Grain Handling Facility at Freeman Site

Thank you to all of the people who attended the public meeting on April 22, 2015. This document generally reflects questions asked at the meeting. They were not recorded verbatim. The answers are Ecology's responses.

Q: Is there pollution in dirt on the playground? Have you tested the indoor air quality? Have you taken other soil samples?

A: Soil Samples have not been collected from the School District property at this point. Indoor air quality has not been tested. Based on the depth of contamination, we do not anticipate impacts to indoor air quality. At this point, the only soil samples collected and analyzed are those described in the EPA's Site Investigation.

Q: Do you have business cards or contact information for the Site Manager?

A: Business cards and contact information for the Site Manager were made available. Contact information is as follows:

Patrick Cabbage, Hydrogeologist
WA Department of Ecology
4601 N. Monroe
Spokane, WA 99205-1295
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Email: patrick.cabbage@ecy.wa.gov

Q: Have you found other chemicals associated with carbon tetrachloride?

A: Chloroform, a breakdown product of carbon tetrachloride has also been detected in groundwater

Q: Is chloroform a predictable breakdown for carbon tetrachloride?

A: Under ideal circumstances, with no continuing source, carbon tetrachloride would likely break down to chloroform.

Q: Has carbon disulfide been found? Is it associated with 80/20 mix of chemicals used?

A: Carbon Disulfide has not been detected in groundwater. Carbon disulfide is commonly associated with 80:20.

Q: How deep did you sample? Did you sample below the elevator concrete pad? What were the varied depths?

A: EPA's site investigation collected soil samples which varied in depth from 4 feet below ground surface to 32 feet below ground surface. Soil samples have not been collected below the elevator concrete pad.

Q: How is the groundwater moving – what is the direction?

A: The direction of groundwater flow is interpreted as generally flowing from northeast to southwest.

Q: If carbon tetrachloride chemicals were used in the silos explain why contamination was found by the road?

A: There are many possibilities. Fumigants may have been applied directly to the ground as a form of pest control. There may have been spills or leaks from a holding tank. The widespread historical use of carbon tetrachloride as an ingredient in grain fumigants suggests the grain handling facility as a potential source.

Q: Is there a possibility the source is from activity from or near the highway?

A: It is a possibility, though we believe the likelihood of the grain elevators historically using carbon tetrachloride are greater than activity from or near the highway.

Q: How deep are the school's wells?

A: The primary water supply well has a total depth of 215 feet below ground surface. The northern well on school district property, that is not used for water supply, is 285 feet below ground surface. The southern well on school district property that is not used for water supply is 256 feet below ground surface.

Q: Groundwater flow data is from the shallow aquifer. There is also a deeper basalt aquifer?

A: Correct. There are multiple aquifer systems in this area.

Q: When more soil tests are done, will you be sharing a map of potential locations of contamination?

A: Yes. The final results from sampling will be shared with the public. In addition, the Agreed Order and Scope of Work, which will guide where sampling will occur, will be available for public review and comment prior to work beginning. Please note that the PLPs will be required to fully outline all contamination at the site.

Q: How will we know when the scope of work is available for public comment?

A: Through the same methods we used to notify you of this public meeting. Flyers will be sent in the mail, and a notice will be published in the newspaper.

Q: How does carbon tetrachloride move through soil? Can vapors get to the surface?

A: Carbon tetrachloride is a relatively dense contaminant. It has a propensity to migrate downward. Under certain conditions, carbon tetrachloride can volatilize, and vapors can get to the surface. With the depth of soil contamination at this site, we do not anticipate significant off-gassing to the surface.

Q: When CHS purchased the site there wasn't a problem. Why is there a problem now?

A: We are not aware of what documentation CHS may have regarding this. There may or may not have been an issue at that time. CHS representatives at the public meeting stated that no groundwater sampling was performed prior to the sale of the facility from Rockford Grain Growers.

Q: Did you know the Railroad hauled Ore from Kellogg?

A: Thank you for the information.

Q: If you find carbon tetrachloride deeper than 40 feet – give some examples of what remedial actions you would take.

A: The purpose of the Feasibility Study is to evaluate different cleanup options. It is probably not practical to consider that all of the contaminated soil will be excavated and disposed. There are technologies such as In Situ Chemical Oxidation wherein another chemical, such as hydrogen peroxide, is injected into the contaminated area. The hydrogen peroxide enhances the breakdown of carbon tetrachloride. Soil Vapor Extraction, which is when air is vacuumed out of the ground through soil borings, is also an effective way to remove carbon tetrachloride from the subsurface. Other technologies are capable of remediating carbon tetrachloride at depth.

Q: Now that carbon tetrachloride is banned but folks were using the chemical in good faith when it was legal – how can they be held liable now?

A: There are exemptions in the law for people who applied chemicals according to manufacturer recommendation. It is Ecology's understanding that the extent of contamination that we are seeing would most likely be the result of spills, mishandling, over-application, leaks, or illegal disposal.

Q: Has Ecology cleaned up similar sites with carbon tetrachloride?

A: Ecology has cleaned up a few sites on the west side of the State. We do not have many sites with carbon tetrachloride in this region. We have remediated many other sites in our region that were contaminated with chlorinated solvents similar to carbon tetrachloride.

Q: Is the school going to have clean water if you clean up the site? Do they have to pay for water or pipe clean water from elsewhere?

A: The school currently has clean water. The treatment system in place is working. It is effectively treating the groundwater so students and staff are drinking clean water. The school district is currently paying to operate and maintain their treatment system as well as paying for sample analyses.

Q: What are the health effects of carbon tetrachloride? Based on what we know should we be concerned if our kids went through school at the time of the concern (elevated levels of carbon tetrachloride)?

A: Dorothy Tibbetts from the Washington State Department of Health fielded this question. She stated that her concern was very low. Carbon tetrachloride has chronic health effects, meaning that exposure for a very long time may have increased health risks. Dorothy reiterated that there was very little time that the school's drinking water had carbon tetrachloride levels higher than the Safe Drinking Water Maximum Contaminant Level of 5 parts per billion.

Q: Is there a deeper aquifer accessible? Are they contaminated? Did you look at them?

A: There are deeper aquifers in the basalt and granite beneath the site. Randy Russell from the Freeman School District added that the school district attempted to site a replacement well onsite but did not have success pumping enough water from these deeper aquifers.

Comment: There is a difference between surface and groundwater. The level of the aquifer is not consistent. The permeability of clay layer doesn't allow water to move. I don't think you can identify PLPs until you finish your testing.

A: The comment was noted. There was also a discussion about what constitutes surface water and what constitutes groundwater. There was also an explanation that water does move through the fine-grained soils in this area. They may move very slowly, but water does move.

Q: Has there been consideration to the amount of carbon tetrachloride used that would cause the problem? What calculations have been done?

A: Without defining the extent of contamination, it would be impossible to calculate what volume of carbon tetrachloride would have been responsible for the contamination we are seeing. Those calculations would be more appropriate after further investigation and characterization.

Q: How can you seek liable parties without having enough information?

A: The Department of Ecology takes the naming of potentially liable persons very seriously. We do not name someone as potentially liable until we have enough compelling evidence. Ecology is currently evaluating evidence and is in discussions with the two companies mentioned. Final PLPs for this site have not yet been determined.

Q: How does mg/L compare to mg/Kg?

A: mg/L and mg/Kg are both equivalent to parts per million. µg/L and µg/Kg are both equivalent to parts per billion. Note: 1 part per million would be equivalent to 1,000 drops of water in an Olympic-sized pool. 1 part per billion would be equivalent to 1 drop of water in an Olympic-sized pool.

Q: What would you typically see if the chemical was used properly? Would you see it in groundwater?

A: The chemical would not be seen in groundwater.

Comment: You are putting blame on parties instead of protecting the kids – who pays for all of this?

A: The driver for the work we are doing at this site is protecting the students and staff in the Freeman School District. The Model Toxics Control Act process is the vehicle that Ecology has to move this cleanup forward. Identifying potentially liable persons is one of the first steps in the process.

Q: What happens if you can't find a responsible party?

A: If the proposed National Priorities Listing is finalized, and no potentially liable persons are identified, the National Priorities Listing provides the EPA the opportunity to use federal dollars for the cleanup. If the proposed listing is not finalized, then there are Model Toxics Control Acts funds that may be available for the cleanup.

Q: Do you know carbon tetrachloride is only found in the uses you listed? What about deicer, old buildings, sewage as contributors to the contamination?

A: Historic carbon tetrachloride uses are not limited to the uses identified in the presentation. These uses are some of the more common historical uses. It is unlikely that sewage would have contained carbon tetrachloride.

Q: Based on soil samples, what is the timeline for sampling on the other side of the railroad tracks?

A: The timeline that Ecology has proposed would put the sampling sometime within the next two years. This is an estimated timeline; actual sampling may occur sooner.

Q: What is the cost/year for the school to treat the water? Wouldn't it be better to get another well for the school instead of spending all the money for what you plan to do?

A: Randy Russell from the Freeman School District fielded this question. He stated that the overall costs to the school were on the order of $400 per month for water treatment and sample analyses.

Q: Does continual pumping dilute the water? Won't the contamination decrease over time?

A: When the source of contamination is removed, dilution can start to cause concentrations to decrease. But a decrease in concentration can only occur when the source (e.g. a leaking tank, contaminants in soil, pure product in groundwater) is remediated. Until the source is removed, Ecology does not believe the contamination will decrease over time.

Q: How much input do the Potentially Liable Persons (PLPs) have in the feasibility study and scope of work?

A: The PLPs hire consultants to develop the Remedial Investigation/Feasibility Study (RI/FS) Work Plan (guides the work) and the actual final RI/FS report (presents the results of the work). The Work Plan and final report are submitted to Ecology for review, comment, and approval. The PLPs have ample ability to provide input in the feasibility and scope of work.

Q: Could there be a "sleeping giant" because of the recent construction of the school or work in the area?

A: It is possible that there could be a large source in the area (e.g. buried tank).

Q: Do we need to worry about the problem if the school had an alternate water supply?

A: Yes. In our experience, problems like this do not go away - they get worse. If the area of contamination is not cleaned up, experience shows that the area of contamination will grow and impact more and more people.

Q: Will the plume go away? Without treatment won't the pollution dilute over time?

A: When the source of contamination is removed, dilution can start to cause the plume to decrease. A decrease in the size of the plume can only occur when the source (e.g. a leaking tank, contaminants in soil, pure product in groundwater) is remediated. Until the source is removed, Ecology does not believe the contamination will decrease over time.

Q: Was carbon tetrachloride used at the grain elevator? (Do you know that for sure?)

A: Because Ecology does not have access to the complete history of the site, it is impossible for us to know if carbon tetrachloride was used at the grain elevator. However, it has been reported that prior to 1986, the largest source of carbon tetrachloride releases into the environment was from grain fumigants.

Q: What is the name of the chemical that contained carbon tetrachloride?

A: There were several different companies that made grain fumigants that contained carbon tetrachloride. Infuco 80-20, Dowfume, and Max-Kill 75-25 are three of the *many* grain fumigants that contained carbon tetrachloride.