

Attachment A

Responsiveness Summary Little Squalicum Creek

1. Comment: Comments supporting Alternative 5 because it provides a protective cleanup that is more consistent with the City's future park plans.

Response:

EPA has considered these comments that express support for a protective cleanup action that may be consistent with the City's future park plans. EPA will coordinate the cleanup plans with the City as much as possible. However, where multiple cleanup actions are equally protective, EPA cannot require the parties to implement one that is more expensive based on a possible future development. However, these parties can perform additional work in coordination with the required Superfund cleanup actions to achieve the desired outcome. EPA is planning to select an alternative that is a combination of Alternative 2, 4 and 5, which should be more consistent with the future park plans.

2. Comment: Commenter noted that the Engineering Evaluation/Cost Analysis (EE/CA) consistently refers to the contamination at Little Squalicum Creek as being "Oeser contamination" and they take exception to that since there is also reference that some of the contaminants (like dioxins, PAHs) can be part of city stormwater discharges and that there could be contaminants in the creek that came from non-Oeser historic industrial activities. There was also the suggestion that the contaminants be referred to as "contaminants of concern" as opposed to "Oeser-related contaminants."

Response:

EPA agrees that the contamination in Little Squalicum Creek has come from multiple sources, including Oeser, City or County stormwater outfalls, other historic industrial activities in the area, and other sources. It is assumed that most of the contamination in the creek originated from historic discharges from the Oeser facility. The decision document will reflect that EPA is addressing contaminants of concern that could have originated from Oeser and will not address other possible historic sources of contamination to the creek.

3. Comment: Commenter noted that some cleanup levels are set at background, which is very low and may not be consistent with how EPA identifies cleanup levels. Additionally, the commenter suggests that EPA should not set the upland soil cleanup level to be the Washington State marine sediment level.

Response:

EPA selects a cleanup level that is protective of human health and the environment. It may or may not be equivalent to background levels in a given area. The Action Memo clarifies that cleanup levels for carcinogenic polycyclic aromatic

hydrocarbons (cPAHs), total polycyclic hydrocarbons (TPAHs) and pentachlorophenol (PCP) are set at levels protective of human health and the environment. These levels were determined through a site-specific risk analysis conducted through the original Oeser investigations and the EE/CA.

4. Comment: Several comments offer differing opinions on whether there is mobile non-aqueous phase liquid (NAPL) at the site.

Response:

Review of all the available data and photographs from the sampling performed by the City's consultant as well as all of EPA's data do not support the presence of mobile NAPL. This data indicates that there are areas with high concentrations of contamination in subsurface soils. However, this kind of contamination is found at only 3 out of more than 130 sampling locations within the LSP area. Only one of these subsurface soil borings taken by the City's consultant showed evidence of NAPL such as an oily globule. There is no data to support the presence of mobile NAPL in groundwater or surface water. Samples collected from groundwater at locations downgradient of the highest levels of soil contamination do not indicate the presence of NAPL or a contaminant plume and therefore do not indicate that contamination is migrating. Reports of a sheen in the surface water is also not an indication of NAPL and surface water samples taken downgradient of the highest levels of soil contamination do not indicate the presence of NAPL or contaminant plume. There are soil sample locations that gave off an odor, but those samples did not contain contamination at high enough levels to represent NAPL. Finally, in a report completed by the City of Bellingham's consultants, any references to NAPL they make are noted as residual NAPL, which is not mobile NAPL. Based on all of the information that EPA has for this site, there is confidence that the cleanup will address the areas of high contaminant concentrations and that there is no mobile NAPL impacting groundwater or surface water. In the event that soil containing NAPL is encountered during the proposed cleanup action, the contaminated soil will be excavated and removed from the park.

5. Comment: Commenters expressed concern about Alternative 3, which would consolidate and cap contamination within Little Squalicum Park. This could pose a risk to future park users, and would require maintenance. Additionally, there is concern that the contamination will pose a risk to surface water and groundwater.

Response:

The contamination that currently exists within Little Squalicum Creek and park area is a very low risk to people. In fact, there are only two samples that drive the human health risk analysis: one surface water sample from 2005 and one subsurface soil sample. The rest of the park area does not pose an unacceptable risk to human health. Most of the risk at the site is to the burrowing shrew, since shrews ingest soil while feeding. Because of that, the selected cleanup, which includes consolidating contaminated soil within the LSP and at the Oeser facility and covering it with clean material, will be fully protective of human health and the environment.

Currently, the groundwater does not pose a risk to human health and there is no evidence that contamination is migrating from soil to groundwater or surface water. Once the creek area contamination is excavated and the creek is realigned, all creek water will flow through clean material. Therefore, even though some contamination will remain in the park area underneath a clean cap, it will not pose a risk to the creek or groundwater.

6. Comment: Commenter states that the cost analysis is too general and not enough detail exists to do a relative cost analysis. It is also stated that it looks like cost was weighed more heavily than implementability or effectiveness.

Response:

At each site EPA is tasked with evaluating alternatives that have been developed through a feasibility study phase and have not gone through a full design. These alternatives are evaluated at the conceptual stage. As a result, there is uncertainty with all alternatives. However, that does not mean that a comparative analysis cannot be completed. In fact, for this site, the alternatives are straightforward and relatively simple in that they include excavation, consolidation, and capping. Although exact volumes are not known, there is a large amount of soil data that enabled EPA to more clearly identify volumes of contaminated soil for this site than for most other sites. Because of this, EPA believes that this cost analysis is appropriate.

In evaluating cleanup alternatives during the EE/CA, EPA first looks at whether or not the alternative is protective. If the alternative is protective of human health and the environment, it is retained through the rest of the evaluation. In this case, all of the alternatives (except the No Action Alternative) are protective of human health and the environment. Because of this, they are then evaluated with respect to implementability and cost. Cost does not drive the evaluation, but if there are equally protective remedies, EPA will likely choose the least cost alternative.

7. Comment: Comments state that Alternatives 2, 3, 4, and 5 do not cover all of the contamination at the site.

Response:

EPA used all of the data that exists for the site to determine the site risks and where cleanup should occur. During construction, additional samples will be taken to confirm that the required cleanup was completed. It is not clear whether this comment considered that additional sampling would occur during construction or not. Further, there was no additional data provided in the comment to support the claim that EPA's remedy would not address all of the contamination at LSC.

8. Comment: Commenter noted that since waste will remain on-site with the proposed cleanup alternative, a monitoring plan will be required.

Response:

EPA agrees that a maintenance and monitoring plan will be required for waste that will be left on site. This maintenance and monitoring plan will involve monitoring of the

cap areas to ensure that they remain protective and some additional surface water sampling to confirm that the cleanup did not disturb the surface water quality. Since groundwater contamination is not a concern at this site, there will not be future groundwater monitoring.

9. Comment: Commenter states the site Conceptual Site Model is inaccurate or incomplete. Commenter notes that there are other sources of contamination and other mechanisms for Oeser contaminants to be distributed in the creek area.

Response:

EPA believes there are many ways that contamination likely found its way to the Little Squalicum Creek area. This is typical for sites that have had multiple land uses and historic contamination. In fact, there are areas of the site that will not be addressed by this cleanup action, such as the historic landfill located at the northern end of the park area. EPA has tried to be very clear that, because of its settlement agreement with the Oeser Company, the focus of this cleanup action is on contamination that likely originated from the Oeser property. Fortunately, there are a great number of data points available for EPA to develop a cleanup plan for the current and historic creek channel such that a cleanup to address those contaminants can be conducted.

10. Comment: Commenter states that EPA did not look at all contaminants of concern in the risk analysis, rather EPA only looked at exposure to PAHs in soil. Additionally, commenter stated that EPA did not include an historic surface water sample in the risk analysis and that EPA did not follow “standard risk assessment protocols” when evaluating blackberries.

Response:

EPA did look at all contaminants of concern in surface soil, subsurface soil, sediment, surface water and groundwater. A memo produced by EPA’s consultant on May 2, 2007 specifically looked at all the data available for the site and ran risk calculations for surface soil, subsurface soil, sediment, and surface water. All of the data was used even though data points that skewed the risk higher should have been excluded from this analysis due to sample quality or the amount of time since the sample was obtained. As an example of this, the highest level of dioxin in surface water was from a sample collected in 2005. That sample was extremely turbid and after checking the sample logs, the data reviewers believe the sample was more representative of sediment than surface water and should not be used to evaluate surface water. Also, the sample is old and more recent surface water data shows much less contamination. However, EPA used this old data point to evaluate risks. It is this data point and one other that drove the human health risk for the entire site. If you were to exclude the surface water sample, the risks posed by the site would be well within EPA’s acceptable risk range for human health.

With respect to blackberries, EPA did sample blackberries and evaluated the contaminant levels to determine whether the concentrations exceeded EPA screening levels based on assumed berry-consumption rates. These rates are prescribed in the EPA Risk Assessment Handbook and are based on berry consumption rates identified by the

Food and Drug Administration. This is standard risk assessment procedure, used by EPA at sites across the country.

11. Comment: EPA should route the new creek with an impermeable liner.

Response:

The newly re-routed creek will be in an area that has been cleaned up so an impermeable liner will not be necessary.

12. Comment: There are concerns that the cap design would not allow for trees to be planted or voluntarily grow. This would not be good for the park and could be expensive to manage.

Response:

The cap design has not been completed yet and EPA's interest in the cap is that it remains protective of human health and the environment. If the parties performing the work would like a cap to allow for the growth of trees, this could be incorporated into the design to meet both EPA's and those parties' needs.

13. Comment: EPA received several comments regarding the impacts to wetlands at the site and how these impacts would be mitigated.

Response:

By implementing the selected cleanup alternative, EPA has determined that approximately 1 acre of federally protected wetlands will be impacted. EPA will ensure that the wetlands will be considered and mitigated as needed, consistent with applicable state and federal laws. EPA is anticipating that this mitigation can be completed within the Little Squalicum Park area. EPA will coordinate this work with the City and their future park plans.

14. Comment: A commenter noted that although EPA evaluated risks to a recreational user, there are likely some transients that live in the park and the cleanup may not be protective of these park users.

Response:

EPA's exposure analysis assumed that a recreational user would be exposed to the highest levels of contamination detected in park surface soil, subsurface soil, surface water, and sediments for 1 hour a day, 110 days a year for 11 years. Based on these exposures and calculations, it was determined that one subsurface soil location and one surface water location posed an unacceptable risk to human health. EPA does not have an estimate of time that a transient might be exposed to contamination within LSP or how much time they would be exposed to the two areas of contamination that pose a risk. Even though it's unclear whether their exposure would be higher or lower than what was evaluated, it's very unlikely that all of their exposure would be confined to the two locations that pose a risk to humans. In addition, it's important to understand however,

that for this site, it is the ecological risks that dictate a larger cleanup. The ecological risk analysis indicated that a much larger area poses a risk to animals—specifically animals that eat worms and bugs in the dirt. Once these areas were defined, the cleanup levels were set well below those that would present a risk to people or wildlife and the footprint of cleanup in the creek area is much greater than the area of contamination that poses a risk to human health. Based on this rationale, it is anticipated that this cleanup would be protective of a transient population in the park.

15. Comment: EPA did not evaluate risks posed by Total Petroleum Hydrocarbons separate from risks posed by carcinogenic Polycyclic Aromatic Hydrocarbons or Total Polycyclic Aromatic Hydrocarbons.

Response:

EPA does not perform a risk assessment for total petroleum hydrocarbons (TPH). Rather the risk analysis is performed on the components of TPH that drive risk, such as benzene, toluene, ethylbenzene, xylene, naphthalene, benzo(a)pyrene, etc.. These are the extremely toxic components of TPH. Based on this analysis, EPA would then identify a cleanup level if there is a risk posed by one or more of the toxic constituents of TPH. EPA conducts this kind of risk analysis at all of its Superfund sites and conducted this analysis here. Where those constituents of TPH pose a risk to human health or the environment, cleanup goals were set for the contaminants. At this site, there are cleanup goals for TPAHs and cPAHs based on that risk analysis.

16. Comment: Commenter notes that the depth of excavation during cleanup may not satisfy Washington State’s MTCA requirement to be protective to a depth of 15 feet.

Response:

EPA will comply with MTCA’s requirement to be protective to a depth of 15 feet by either excavation of contaminated soils or through the use of institutional controls. Institutional controls are routinely used in the State of Washington to ensure that any contamination left on site is managed or controlled such that future landowners or land users do not excavate into contamination without following proper procedures.

17. Comment: A commenter stated that EPA did not meet with the City’s consultants to go over the data and risk assessment.

Response:

EPA has met with the City and its consultants to discuss this matter on numerous occasions. Most significantly, on December 4, 2009 Ecology and Environment, Inc.’s (E & E’s) risk assessor met with a risk assessor from Integral Consulting Inc. (City’s consultant) as well as Howard Orlean (US EPA) to go over differences in the E & E May 2, 2007 technical memorandum *Review of Little Squalicum Park RI/FS – Human Health Risk Evaluation* and the Integral May 15, 2007 memorandum *Focused CERCLA Baseline Human Health Risk Assessment for Little Squalicum Park*.

At this meeting, it was acknowledged that there were a number of differences in methodology that potentially influenced the results. Integral and E & E agreed that many

of the differences did not significantly impact the results. Areas that appear to influence the results the most include:

- Dermal slope factor adjustments,
- Exposure fractional intake value, and
- Berry ingestion rate.

Integral adjusted the oral slope factor to evaluate dermal exposure, consistent with the 2002 evaluation that was completed in the original Oeser investigation. For E & E's 2007 risk memo, E & E followed more recent EPA guidance (Risk Assessment Guidance for Superfund Part E, 2004), which was published after the 2002 Oeser Human Health Risk Assessment. Following this guidance, E&E did not adjust oral toxicity values for dermal exposure to cPAHs, dioxins, or PCP. The approach used by E & E in the 2007 memo is the technically appropriate evaluation and consistent with current EPA protocol.

For the E & E 2007 memo, a fractional intake (or fraction soil/water contacted) value of 0.25 was used for contact with all media. This value is consistent with the original 2002 evaluation. Integral used a fractional intake value of 1. Integral indicated this was an oversight on their part. This change in the exposure parameter is expected to influence the result significantly and may account for most of the differences in results between the two memos.

E & E evaluated exposure to berry ingestion by screening results against a screening level from the 2002 evaluation. The screening level was developed using a berry ingestion rate from the EPA Exposure Factors Handbook. Integral used an ingestion rate approximately four times higher than the E & E value to evaluate exposure to contaminants in berries. Integral could not explain why the ingestion rate they used was not consistent with the 2002 evaluation but indicated that they planned to look into the issue. Using the ingestion rate from the 2002 and E & E 2007 evaluation, Integral agreed that exposure to contaminants in berries would potentially not be a pathway of major concern.

18. Comment: A commenter asked whether the City and the County would be liable for contamination at the site.

Response:

The City and County are landowners at this site and are therefore potentially responsible parties. In addition to being a landowner, the City and/or County are responsible for the stormwater that is discharged to Little Squalicum Creek via the stormwater collection and conveyance system.

19. Comment: A local resident stated that he walks the park with his grandchildren. He expressed concern that there are people out there requesting that we “spend more money to make them feel better.” He suggests they work with Oeser.

Response:

Comment noted.

20. Comment: A commenter noted that people should pay attention to EPA. There is no point in spending more money if it doesn't add anything to the remedy.

Response:

Comment noted.

21. Comment: A commenter expressed a concern that EPA did not consider impacts to children or pets from the contamination.

Response:

The evaluation of contamination in LSP involved evaluating risks to both human health and the environment/wildlife. EPA evaluated risks to future recreational users, both adult and children. In addition, risks to animals that live in the LSP area were also evaluated. The risk analysis revealed that contamination in the LSP poses most risk to small animals that live in the park and eat bugs or worms that live in the contaminated soil. The shrew is the most sensitive animal and is most at risk due to park contamination. Therefore, the cleanup that will be implemented at LSP will protect the shrew. Since the shrew has far more exposure to LSP contaminants than a household pet or child park user, the cleanup will also be protective of those park users.

22. Comment: A commenter noted that this cleanup only focuses on the creek area and where the Oeser facility has impacted the LSP but that there are other areas of the park that should be addressed by EPA.

Response:

The focus of the EPA Non-Time Critical Removal action is on contamination within LSP that is related to the Oeser facility. Other contaminated areas within the LSP area, such as the City landfill will not be evaluated or addressed with this cleanup action. Those areas are being evaluated by the Washington State Department of Ecology.

23. Comment: A commenter stated that contaminated groundwater is discharging to the creek and bay.

Response:

There is no evidence, despite the large number of samples for this site, that contaminated groundwater is discharging to Little Squalicum Creek or the Bay. Groundwater sampling results show that where groundwater is co-located with contaminated subsurface soils, there is contamination in groundwater. The groundwater contamination is confined to those areas and is not seen in downgradient wells. In addition, EPA looked at the surface water adjacent to and downgradient of the areas that have the highest levels of contamination in subsurface soil. There is no indication that surface water is being impacted by these soils or the groundwater.

24. Comment: A commenter stated that this site is in an earthquake zone and the cap would likely not be effective.

Response:

The cap will be designed and constructed to protect people and the environment. EPA Region 10 has conducted several cleanup actions like this within creeks and larger watersheds in earthquake zones. These cleanups have occurred at several mine sites in Idaho, sites in southwest Washington, Oregon and Alaska. At many of these sites, contamination is consolidated and capped within the site. Wherever the contamination ends up—whether it remain on site or whether it is shipped to an off-site disposal facility—it will need to be capped appropriately. This kind of capping can occur within the site as easily as it can occur off the site.

25. Comment: Comments were received that express a concern for spawning salmon and the fishery of Little Squalicum Creek and did EPA consider that in determining cleanup actions.

Response:

The Little Squalicum Creek may provide habitat for fish at certain times of the year but the year-round flow of the creek is not sufficient to sustain a fishery. However, the cleanup is expected to be protective of any fish that may be in Little Squalicum Creek.