 2018), *Tu Decides* (July 13 for one week) and *El Mundo*, (July 19 for one week)..
- **Radio Public Service Announcement:** Public announcement of public comment period on three radio stations (El Rey, KGRG-FM, and KVTI) on July 19, 20, 23, 24, 25, August 29, 30, 31, September 3, 4, 5. Announcement was aired two times per day, morning and afternoon.
- **Site Register:** Publication of a notice in Ecology's Toxics Cleanup Site Register on July 19, 2018. Visit the register website here:  
<https://fortress.wa.gov/ecy/publications/UIPages/PublicationList.aspx?IndexTypeName=Program&NameValue=Toxics+Cleanup&DocumentTypeName=Newsletter>
- **Website:** Announcement of the public comment period and posting of the Fact Sheet, public participation plan, and corrective action permit and application on Ecology's Boeing Auburn Fabrication clean up website:  
<https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Toxic-cleanup-sites/Boeing-Auburn-Fabrication-Site>
- **Document Repositories:** Provided copies of the document for public review through three information repositories: Algona Pacific Library, Auburn Library, and the Department of Ecology Northwest Regional Office.

# Comment Summary

Ecology received four comments from five individuals and one organization during the comment period.

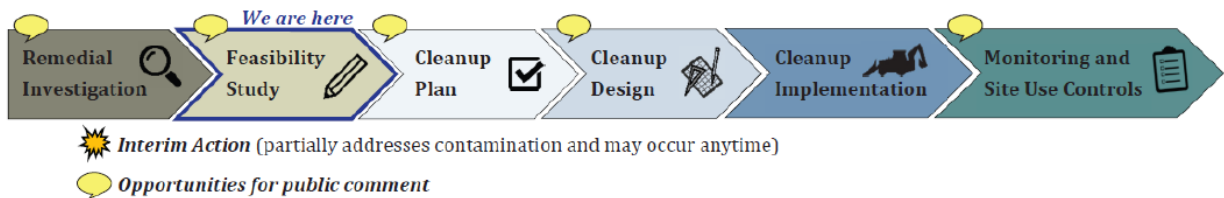
**Table 1: List of Commenters**

	First Name	Last Name	Submitted By
1	Sharon	Smith	Individual
2	Theodore Zeenab Linda	Ward Fowlk Johnson	Individuals
3	Hank	Landau	Individual
4	Marisol	Diaz	Organization

## Next Steps

There are six phases in the cleanup process covered by the permit: remedial investigation, feasibility study, cleanup plan, cleanup design, cleanup implementation, and monitoring and site use controls. We are currently in the feasibility study phase. Interim actions or partial cleanups can occur at any time. There will be opportunities for public comment at each stage, except for cleanup implementation.

Figure 1. Diagram of cleanup process





## **Comments and Responses**

Ecology has reviewed and considered all comments received on the public participation plan and corrective action permit and application. Based on Ecology's evaluation of the comments, some changes were made to the public participation plan. No changes were made to the corrective action permit and application. The comments are presented below, along with Ecology's responses.

Appendix A, page 15, contains the comments in their original format.

### **Comment from: Sharon Smith**

*Boeing has operated under a Corrective Action permit since 2006. A test project for bioremediation was conducted by Boeing three years ago. Is it really a great idea for Boeing to be in charge of their own clean up? And what is this about only water in ditches and air quality being tested? And those tested seem to be in a relatively small area for a problem going back so many years. And how old is that map showing the ground water contamination? I have lots of questions - too many really*

[Note: Duplicate comment was submitted three times]

#### **Response:**

Ecology reviews and provides oversight on all the work that Boeing does to comply with the law and conduct the cleanup. Boeing is in charge of hiring contractors, ensuring that cleanup studies and actions are completed according to Ecology's oversight; and is responsible for paying for all the work including costs to the state for its oversight of the project. Ecology has found that many sites have been successfully cleaned up using this process.

Within the area where the contaminated groundwater is located, Boeing has tested the following: groundwater, soil gas, ambient air, indoor air (in both residences and commercial buildings), and surface water in yards, ponds, ditches, and creeks. So, while Boeing tested water in ditches and air quality, they also included more than these two types of samples in their testing across the site.

Sampling across the site is targeted to areas where the groundwater is contaminated because areas with uncontaminated groundwater do not subsequently impact surface water, soil gas and potentially indoor air. The area of groundwater sampling for this site covers over a square mile.

A relatively smaller area of approximately five city blocks is where homes in northeast residential Algona had their indoor air tested. The indoor air sampling took place only where residences were located above contaminated groundwater at the shallowest level called the water table. This is because the conditions that can result in vapor intrusion will only form where the contamination is located at the water table.

The history of release of the solvent chemical, Trichloroethene, from the Boeing Auburn Facility spans several decades beginning in the 60's. We have no data from beyond the property boundaries to determine what the levels actually were during that timeframe. Therefore, our focus is on the data we have now and what needs to be done to clean up the site.

The map of the plume is updated annually based on the June sampling event. The most recent plume maps have not changed that much from previous maps with regard to the extent of the contamination. The maps do look similar from year to year. However, at most well locations, we do see the concentrations of Trichloroethene in groundwater declining slowly over time.

## **Comment from: Theodore Ward, Zeenab Fowlk, Linda Johnson**

*No one received a flyer, hence we had to request printing and mailing of additional flyers to us for distribution to residents. [...]*

### **Response:**

Contamination in groundwater from the Boeing Auburn Site is migrating to the north and northwest *away* from the location of homes east of 'C' Street. Therefore, Ecology has not typically sent flyers to residents of Auburn east of 'C' Street.

The City of Auburn tests their water supply on a regular basis for all types of chemicals. The South Auburn Water Association (SAWA) also has separate requirements for testing the water it provides to its homeowners. The regulations and guidance regarding testing and maintaining Group A water systems can be found here: <https://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater>. We historically have mailed a flyer to the Presiding Officers of SAWA, and also the Auburn Mobile Home Park, when we send flyers to the City of Auburn, and local businesses for their information.

Are the residents you represent part of the SAWA? If so, please note that the person on record for the association recently indicated to us that they have moved. Please help us to update our mailing list by sending us the name and address of the person or persons in charge of your association to whom we should direct future mailings regarding this project. If some or all of the residents of your HOA wish to be added to our mailing list, please send us their mailing addresses.

*[...] It took two weeks to receive these flyers. [...]*

### **Response:**

We apologize for the delay in our response to your request. We made copies for you on a complimentary basis. When individuals, who live outside the area

covered by a mailing list, request multiple copies of a mailer, the state typically charges for this service. Copies of this flyer may be downloaded from our website here: <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Toxic-cleanup-sites/Boeing-Auburn-Fabrication-Site>.

*[...] YMCA members and staff not aware of the information in the flyer. [...]*

**Response:**

A representative for the YMCA is sent a copy of all of our mailings. During the remedial investigation (RI), Ecology oversaw testing of indoor air at the YMCA for the solvent chemicals present in groundwater. The solvent chemicals were not detected in the samples from the YMCA or were detected at very low levels that do not pose a risk to health. The levels of the solvent chemicals in groundwater have been going down since the testing. Therefore, there has not been a need to re-test indoor air at the YMCA. However, Ecology continues to monitor the concentrations of solvent chemicals in groundwater at the wells near the YMCA and will direct Boeing to investigate further if conditions change.

*[...] Outcome: Could not identify anyone other than former Boeing employees who are aware of the PPP. [...]*

**Response:**

We held a public comment period for the first public participation plan. It is Attachment 4 to the February 2006 legal agreement (Agreed Order or AO). The AO can be found on Ecology's website for this cleanup. We updated the public participation plan in 2018 to respond to the concerns of the nearby community.

*[...] Since so few knew about the PPP, was this why the flyer indicated "unless 10 or more requests were received no public hearing would be scheduled? [...]*

**Response:**

Please contact us if you would like to schedule a briefing with the site manager and public involvement coordinator.

We are not required to hold a public hearing for a comment period for a corrective action permit and public participation plan. A public hearing is required for a consent decree (legal agreement.) We offered to hold a public hearing if 10 or more people requested because the public has had a high interest in this site.

We more often hold public meetings according to our cleanup regulations. MTCA 173-340-600 (5) states, "During any comment period announced by a public notice issued under this chapter, if ten or more persons request a public meeting on the subject of the public notice, the department shall hold a public meeting for the purpose of receiving comments."

*[...] Are residents who use the YMCA actually getting more than they expected when using the facility? Is there a price associated with taking advantage of the free services offered by the YMCA? (Possibly implying that exposure to contamination can occur when using the YMCA?). [...]*

**Response:**

Ecology has tested groundwater, soil gas, and indoor air at the YMCA. We did not find that there are risks to human health due to the levels of solvent chemical in the groundwater, or in the indoor air.

*[...] Many residents don't have computer or smart phone access, so no easy way to access materials. [...]*

**Response:**

For those residents who do not have a computer or smart phone, there is a hotline number for this project: (253) 219-7645 that was included on the factsheet. Someone at this number will either be able to answer your question or direct you to the person with expertise to respond.

*[...] Outcome: Algona Library only location for documents, so had to make a special trip. Why not at Auburn Library too? [...]*

**Response:**

Ecology placed the public involvement plan and permitting documents at the Auburn Library at the start of the comment period. However, we failed to list the Auburn Library as a repository site in our project factsheet which only listed the document review locations as the Department of Ecology Northwest Regional Office and the Algona-Pacific Library. This was an unintentional oversight.

*[...] We require assistance to walk us through the mounds of materials at the library. [...]*

**Response:**

You can call the site manager, Robin Harrover, during week-days by phone at: 425-649-7232. You can also contact the Algona/Auburn Public Awareness Coalition (APAC). They are an additional resource for the public to help answer questions you may have regarding documents located at the repository. They may be contacted via their website at: <http://wa-apac.org/>

*[...] Outcome: Inability of residents to communicate effectively without computer or smart phone connectivity essentially renders them voiceless. [...]*

**Response:**

We have taken note of your concerns about the lack of access to the internet and also the need for easy ways to comment without the use of the internet during public comment periods. The site manager, Robin Harrover, is available during week-days by phone at: 425-649-7232. We may also be reached in writing by sending written requests for information or comments to Ecology's Northwest Regional office at:

Robin Harrover  
Department of Ecology, NWRO  
3190 160<sup>th</sup> Ave SE  
Bellevue, WA 98008-5452

*[...] Permit should not be allowed until definite dates for completion become part of the timeline.  
[...]*

**Response:**

We are required by the EPA to issue the new permit to Boeing because the work Boeing must do for cleaning up the site has not been finished. Without the permit, the Department of Ecology has no legal instrument authorizing us to direct Boeing to clean up the site. Reissuing the permit is an administrative task that extends the effective date of the permit for another ten years until September 2028. The cleanup work is progressing. However, it is not possible to pick a definite date for completion, since there are so many factors involved in what the selected remedy for the site will be, each of them resulting in different timelines for completion.

*[...] There are no measurable goals established for this project, so it is going un-checked. [...]*

**Response:**

We have achieved the goal of completing the remedial investigation for the site. We have also begun evaluating the appropriate technologies to clean up the site as part of the Feasibility Study (FS). In order to get a head start on the FS, Boeing conducted a pilot study to determine if bioremediation would work to reduce the level of contamination. For more information about the pilot study you can visit Ecology's website for this cleanup.

We are required to use the cleanup process set out in the state Model Toxics Control Act (MTCA) for cleaning up the site. The process is being followed according to state and federal regulations and Ecology reports its progress to the EPA who provides a check on how work is progressing.

*[...] No one is providing buyers with information about the contamination in the area when homes are sold – not realtors, banks, or state/federal government entities. [...]*

**Response:**

There is a helpful tool that will show buyers where sites that manage Dangerous Waste are located. It can be found online here:

<https://fortress.wa.gov/ecy/neighborhood/>

You can also contact APAC for more information about [Property Disclosure](http://wa-apac.org/questions-from-the-community-factsheets/property-disclosure) (<http://wa-apac.org/questions-from-the-community-factsheets/property-disclosure>).

*[...] No EIS was found with the documents. [...]*

**Response:**

The re-issuance of the permit is an administrative task that does not require an Environmental Impact Statement (EIS).

*[...] The SEPA reports for 2002 and 2004 were not clear on their purpose for public well-being. [...]*

**Response:**

The next time Ecology issues a State Environmental Policy Act (SEPA) determination for work at the Boeing Auburn site will be for issuance of the Cleanup Action Plan. We will include statements in this SEPA document about the project's objectives regarding public health and well-being.

*[...] **Outcome:** Homebuyers, renters with young children and residents with compromised immune systems who move to the Auburn/Algona area should be made aware of the contamination. [...]*

**Response:**

Ecology maintains a publicly accessible databases of the cleanup sites in the state: <https://fortress.wa.gov/ecy/neighborhood/>

Buyers and homeowners can ask their realtors to review this information with them before buying a home.

*[...] Potable water filtration should be made available to them. [...]*

**Response:**

In Auburn, homes are connected to the municipal water supply system. Drinking water provided by the City of Auburn is tested and reports are provided annually to customers. The City is required by the Washington State Department of Health to meet Federal Water Quality Standards. Contact the City of Auburn if you need

more information about the City's water supply. A contact number for the water utility is: 253-931-3048.

*[...] A public hearing is requested to discuss the different approach being presented BEFORE the permit is reissued. [...]*

**Response:**

To clean up the facility, Boeing must have a special permit called a corrective action permit. Boeing has operated the Auburn Facility according to a corrective action permit since April 2006. This permit needed to be reissued. This is a procedural matter and not a result of any new development on the site. The permit gives Ecology the authority to require Boeing to clean up the site. EPA also requires Ecology to issue new permits once the old permit has expired.

We have considered your request for a public hearing. Please see our response to your previous comment about a public hearing above.

*[...] We want to be involved in the process. [...]*

**Response:**

Thank you for your interest in this cleanup. We will add your names and the address given with your comments to the mailing list. You will receive all future mailers with announcements and information about the Boeing Auburn Site cleanup.

## **Comment from: Hank Landau**

*"Groundwater samples from the area contain contamination at concentrations that are not expected to pose a risk to human health or the environment."*

*This message is somewhat ambiguous. If contaminated groundwater extends under parts of Auburn and Algona, why does it not pose a threat? Is it because the concentrations are below cleanup levels (in which case it is misleading to refer to the water as "contaminated") or because engineering and institutional controls are in place to protect humans and the environment.*

**Response:**

Some portions of this plume have concentrations of Trichloroethylene (TCE) and Vinyl Chloride (VC) that are above the state cleanup levels (standard Method B, of the Model Toxics Control Act), and in other portions they are below the cleanup levels. You can find information about cleanup levels in Appendix B and on Ecology's webpage for this cleanup site.

Even though the groundwater is contaminated, it does not pose a risk to human health because people are not coming into contact with the contamination. During the remedial investigation, we required Boeing to test places where people could come into contact with the contaminated groundwater as it enters surface waters

(like ditches, ponds and creeks) or the air (through air in soil pockets or indoor air). We consistently found chemical levels low enough that they do not risk human health. The plume still represents a *potential* risk if conditions change. Therefore, Boeing continues to monitor the groundwater at the site in compliance with state regulations.

If new concentrations are found to exceed safe levels at any time, we will direct Boeing to conduct further investigations and/or implement interim action based on approved proposals. This happened previously in 2002 when new data, showed that groundwater on the Boeing property had very high concentrations of TCE. We required an interim action (cleanup) using bioremediation to lower TCE concentrations below state cleanup levels. Bioremediation is a process that uses bacteria to break down chemicals. The process took about a year. Since then, monitoring shows that TCE concentrations remain below levels of concern. This interim action will not be the final cleanup.

**Information related to the remedial investigation and interim actions is documented on Ecology’s website here: <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Toxic-cleanup-sites/Boeing-Auburn-Fabrication-Site> .**

## Comment from: Marisol Diaz, Futurewise

*In general, this is more of a history of the plume, actions taken, and public participation activities so far without much information on the future public participation opportunities. Since there is an opportunity for public comment on the permit renewal and an important document coming out next year, the Feasibility Study, it would be helpful to highlight these up front and perhaps they will be when this plan is distributed? The parameters around whether a public hearing is held and what the opportunities and constraints around a public hearing are would be helpful for the public to know going forward.*

### **Response:**

The public participation plan provides an explanation of how we will share information with the public which applies to the Feasibility Study (FS). At this time, we are still planning the specific events and outreach related to the FS. We will share this information when the FS is complete.

You can find more information about public hearings in the public participation plan.

*[...] I think some explanation of why the Feasibility Study is about a year later than expected would be helpful. [...]*

### **Response:**

We concentrated our efforts in 2018 on the initial phase of the Feasibility Study which included evaluation of several technologies prior to Boeing’s preparation of the Feasibility Study report.



We also prioritized the issuance of a new permit. We did this to replace the expired permit and to be ready when we incorporate the legal mechanism for the Cleanup Action Plan (CAP) into the permit.

*[...] p. 5-6 – Why, if Boeing knew of a release of TCE from the facility in the 1980's, did it take until 2009 for Ecology to require them to investigate contamination off-site? Perhaps some short explanation of this? [...]*

**Response:**

When we first looked at Boeing's sampling data from the facility's property it did not appear that the contaminated groundwater had extended beyond the property boundary. The facility covers hundreds of acres and the known source area for Trichloroethylene (TCE) was located hundreds of feet inside the property boundaries.

However, we directed Boeing to drill and sample wells beyond the property boundaries to confirm. We fully expected to finalize the remedial investigation with samples at or below levels of detection just beyond the property boundaries. The new discovery of increased concentrations lead to a series of step-out wells to find the contiguous, full extent of the plume.

*[...] p. 6 – Can anything be shared about the Remedial Investigation, other than boundaries and potential impacts were identified. I know this document is publicly available, but it seems fairly important and worth summarizing. [...]*

**Response:**

There are individual Fact Sheets on Soil, Groundwater, Surface Water and Air. These summarize what was learned as part of the remedial investigation. These are available for download from the site's webpage here:

<https://fortress.wa.gov/ecy/gsp/CleanupSiteDocuments.aspx?csid=5049>

*[...] p. 10 – Would be helpful to have a map (or add to the map on p. 8) where the public drinking water well is and the area where the private wells are. If you were reading it and you had a private well, how you would know if you were "in the area" to contact Ecology? [...]*

**Response:**

We will add the map of the City of Auburn Municipal Supply wells relative to the intermediate zone plume to the public participation plan. It can also be found on Ecology's website for the cleanup: <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Toxic-cleanup-sites/Boeing-Auburn-Fabrication-Site>.

*[...] p. 10 - On gardens, what does "safe" mean; some indication of how levels compared to a standard would be helpful. [...]*

**Response:**

Levels of TCE in shallow groundwater in the area where there is contamination below residences ranges in concentration from less than 1 parts per billion (ppb) to 6 ppb. In tests of garden vegetables watered with contaminated water, the levels were 140 ppb and 560 ppb.<sup>1</sup> During these tests, TCE did not build up in the vegetables. Most residences are likely to water their gardens with clean municipal water supplied by the City of Auburn.

<sup>1</sup> Reference: Schnabel, W.E.; Dietz, A.C.; Burken, J.C.; Schnoor, J.L.; Alvarez, P.J.; Uptake and Transformation of Trichloroethylene by Edible Garden Plants; Department of Civil and Environmental Engineering, University of Iowa; Water Resources 1997, Vol 31, No. 4, pp. 816-824.

*[...] p. 10-11 – On the water in ditches. This section comes off as very callous. The implication here is – the ditch is already contaminated, why should we be concerned about TCE and other volatile compounds found here, and it's the kids fault if they get sick playing in there. I am pretty sure this is not the attitude that Ecology wants to convey. [...]*

**Response:**

We aim to use sound science and qualitative data in our publications and recommendations. We included this information because the health and safety of Algona's children is important to us and we want to inform parents of the safety concerns unrelated to the Boeing Auburn Facility. Children who may occasionally play in the ditches in northeast residential area in Algona are exposed to low levels of TCE and Vinyl Chloride (VC) that do not represent a significant health risk. We have included some data below regarding contamination levels.

Based on risk calculations in the Department of Health, Health Consultation, these concentrations are: 74 ppb for TCE and 5.1 ppb for VC, for dermal (skin) contact with water, and ingestion of water. These concentrations are based on the child playing in the ditch once a day for 30 minutes, 50 times a year.<sup>1</sup>

For comparison, the concentrations of TCE in the residential ditches in northeastern Algona range from less than 0.1 - 1.7 ppb. At the completion of the remedial investigation, the highest concentration of TCE in surface water anywhere on the site is 1.7 ppb in Chicago Ave. Ditch at 11th Ave. North. The highest concentration for VC in surface water anywhere on the site is 0.54 ppb. This sample was taken in the Chicago Ave. Ditch at 10th Ave. North in 2014. Concentrations at this location have been decreasing since 2014.<sup>2</sup>

Note: The most stringent Washington State Cleanup Levels for TCE and VC in surface water are based on different exposure criteria, (including drinking the water and eating the organisms) and are lower than the concentrations noted in the Health Consultation.

References:

<sup>1</sup>August 15, 2014; Letter Health Consultation prepared by Washington State Department of Health under a Cooperative Agreement with the Agency for Toxic Substances and Disease Registry; Boeing Commercial Airplane Fabrication Division, Auburn Plant: Exposures to Surface Water, Seasonal Sampling, 2013, Algona, King County, Washington.

<sup>2</sup>Landau Associates. 2017. Report prepared by Landau Associates submitted to Robin Harrover, Washington State Department of Ecology. Remedial Investigation Report, Boeing Auburn Facility, WAD041337130, RCRA Corrective Action Agreed Order No. 01HWTRNR-3345. September 15, 2017.

January 15, 2014. Report prepared by Landau Associates submitted to Robin Harrover, Washington State Department of Ecology. Re: Status Report: No. 45, October through December 2013 Activity Period, Boeing Commercial Airplane Group, Auburn Plant, WAD041337130, RCRA Corrective Action Agree Order No. 01HWTRNR-3345.

Landau Associates. 2014. Technical Memorandum: Re: Algona Neighborhood Ditch Sampling Investigation, Boeing Auburn Facility, Auburn, Washington. From Jennifer Wynkoop and Sarah Fees, to James Bet, The Boeing Company. January 27, 2014.

*[...] p. 11– On bioremediation, it would be helpful to state here when this was started. I thought in previous DOE flyers/post cards, this was described as a "study" and here it is described as a clean-up action. That is a little confusing. [...]*

**Response:**

In 2005, Boeing completed an interim (cleanup) action at the degreaser area (source area) in former Building 17-05. This action used bioremediation as the cleanup technology.

In 2015, Boeing initiated a pilot study to test whether bioremediation would be effective when the concentrations of the solvent chemicals in groundwater were below 1 – 5 ppb, which is much lower than the 100 – 1000 ppb that was present in groundwater at the source area below the degreaser in Boeing Auburn’s former Building 17-05. We weren’t sure there would be enough of the chemicals in groundwater to stimulate bacteria to degrade them. However, bioremediation did degrade the low levels of TCE found in groundwater during the pilot study. Vinyl Chloride concentrations initially increased as TCE degraded. Vinyl Chloride is now also decreasing as chemicals continue to degrade.

*[...] p. 13 – Tribes "will" be involved? Have they been involved? [...]*

**Response:**

The Muckleshoot Tribe has historical fishing rights to Mill Creek and the Mill Creek area. The tribe is on our mailing list and receives our flyers and focus sheets. We have sent a letter to the Muckleshoot tribe describing the results of our

investigations. We have offered to brief the Muckleshoot Tribe about the results of our investigations.

*[...] p. 14 – Perhaps the information on what public participation has been done and is planned for the future could be summarized earlier in the document? [...]*

**Response:**

Thank you for this idea.

*[...] p. 14- In the public meeting section, "a diverse suite of tools" could be a little more specific. [...]*

**Response:**

Each public meeting is different, and we use different tools and methods for outreach and education depending on which stage of cleanup we are in. This flexibility allows us to design meetings that are responsive to community needs. If a public meeting is requested, we will utilize all available outreach forms to ensure the public is aware of the meeting and what to expect at the meeting. The tools can include mailers, emails, flyers, radio ads, flyers at local community centers and schools, and information posted on city websites.

*[...] p. 14 – In wildlife and pets section, it says documents were created – and? Summary here, accessibility to documents? [...]*

**Response:**

Since your review, we have updated this section to clarify that we provided information about wildlife studies. We included this reference on page 16 under the “Pets” heading.

*[...] p. 14 – On surface water, how was the concern about mud addressed? [...]*

**Response:**

Levels of TCE are not expected to build up in sediment (mud) above levels found in the groundwater discharging to surface water. The northern extent of Chicago Ave Ditch, north of 11th Ave does have concentrations of TCE in surface water that are between 1 - 2 ppb, and shallow groundwater in this area has concentrations of TCE up to 6 ppb. These levels do not pose a risk to human health from incidental skin contact, based on the results of the health consultation completed by the Washington State Department of Health and federal Agency for Toxic Substances and Disease Registry (ATSDR.)<sup>1</sup>

References:

<sup>1</sup>August 15, 2014; Letter Health Consultation prepared by Washington State Department of Health under a Cooperative Agreement with the Agency for Toxic Substances and Disease Registry; Boeing Commercial Airplane Fabrication Division, Auburn Plant: Exposures to Surface Water, Seasonal Sampling, 2013, Algona, King County, Washington.

*[...] p. 14 – On Health Department documents (exposure from ditches and health consultation), it would be helpful to say where this information could be accessed. The health consultation is included in this document; could be referenced here. [...]*

**Response:**

We will reference the health consultation in the Appendix D of the public participation plan.

*[...] p. 15 – On real estate, why not reference APAC document on this topic and others? [...]*

**Response:**

Good suggestion. After reviewing your comments, we included this information in the table.

*[...] p. 15 – On drinking water, some specifics on how often DOH tests for volatile compounds such as TCE would be helpful. [...]*

**Response:**

The Environmental Protection Agency (EPA) requires Municipal Water Supply systems to follow a standardized monitoring framework (SMF): <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=3000667K.txt>. Under this framework, municipal water systems are required to monitor at a certain frequency based on whether concentrations of Volatile Organic Compounds (VOCs) are detected or not.

The City of Auburn's 2015 Comprehensive Water Plan<sup>1</sup>, pg 7-15 provides additional detail on their municipal monitoring. Please check with the City of Auburn for their latest monitoring results.

Reference:

<sup>1</sup> October 2015, Plan prepared by Carollo Engineers, Inc. for the City of Auburn, *City of Auburn Comprehensive Water Plan*.

*[...] p. 15 – Some summary of test results here would be helpful. [...]*

**Response:**

Please see our comments above.

*[...] p. 15 – Public Participation Activities - a reference to contact information (on p. 18-19) would be helpful here. [...]*

**Response:**

We have included a number of ways to reach out and contact us in our Public Participation Plan that are broken down between site, area, and organization. We hope this information feels accessible and you feel comfortable reaching out to us as needed.

*[...] p. 17 – Many links are still broken on Ecology website – when will they be fixed? [...]*

**Response:**

We are working on restoring our links, but our new website has limitations, so some links may be taken down. Please contact our Web Page administrator at: [ECYdlCommWebTeam@ecy.wa.gov](mailto:ECYdlCommWebTeam@ecy.wa.gov) to request the maintenance of any of these links.

*[...] p. 17 – In describing APAC, second sentence should read: "The coalition's goal is to engage with the community on the topic of groundwater contamination in Algona and Auburn. APAC helps translate technical information, make it accessible, and encourage public participation through door-to-door visits and community events." [...]*

**Response:**

This change was made after reviewing your comments.

*[...] p. 19 – Translation – how would non-English speakers find these materials and instructions? Are website links working? [...]*

**Response:**

Ecology translates key project information into Spanish and makes these materials available online on the Ecology Boeing Auburn website and in print. The Spanish links on our website are active. We also offer a phone translation service for those who like to receive project information in a language other than English. We have instructions on accessing this service written in Spanish, Tagalog, Ukrainian, and Punjabi.

*[...] p. 19 – How to share information: would it make sense to put APAC contact (Marisol Diaz's contact information) here on how to share public concerns? [...]*

**Response:**

We will include contact information for APAC in the final public participation plan.

*[...] p. 20 – The Public comment period section would be more helpful if it was current with the public comment period coming up (on permit) and listing where to get documents from past comment periods (Remedial Investigation) [...]*

**Response:**

For every public comment period we send mailers to project area, update the Ecology Site Register, place newspaper display ads or legal notices, notify the project email list, and include information on the project website. These materials will contain detailed information about how to comment. All previous comment period materials are archived on our website.

*[...] Attachments:*

*• DOH Health Consultation – this document talks about ongoing monitoring and determining the plume boundary and impact on wells. This could be confusing to the public. [...]*

**Response:**

This document is included as reference and background information on the project. Some information may have changed since it's initial publication.

*[...] • The Environmental Justice Screen Report has some interesting data, but it is just that a series of tables and graphs without interpretation or explanation of why they were collected, what conclusions were drawn, how they might impact future public outreach? There is a lot of interest in environmental justice tools and many people would be interested in the interpretation and use of this screening. [...]*

**Response:**

The Environmental Justice Screen Report is reference data that were used to inform the tools and tactics described in the Public Participation Plan. For example, the demographic information informed the languages we translate materials into. As we plan future outreach, we reference these data to ensure we are reaching populations that have been traditionally underrepresented.

## **Appendices**

### **Appendix A. Public Comments in Original Format**

#### **Commenter: Sharon Smith – Comment 1**

Boeing has operated under a Corrective Action permit since 2006. A test project for bioremediation was conducted by Boeing three years ago. Is it really a great idea for Boeing to be in charge of their own clean up? And what is this about only water in ditches and air quality being tested ? And those tested seem to be in a relatively small area for a problem going back so many years. And how old is that map showing the ground water contamination? I have lots of questions - too many really

#### **Commenter: Sharon Smith – Comment 1a**

Boeing has operated under a Corrective Action permit since 2006. A test project for bioremediation was conducted by Boeing three years ago. Is it really a great idea for Boeing to be in charge of their own clean up? And what is this about only water in ditches and air quality being tested ? And those tested seem to be in a relatively small area for a problem going back so many years. And how old is that map showing the ground water contamination? I have lots of questions - too many really

#### **Commenter: Sharon Smith – Comment 1b**

Boeing has operated under a Corrective Action permit since 2006. A test project for bioremediation was conducted by Boeing three years ago. Is it really a great idea for Boeing to be in charge of their own clean up? And what is this about only water in ditches and air quality being tested ? And those tested seem to be in a relatively small area for a problem going back so many years. And how old is that map showing the ground water contamination? I have lots of questions - too many really



**Commenter: Zeenab Fowlk – Comment 2a**

Please see the attached comments that our household is supporting that was prepared by Linda Johnson.

**Commenter: Linda Johnson – Comment 2b**

Please see the attached statement.

**Commenter: Theodore Ward – Comment 2c**

Please see the attached comments that our household is supporting that was prepared by Linda Johnson.

Theodore L.V.  
Ward  
Zeenab A. R. Fowlk and Linda  
Johnson  
2710 H Street SE • Auburn WA  
98002  
206.402.2255 •

---

[theodorew@rudevelopmentleague.com](mailto:theodorew@rudevelopmentleague.com)

**DT:** September 7, 2018

**TO:** Robin Harrover, LHG  
Hazardous Waste  
Specialist Department  
of Ecology - NWRO  
3190 160th Ave  
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5452 phone:  
425-649-7232  
mailto:Robin.Harrover@ecy.wa.gov

**FR:** Theodore  
L.V.  
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2710 H  
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**RE:** Boeing Auburn Fabrication Public Comment

- ***Public participation plan: Establishes a process for communicating with and obtaining input from the public concerning the cleanup.***

Upon receiving the mailer about the New Draft Permit for Boeing Auburn Fabrication it cause us to be quite perplexed because prior to moving to Auburn we were not made aware of this contamination. When inquiries were made about the matter to various Auburn residents, no one else received a flyer or recalled the flyer among the hundreds of individual flyers that were distributed by our household to these residents.

After leaving three messages via the hotline, it took over two weeks to receive these hundred flyers so they could be distribute to other Auburn and Algona residents. The flyer gave the impression that the information was readily available to the public. The targeted population included talking to people the Auburn YMCA, Senior Center and at the Algona library. A very small sample group but probably groups who are community aware. You would think that YMCA member would know about the information contain in the flyer. The City of Auburn provides free swimming 3-days a week to all Auburn resident. The YMCA staff personnel was not part of the targeted population since in 2003 the Auburn North Parcel was donated to the YMCA of Greater Seattle. Until knowing about this donation, it was unclear why the City of Auburn provided this resource to its residents. **OUTCOME:** No one who was not previously employed by Boeing who was either retired and/or presently working for another company, could be identified as being aware of the Boeing Auburn Fabrication Public Participation Plan. Even those previously with Boeing did not much about the clean-up process. Was this why the flyer indicated "unless 10 or more requests were received no public hearing would be scheduled". Residents of Auburn should be informed about the price they are really paying for the 3-hours of free swimming at the YMCA. An understand that the YMCA scholarship that some residents receive also have a price associated with it.

When following up with some of the residents who received the flyer to remind the about the timeline to make comments. **OUTCOME:** they shared they did not have the ability to go online via computer or smart phone, either because they did not know how to use either devices for that purpose.

Being compelled to review the documents at the library referenced online were sought. It was difficult to locate them at right away at The Algona Library. The library staff was informed about how important it was to find the documents. It took them 15± minutes to locate a 5 inch thick notebook that was too heavy to carry without staff help. Why the Algona Library was the

only library the documents could be access through is a mystery since our resident is in Auburn. **OUTCOME:** since the Auburn Library was not used there was a need to locate the Algona Library and find transportation. The City of Auburn has a resource called, the Hyde Shuttle Program; it will take Auburn residents anywhere between 8:00am to 4:00 pm in Auburn.

It is not realistic to expect to have the public review mounts of material and documents without staff assistance in walking them through the information. The timeline from discovering the contamination began in 1966 until to date. In studying the timeline it has been over 40-years which is equivalent to one generation. In so many words, the people (not agencies) who were originally involved in bring this situation to the public attention are no long available to provide the needed historical history because of the long protracted process. In the EJSCREEN ACS Summary Report for EPA, it is apparent that the demographics of the area has drastically changed over these 4 decades since the Remedial Investigation (RI) began. The target population that was being approached to find out what communication they had received about the Boeing Auburn Fabrication Clean up were within the demographic prospective highlighted in this December 20, 2016 for the EPA. The current population is 50% ethnic minority, with 38% of them dropped out of high school while 42% of them have some college, but no degrees. **OUTCOME:** there is a new generation of residents in the area who are being impacted, their ability to communicate without being able to operate a computer or smart phone has rendered them voiceless.

□

***Corrective action permit and application: Permit to require Boeing to continue cleanup***

This process has been continued for 40-years. This permit should not be allowed until definite dates for completion become part of the timeline. There are no measureable goal established for this project. Subsequently, it is going along uncheck.

Our home was purchased in 2016 and neither the realtor, financial institutions, state and/or federal government informed us of the contamination in the area. There was no Environmental Impact Statement located among the document. The SEPA reports for 2002 and 2004 were not clear on their purpose for the public well-being.

**OUTCOME:** homebuyers, renters with young children and residents with compromised immune systems move to the Auburn/Algona area should be made aware of the contamination.

Potable water filtration systems should be made available to them.

A public hearing is requested to discuss the different approach being presented **BEFORE** the Auburn Fabrication Site permit is reissued.

I want to be involved in this process and discussion.

**Commenter: Hank Landau – Comment 3**

Dear Mr. Altose

This message is somewhat ambiguous. If contaminated groundwater extends under parts of Auburn and Algona, why does it not pose a threat? Is it because the concentrations are below cleanup levels (in which case it is misleading to refer to the water as "contaminated") or because engineering and institutional controls are in place to protect humans and the environment.

Thank you,

Hank Landau

-----Original Message-----

From: Altose, Larry (ECY) (ECY) <[LALT461@ECY.WA.GOV](mailto:LALT461@ECY.WA.GOV)>

To: ECOLOGY-NEWS <[ECOLOGY-NEWS@LISTSERV.ECOLOGY.WA.GOV](mailto:ECOLOGY-NEWS@LISTSERV.ECOLOGY.WA.GOV)>

Sent: Thu, Jul 19, 2018 1:14 pm

Subject: Correction - Ecology news: Review and comment on permit for Boeing Auburn cleanup site

Correcting date to 2018

Washington Department of Ecology – **NEWS**

July 19, 2018

Contacts:

[Larry Altose](mailto:Larry.Altose@ecy.wa.gov), communications, 425-649-7009, [@EcySeattle](https://www.facebook.com/EcySeattle)

[Robin Harrover](mailto:Robin.Harrover@ecy.wa.gov), site manager, 425-649-7232

**Review and comment on permit for Boeing Auburn cleanup site**

*Contaminated groundwater extends under parts of Algona and Auburn*

*AUBURN – The Washington Department of Ecology invites the public to review a draft permit for environmental cleanup work by The Boeing Company at its aircraft parts manufacturing facility in Auburn. The comment period runs through Sept. 7, 2018.*

Boeing conducts the work under a Corrective Action Permit, which has come up for renewal. Ecology proposes to reissue the permit. This is a procedural step, not a result of any new development on the site.

Boeing conducted a formal investigation of soil and groundwater contamination at the Auburn site from 2002 to 2017. The study included contaminated groundwater that extends outside the company's property into parts of Algona and Auburn. Groundwater samples from the area contain contamination at concentrations that are not expected to pose a risk to human health or the environment.

Boeing is preparing a report on cleanup options that Ecology expects to release for public review and comment next year.

**Documents available for review:**

- [Corrective Action Permit](#) and [Application](#): Permit that requires Boeing to continue cleaning up the property.
- [Public Participation Plan](#): Creates a process to communicate with and receive feedback from the public about the cleanup.

The materials are available on [Ecology's website](#). Information on the investigation and cleanup process is available in English and Spanish. Printed copies are available for review at:

- [Algona-Pacific Branch](#), King County Library, 255 Ellingson Road, Pacific
- Ecology's Northwest Regional Office, 3190 160<sup>th</sup> Ave. SE, Bellevue. By appointment: 435-649-7090 or [NWRO\\_Public\\_Request@ecy.wa.gov](mailto:NWRO_Public_Request@ecy.wa.gov).

**Submit comments:**

- **Online:** [bit.ly/boeingcap](http://bit.ly/boeingcap)
- **Email:** [Robin.Harrover@ecy.wa.gov](mailto:Robin.Harrover@ecy.wa.gov)

• **U.S. mail:** Boeing Auburn Comments, Dept. of Ecology, 3190 160<sup>th</sup> Ave. SE, Bellevue WA 98008-5452

People with questions about the investigation may contact Ecology at 253-219-7645 or [Robin.Harrover@ecy.wa.gov](mailto:Robin.Harrover@ecy.wa.gov).

###

Larry Altose  
News Media Relations  
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**Commenter: Marisol Diaz– Comment 4**

In general, this is more of a history of the plume, actions taken, and public participation activities so far without much information on the future public participation opportunities. Since there is an opportunity for public comment on the permit renewal and an important document coming out next year, the Feasibility Study, it would be helpful to highlight these up front and perhaps they will be when this plan is distributed? The parameters around whether a public hearing is held and what the opportunities and constraints around a public hearing are would be helpful for the public to know going forward. Also, I think some explanation of why the Feasibility Study is about a year later than expected would be helpful.

p. 5-6 – Why, if Boeing knew of a release of TCE from the facility in the 1980's, did it take until 2009 for Ecology to require them to investigate contamination off-site? Perhaps some short explanation of this?

p. 6 – Can anything be shared about the Remedial Investigation, other than boundaries and potential impacts were identified. I know this document is publicly available, but it seems fairly important and worth summarizing.

p. 10 – Would be helpful to have a map (or add to the map on p. 8 ) where the public drinking water well is and the area where the private wells are. If you were reading it and you had a private well, how you would know if you were "in the area" to contact Ecology?

p. 10 - On gardens, what does "safe" mean; some indication of how levels compared to a standard would be helpful.

p. 10-11 – On the water in ditches. This section comes off as very callous. The implication here is – the ditch is already contaminated, why should we be concerned about TCE and other volatile compounds found here, and it's the kids fault if they get sick playing in there. I am pretty sure this is not the attitude that Ecology wants to convey.

p. 11– On bioremediation, it would be helpful to state here when this was started. I thought in previous DOE flyers/post cards, this was described as a "study" and here it is described as a clean-up action. That is a little confusing.

p. 13 – Tribes "will" be involved? Have they been involved?

p. 14 – Perhaps the information on what public participation has been done and is planned for the future could be summarized earlier in the document?

p. 14- In the public meeting section, "a diverse suite of tools" could be a little more specific.

p. 14 – In wildlife and pets section, it says documents were created – and? Summary here, accessibility to documents?

p. 14 – On surface water, how was the concern about mud addressed?

p. 14 – On Health Department documents (exposure from ditches and health consultation), it would be helpful to say where this information could be accessed. The health consultation is included in this document; could be referenced here.

p. 15 – On real estate, why not reference APAC document on this topic and others?

p. 15 – On drinking water, some specifics on how often DOH tests for volatile compounds such as TCE would be helpful.

p. 15 – Some summary of test results here would be helpful.

p. 15 – Public Participation Activities - a reference to contact information (on p. 18-19) would be helpful here.

p. 17 – Many links are still broken on Ecology website – when will they be fixed?

p. 17 – In describing APAC, second sentence should read: "The coalition's goal is to engage with

the community on the topic of groundwater contamination in Algona and Auburn. APAC helps translate technical information, make it accessible, and encourage public participation through door-to-door visits and community events."

p. 19 – Translation – how would non-English speakers find these materials and instructions? Are website links working?

p. 19 – How to share information: would it make sense to put APAC contact (Marisol Diaz' contact information) here on how to share public concerns?

p. 20 – The Public comment period section would be more helpful if it was current with the public comment period coming up (on permit) and listing where to get documents from past comment periods (Remedial Investigation)

Attachments:

- DOH Health Consultation – this document talks about ongoing monitoring and determining the plume boundary and impact on wells. This could be confusing to the public.
- The Environmental Justice Screen Report has some interesting data, but it is just that a series of tables and graphs without interpretation or explanation of why they were collected, what conclusions were drawn, how they might impact future public outreach? There is a lot of interest in environmental justice tools and many people would be interested in the interpretation and use of this screening.

## Appendix B. Washington's Environmental Cleanup Law

Toxics Cleanup Program



### Focus on: Washington's Environmental Cleanup Law



More information about the Model Toxics Control Act

[ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Rules-directing-our-cleanup-work/Model-Toxics-Control-Act](http://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Rules-directing-our-cleanup-work/Model-Toxics-Control-Act)

Contact information

Erika Bronson  
509-329-3546  
[erika.bronson@ecy.wa.gov](mailto:erika.bronson@ecy.wa.gov)

Special accommodations

To request Americans with Disabilities Act (ADA) accommodation including materials in a format for the visually impaired, contact Ecology's ADA Coordinator Sultana Shah at 360-407-6831 or [sultana.shah@ecy.wa.gov](mailto:sultana.shah@ecy.wa.gov). You may request accommodation via [ecology.wa.gov/accessibility](http://ecology.wa.gov/accessibility) as well. People with impaired hearing may call Washington Relay Service at 711. People with speech disability may call TTY at 877-833-6341.

#### The Model Toxics Control Act

There are about 13,000 contaminated sites in Washington State. About half of these are already cleaned up. Thousands more contaminate our soil, water, and air, and pose risks to human health and the environment.

The Model Toxics Control Act (MTCA) requires the cleanup of contaminated soil and groundwater to protect people and the environment. The Washington State Department of Ecology (Ecology) worked with technical consultants, scientists, local government, citizens, and environmental and business groups to develop cleanup rules. These rules include MTCA (Chapter 173-340 Washington Administrative Code (WAC)) and the Sediment Management Standards (SMS, Chapter 173-204 WAC). Sediment is where aquatic animals live and includes silt, sand, cobble, and beaches. This document focuses on upland cleanup. For information on sediment cleanup, see the SMS rule or the Sediment Cleanup User's Manual.

MTCA began as a citizen's initiative that Washington voters approved in 1988. The law requires polluters to pay for cleanup, unless they cannot be located or are financially unable. It also sets minimum requirements that all cleanups must meet to protect people, animals, and plants.

Ideally, no contamination would remain when cleanup is finished. However, low levels of hazardous substances are sometimes safe even if people contact them. Further, some contamination may be left at cleanup sites due to the high risk and cost of relocation, because total removal is not technically possible, or because buildings, roads, or other structures would have to be demolished to retrieve it. In these cases, various types of barriers can block harmful exposures.

So, as we manage contaminated site cleanup, how do we make decisions that ensure the safety of people and the environment?





## Toxics Cleanup Program

### Getting Cleanups Done

MTCA defines a two-step approach for developing requirements for cleaning up contaminated sites.

1. **Establish cleanup standards.** Standards provide a uniform, statewide approach to cleanup. Cleanup standards have two primary components:
  - a. **Cleanup levels** determine the concentration at which a hazardous substance that remains in soil or groundwater no longer threatens human health or the environment.
  - b. **Points of compliance** designate where cleanup levels must be met.
2. **Select cleanup actions.** This step involves evaluating options for cleaning up a site, and then deciding which option would best achieve cleanup standards. A combination of different options can be used at a site.

#### Step 1. Establishing Cleanup Standards

“Clean” generally means that a site no longer poses a threat to people, animals, or plants. To define when a site is clean, we establish cleanup levels and points of compliance for soil, groundwater, surface water, and air.

#### Methods for Establishing Cleanup Levels

There are three options for establishing cleanup levels. More than one may be used at a site. The choice of method(s) used depends on the contaminants and how the property will be used after cleanup.

#### Method A: Common contaminants and routine cleanups

Method A is for cleanups that are relatively straightforward or involve only a few hazardous substances. This method is typically used at smaller sites that do not warrant the costs of completing detailed site studies and site-specific risk assessments. (“Routine cleanup action” is defined in 173-340-200 WAC.)

Method A provides pre-determined cleanup levels that protect human health for more common hazardous substances found in soil and groundwater, such as petroleum and lead. These levels were developed using the procedures in Method B.

#### Method B: Multiple contaminants and complex cleanups

Method B can be used at any site. It is the most common method for setting cleanup levels when sites are contaminated with substances not listed under Method A. Since Method B cleanup levels are protective for residential and commercial use, sites that use them usually do not need future restrictions on property use.

Under Method B, we determine cleanup levels using standards established under state and federal laws and MTCA risk-assessment equations. Method B is divided into two tiers—standard and modified. Standard Method B uses generic assumptions to calculate cleanup levels. Modified Method B uses chemical-specific or site-specific information to change the assumptions.

Both standard and modified Method B cleanup levels must meet the following requirements:

- Exposure to a single cancer-causing hazardous substance (carcinogen) at a site must not increase an individual’s lifetime risk of cancer by more than one in one million. If more than one carcinogen is present, the total risk from all of them must not exceed one in one hundred thousand.
- Exposure to hazardous substances that are not known to cause cancer (non-carcinogens) cannot cause illness at a site.
- Animals and plants must not be adversely affected.

#### Method C: Special circumstances and industrial use soil and air cleanup levels

Method C cleanup levels may be used to set soil and air cleanup levels at industrial sites and to set air cleanup levels in manholes and utility vaults. For groundwater, surface water, and air cleanup levels, Method C may also be used, with certain restrictions, when Method A or B cleanup levels are lower than is technically possible, or when reaching those levels may result in a greater overall threat to human health and the environment.

We set cleanup levels under Method C similar to how we set cleanup levels under Method B, using standards established under state and federal laws and risk-assessment equations. Method C is also

## Toxics Cleanup Program



divided into standard and modified tiers. The main differences between the two methods are:

- Cleanup levels are based on less stringent exposure assumptions in Method C.
- The lifetime increased cancer risk is set at 1 in 100,000 people for both individual substances and for the total cancer risk caused by all carcinogens at a site.

### How Points of Compliance are Determined

"Point of compliance" defines the place or places on a site where cleanup levels must be met. There are two types:

- **Standard point of compliance.** MTCA generally defines the standard point of compliance for soil, groundwater, surface water, and air as throughout the site.
- **Conditional point of compliance.** For certain media (such as groundwater and air), MTCA allows for less strict "conditional" points of compliance where it is not practicable (due to technological limitations, environmental conditions, or other factors) to meet the cleanup level throughout the site within a reasonable time frame. Meeting cleanup levels under a landfill, for example, would require excavating tons of garbage, possibly causing more harm than good. In such cases, Ecology may approve a conditional point of compliance, provided that the point is located as close to the source of contamination as possible. Any contamination left on the site must be contained within a specified area that protects humans, plants, and animals from exposure.

## Step 2. Selecting Cleanup Actions

Step 2 of the cleanup process involves evaluating cleanup options (sometimes called "alternatives") that achieve cleanup standards and selecting a cleanup action from the options presented. All cleanups must meet general minimum requirements, which include but are not limited to:

- **Using permanent solutions**, whenever possible and practical, to remove or reduce all hazardous substances to levels that protect

human health and the environment in a reasonable time frame

- **Monitoring progress** to verify the cleanup is effectively reducing hazardous substance concentrations to safe levels
- **Considering the public's concerns**

## Protecting People after Cleanup

Institutional controls limit or prohibit activities that interfere with a cleanup action or may result in exposure to remaining contamination. MTCA requires the use of institutional controls when:

- Contamination remains at concentrations that exceed Method A or B cleanup levels
- Method C is used to establish cleanup levels
- Soil cleanup levels are established based on industrial land use
- A conditional point of compliance is used

In most cases, institutional controls are recorded in an **environmental covenant** that becomes part of the property deed. This covenant warns future property owners and restricts activities or use of the property that could result in exposure to the contamination. Tenants must also be notified of these restrictions in any lease agreement.

Parties responsible for sites with containment systems may be required to provide **financial assurance** to maintain the system as long as contamination remains above cleanup levels.

**Monitoring**, such as analyzing groundwater samples four times a year, must be done to confirm the long-term effectiveness of a cleanup action.

Where institutional controls or financial assurances are required, Ecology conducts a **periodic review** of the site every five years to ensure the continued protection of human health and the environment. Ecology publishes a notice of periodic reviews in the Site Register and provides an opportunity for public review and comment. If we find site conditions have changed and require additional work, it is the property owner's responsibility to enact our recommended improvements to protect human health and the environment.

Toxics Cleanup Program



The goal of Washington's environmental cleanup law is to protect **people, animals, and plants** from **breathing, touching, or ingesting** contaminants in **soil, water, sediment, or air**.

**Cleanup levels** determine the concentration at which a contaminant poses minimal risk to people, animals, or plants.

The **method** for setting cleanup levels depends on contaminants, risks to people and animals, and property use.

**Method A:** Common contaminants and routine cleanups  
**Method B:** Multiple contaminants and complex cleanups  
**Method C:** Special circumstances and industrial use soil and air cleanup levels

**All cleanups must:**

- Favor permanent solutions
- Reduce all hazardous substances to safe levels in a reasonable time frame
- Include monitoring
- Consider public concerns

**When contamination remains:**

- **Environmental covenants** limit or prohibit activities that could interfere with cleanup or cause exposures
- **Financial assurance** guarantees cleanup systems will remain operational
- **Periodic reviews** (every 5 years) ensure continued protection of people, animals, and plants

More information about establishing cleanup levels

- Soil:** <https://fortress.wa.gov/ecy/publications/SummaryPages/0109071.html>
- Groundwater:** <https://fortress.wa.gov/ecy/publications/SummaryPages/0109049.html>
- Surface water:** <https://fortress.wa.gov/ecy/publications/SummaryPages/0109050.html>
- Air:** <https://fortress.wa.gov/ecy/publications/SummaryPages/0109072.html>
- Sediment:** <https://fortress.wa.gov/ecy/publications/SummaryPages/1209057.html>

## Appendix C. Department of Health Consultation

### City of Algona - Preliminary Evaluation of Exposures to Surface Water in Chicago Ave Ditch and Government Canal

Fact Sheet, April 2013



The Washington State Department of Health analyzed results of surface water samples taken from the ditch located at Chicago Avenue and Government Canal. The City of Algona asked us if chemicals found in the ditch water would have health impacts for children or city workers. The Chicago Avenue ditch does have contaminated water – our analysis shows the current levels are not likely to cause health problems for people who come into contact with it. For the full report, see [www.doh.wa.gov/consults](http://www.doh.wa.gov/consults).

#### Background

Chemicals spilled on the ground at the Boeing plant in Auburn in the past made their way to the groundwater. The chemicals in the shallow groundwater are flowing under and beyond the plant in Auburn. More tests are being done to find how far the contamination has spread. Recently, Boeing found the shallow plume of chemicals below the residential area of northern Algona.

This plume contains trichloroethylene (TCE) and breakdown products such as cis-1,2-dichloroethylene (DCE) and vinyl chloride. Lower levels of tetrachloroethylene, called perchloroethylene (PCE), is also present. Because this groundwater is not used as a drinking water source, the public's drinking water is not at risk from the contamination.

For more information about the Department of Ecology's testing and investigation, contact them at <https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=5049>.

#### Chicago Avenue Ditch and Government Canal

In June 2012, Boeing's contractor collected samples from the Chicago Avenue ditch at 11th Avenue N. and Government Canal (next to railroad tracks) at 1st Avenue N. In September 2012, the contractor took more samples from the Chicago Avenue ditch. The September locations included intersections where the ditch meets 7th, 9th, 11th, and 12th avenues. Results showed:

- No contaminants in Government Canal or the Chicago Avenue ditch at 7th Avenue. Therefore, exposure is not a concern in this area.
- Some PCE, TCE, DCE, and vinyl chloride was found in the Chicago Avenue ditch at 9th Avenue and North. The Department of Health looked at the potential exposures to children and city workers at these locations.

#### Exposure Evaluation

Exposure to chemicals in the ditch could happen by touching or accidentally swallowing the water and breathing-in vapors coming from the water. Our estimate of the health impact was based on the possibility of exposures from touching and/or accidentally ingesting water while wading in the ditch. Because air testing within the ditch was not done, we estimated the potential inhalation exposure using a method called a "shower model." This model measures how much exposure people might have if the

water from the Chicago Avenue ditch was used for showering and people breathed in the vapors from the hot water.

*Children:* Kids up to two years old should never be in the ditch because of the potential drowning hazard. Older children (3 to 15 years old) might occasionally wade in the ditch and get water on their feet, legs, and hands. The amount of time children are in contact with ditch water may change throughout the year. We looked at two possible scenarios:

- 1) Children entering the ditch briefly and getting wet for 15 minutes, once a day, three days a week (150 days per year).
- 2) Children playing in the ditch for an average of 30 minutes on any given day during the summer or on a weekend (50 days a year).

*Conclusion:* Based on limited sampling, touching, and accidentally ingesting Chicago Avenue ditch water would result in low-level exposure to PCE, TCE, DCE, and vinyl chloride. This exposure is not expected to result in harmful health effects to children. The amount of exposure through breathing is also not likely to cause harmful effects. This conclusion is only for the ditches and should not be used for standing water in backyards or elsewhere. Parents may want to urge children not to go in the ditch to be certain that no exposure happens.

*Workers:* Algona Public Works personnel come in contact with water while performing maintenance on the ditch. Workers wear gloves, boots, long sleeve shirts, and heavy work pants when working in ditches. Contact with water is expected to happen occasionally on hands, legs, and feet. Water may splash onto a worker's face. City workers estimate that on average they enter the Chicago Avenue ditch two days a week and get wet four times a day while working in the ditch. We looked at two scenarios:

- 1) Workers entering the ditch three days a week, four times a day for 15 minutes.
- 2) Workers entering the ditch once a week for four hours.

*Conclusion:* Based on limited sampling, touching, and accidentally ingesting Chicago Avenue ditch water results in exposure to PCE, TCE, DCE, and vinyl chloride. This exposure is not expected to result in harmful health effects to city workers. The amount of exposure through breathing is also not likely to cause harmful effects. Continued monitoring of the Chicago Avenue ditch is necessary to confirm that harmful exposures do not occur. This conclusion is only for the ditches and should not be used for standing water in backyards or elsewhere.

*Other Health Concerns:* Ditches are not safe places to play, especially for young children. Water levels in ditches may be a drowning hazard for young children. There is always the possibility of contamination unrelated to the Boeing plant (such as fecal contamination from animals and birds, storm water overflow, residential waste). Mud in the ditch north of 11th Avenue is quite deep and may present a hazard to children who could get stuck.

## **Recommendations**

Contaminant levels in the ditch could change over time.

- Parents should prevent children's access to the Chicago Avenue ditch north of 8th Avenue.
- Workers should wear protective clothing when performing duties in the ditch. This should include waterproof gloves and waders.

Boeing should:

- Continue to sample surface water in ditches in Algona. This will help us understand if concentrations change at different times of the year. It will also help understand the extent of contamination and the interaction between the groundwater and surface water.
- Continue to search for the source of the contaminants entering into the Chicago Avenue ditch in order to stop any continued release.
- Sample backyard surface water as needed to determine the interaction between groundwater and surface water.
- Measure volatile organic chemical levels in the air of Algona and within the Chicago Avenue ditch as part of the vapor intrusion assessment. This will confirm that vapors do not pose a health threat.

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For more information, contact the Department of Health, toll free 1-877-485-7316.

For people with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TDD/TTY call 711).