



Wyckoff Generational Remedy

Questions and Answers

February 9, 2010

Thanks to all of you who attended Ecology's community meeting for the Wyckoff Site Generational Remedy Evaluation on January 13. Thanks also to those who followed the expert panel workshop, either through Twitter, online at www.WyckoffGenerationalRemedy.org, or in person. The eight expert panel participants worked hard for three days. They produced ideas regarding how creosote slated to remain at the Wyckoff Site could be reduced in volume, stabilized or solidified, or otherwise made more secure for the very long term – over many generations to come.

Concepts discussed included excavating, applying various methods of heat-treating contaminated soils, and using solidification agents in the ground to remove creosote and/or stabilize the Site. People had questions, and here are some of the most frequently asked. If you have further questions or input on the process, please send them to the Ecology team at dhoo461@ecy.wa.gov and we will address them in future materials.

Describe the creosote contamination being managed at the Wyckoff Site.

Creosote is the name used for a variety of products that are mixtures of chemicals. At the Wyckoff Site, historic use of creosote for wood treatment resulted in contamination of soil and groundwater with three chemical contaminants of primary concern: polynuclear aromatic hydrocarbons, pentachlorophenol, and dioxins/furans. These contaminants are found at the Site either in dissolved form or what are called mobile “non-aqueous phase liquids” or NAPL. More information is available at www.WyckoffGenerationalRemedy.org in the Record of Decision, Soil and Groundwater Operable Units.

What are the health concerns from exposure to creosote?

The federal Agency for Toxic Substances and Disease Registry has prepared a health consultation for the Wyckoff Site to determine if exposure to contaminants there presents potential public health concerns. The report is online at: <http://www.atsdr.cdc.gov/HAC/pha/Wyckoff-EagleHarborSuperfundSite/Wyckoff-EagleHarborSuperfundSite7-22-09.pdf>. Human exposure can happen through direct contact such as inhaling, touching, or ingesting contaminated soil, or drinking contaminated water. Also of concern is exposure of aquatic animals that may come in contact with contaminated runoff, sediments, or surface water. Current status of areas of the Site includes:

- The “Point” has contamination in soils and groundwater, with exposure currently controlled by a piling wall and fencing. The wall will need maintenance and replacement over the long term, with localized corrosion penetrating the steel wall in the splash zone as soon as the next 20 years.

- East Beach is not safe for children due to contaminants in the sediment. Most portions of the North Shoal appear free from hazardous levels of contamination, but play is not recommended in intertidal sediments. Hand washing is recommended if those sediments are handled.
- The federal study indicated that the polynuclear aromatic hydrocarbons in sampled shellfish are very low, and not likely to make people sick. There is not enough information available on cancer risk, however, or on risks from metals and bacteria, to conclude that eating Eagle Harbor shellfish is safe.

*Is the **level of risk** from contaminants at the Wyckoff Site high enough to justify a long, expensive cleanup?*

EPA has removed surface contamination and limited access to the Site with a fence. The Site's containment system currently in place (including a sheet pile wall and a groundwater pump and treatment system), with improvements that EPA plans, is intended to keep contaminants from moving further off site.

Ecology's concern, however, is that there will be large volumes of very mobile contamination left on site. Over time, the integrity of containment will diminish. The ability to rigorously monitor the Site, maintain and replace containment system components for hundreds of years, and achieve reliability, will be very difficult to manage. Ecology's goal is to significantly reduce the risk of future releases and harm to the environment by reducing the volume or mobility of the large amount of creosote EPA plans to contain on site. This would decrease the risk of future exposure to contamination, as well as significantly lower the cost to maintain and periodically rebuild the containment system over time.

*EPA has spent a lot of **money** on cleanup so far, and now Ecology is talking about spending much more on the cleanup. Why would it be so expensive, and who would pay for it?*

The "Point" represents a very complicated cleanup and financial challenge to all of us. The long-term financial burden to the State is disproportionate to the costs EPA has estimated for their containment remedy (approximately \$25 million in today's dollars). To maintain and periodically rebuild the containment system, which is what EPA has asked of the State, would cost hundreds of millions of dollars over hundreds of years. These State costs far exceed the costs the federal government will bear for the containment remedy. That is why Ecology is looking at more complete and robust cleanup options that would provide for greater generational safety and reliability and would reduce State financial outlays.

*The community has waited a **long time** for this Site to be cleaned up, and now Ecology is talking about another 5-10 years. Why would it take so long?*

Any of the options brought forward by the Expert Panel would take 1-2 years to design, and then range from 4 to 10 to even 20 years to complete, considering the need to excavate, treat, stabilize, or otherwise address 1.2 million gallons of contamination. These are just early ideas, but the general timeframes are probably good estimates. Ecology is also concerned about how long current cleanup efforts are taking, as well as the time implications of State concerns. We don't yet know the answer, but Ecology and the Expert Panel are convinced that it is worth looking hard at these ideas to assess their generational effectiveness.

*The concepts presented at the meeting use a lot of **energy** – electricity, steam, propane, and diesel. How do the alternatives compare in terms of energy needs, and where would the additional energy come from when Bainbridge Island is already facing some seasonal energy limitations?*

The Expert Panel recognized the energy needs of all the technologies proposed, not all of which would be electricity. Further work is needed to define specific energy needs, but options discussed included tapping into alternative energy sources such as biomass, using waste heat from on-site soil treatment to accomplish further in-ground heating, and coordinating cleanup work with seasonal Bainbridge Island energy use. More discussion of this will happen as the options are analyzed.

*Any of the remedy concepts are likely to impact the community through noise, traffic, etc. What would you do to avoid **community impacts**?*

The Expert Panel discussed the noise, lighting, traffic and emissions effects of the remedy options. Each expert brought experience from many other site cleanups, where they work with communities to minimize noise from pile driving (using vibrating drivers rather than pounding in sheets of metal), truck backup, motors, etc. Lighting impacts can be restricted to on site, and traffic impacts would be small using on-site treatment compared to trucking soil off site for disposal. As options are further detailed, more evaluation of these issues and discussion with the community will be a priority.

*Have you considered **seismic risk** to the remedy, considering the location near the Seattle Fault? What about **sea-level rise**? How would the generational concepts be affected by either?*

Seismic risk is another reason for trying to reduce the volume and mobility of the huge amount of contaminants to be contained on site. By reducing and/or stabilizing the contaminated material, the ability of a future earthquake to cause a release of contamination from the Site would be significantly reduced. Likely there would be a similar benefit in terms of sea-level rise if material was no longer accessible to rising

water levels. Generational remedy alternatives will be evaluated to be protective assuming both earthquakes and sea level rise.

*Why wasn't the concept of **bioremediation** included in the generational cleanup concepts you described at the meeting?*

The Expert Panel agreed that bioremediation would not work as the primary cleanup mechanism. The amount of creosote at Wyckoff is too huge, and without oxygen, creosote is toxic to the microbes. Bioremediation, using microbes or “bugs” to consume contaminants, is frequently used at sites with dissolved contaminants in groundwater. Wyckoff’s contamination is primarily in the form of creosote “free product” rather than dissolved. For Wyckoff, bioremediation could be considered as a polishing or secondary process. The Expert Panel did not consider bioremediation to be workable as a single-action cleanup tool; the other cleanup options described are those that the panel believes justify more evaluation.

*How will **decisions** be made about a generational remedy?*

Ecology will have preliminary answers this spring, and can decide whether there are options that bear further evaluation and funding analysis. That discussion will include the Bainbridge community, EPA, and others, with ultimate decisions made by Ecology in terms of its long-term responsibilities for the Site.