

Evaluation of the May 5-6 2014 Sediment Sample Analyses for the South Branch of the Park River Flood Control Maintenance Project

Evaluating Sediment Sample Data

The analytical results for testing of the sediment samples collected on May 5-6, 2014 for the South Branch Park River Flood Control Maintenance Project were reviewed to determine the potential for risks to people in the neighborhood. These samples were taken of the sediment deposits in the channel, prior to any dredging.

In general, to evaluate risks you must have an understanding of the types and amounts of chemicals present as well as the potential for people to come into contact with the material. People will not be at risk, even if chemical concentrations are elevated, if contact with the materials is prevented.

In order to evaluate any potential risks, DEEP considered three common ways that people can come into contact with chemical contaminants at environmental project sites and whether or not these contact scenarios are possible at this project. The three common contact scenarios are: direct contact, potential contact with groundwater and inhalation.

Types of Chemicals Found in Sediment Samples

- Metals are common components of soils and sediments. They can be natural or from manmade sources. The sediments were tested for 15 types of metals. 13 types of metals were found in at least one of the sediment sample.
- Semivolatile organics are a common chemicals found in the environment. The sediments were found to have detections of 18 common semivolatile chemicals which belong to a group of chemicals called polycyclic aromatic hydrocarbons (PAHs). PAHs are common chemicals occurring when something burns incompletely. There are natural and manmade sources of PAHs.
- PCBs are organic chemicals which can be found at industrial sites but may also be present in the environment from other sources such as older electrical transformers. Low levels of PCBs were found in the sediment samples.

Evaluation of Sediment Test Results

Direct Exposure:

Direct exposure evaluations are based on the assumption that people will come into direct contact with the material being evaluated. For this project, people will be prohibited from coming into contact with the excavated sediments, so no risk is expected from direct contact.

Even though direct contact will be prohibited, CTDEEP evaluated the data using Residential Direct Exposure Criteria which can be used to evaluate potential risks for adults and children should they come into contact with the sediments. These criteria assume that people will be come into contact with the materials on a daily basis for between 30-70 years. The results of this comparison show that there are no potential risks for direct contact for metals and PCBs. For 14 of the 18 PAHs, there are no potential risks for direct contact. For 4 of the 18 PAHs there could be risk if people were allowed daily contact

with the materials for 30 or more years. This is not the case at this site. Contact will be prohibited and even if people were to come into contact with the sediments it would not be daily contact for many years.

Potential Contact with Groundwater

There are times when chemicals in soil can move from the soil into groundwater. When this happens, people can come into contact with those chemicals if the people drink the groundwater. At this project, there are two circumstances which will prevent this potential route of contact: 1) The sediments will be placed on tarps which will prevent any of the chemicals in the sediments from moving into the soils and groundwater at the site and 2) people in the neighborhood drink water from the public water supply system, not from local wells in the neighborhood. Because there is no potential for contaminants to be transferred to the groundwater and then for people to drink that groundwater, no risk is expected from potential contact with groundwater.

Even though potential contact with groundwater is not expected, CTDEEP evaluated the data using Pollutant Mobility Criteria for GA areas. For PAHs, these criteria are given as the amount of chemicals in soil that could lead to risk if people were to drink the groundwater. For 7 of the 18 PAHs found in the samples, there are no risks expected should chemicals move from the sediments into the groundwater. For the other 11 PAHs, there could be risk if the chemicals in the sediments were allowed to transfer into groundwater and then people were to use that groundwater for drinking instead of using the public water supply. As both the transfer of chemicals into the groundwater and the use of groundwater for drinking will be prevented, risk is not expected.

For metals and PCBs, the results of a different type of chemical analysis is needed to compare to Pollutant Mobility Criteria. For these chemicals, the laboratory conducts tests that mimics the transfer of chemicals from soil to groundwater and then tests the water produced in the test for presence of the chemicals. This type of testing was not done so it is not possible to compare the test results from the sediments with the Pollutant Mobility Criteria for metals and PCBs. Still, risks are not expected from these chemicals because the metals and PCBs will be prevented from moving into groundwater and people will not be drinking or exposed to groundwater.

Inhalation

If the sediments at this project were allowed to become very dry so that they could produce dust which could get into the air, there could be a potential for people very close to the project to breathe in dust from the project. However, for this project, sediments are taken from the river and placed on tarps. The sediments taken directly from the river are very wet and so will not produce dust that could get into the air. The sediments are allowed to remain on the tarps to allow some of the water to come out of the sediments, collect on the tarps and be moved back to the river. Even with some of the water coming out of the sediments, they are still wet and are not likely to produce dust that could get into the air. Because of the way that the sediments are handled at the site, dust is not expected to be produced to any extent that could be a concern for people near the project. Risks from inhalation are not expected at this project site.