Newtown Creek 3/27/2013 CAG Meeting

Informational Handout

Remedial Investigation and Feasibility Study (RI/FS)

The RI/FS phase of the process determines the nature and extent of contamination at the site, tests whether certain technologies are capable of treating the contamination, and evaluates the cost and performance of technologies that could be used to clean up the site.

EPA designs a thorough investigation of the site, characterizing both the lateral extent of contamination (the area affected and to what depth), and the types and concentrations of contaminants. This usually involves a significant air, soil, surface water, sediment, and/or groundwater sampling process and often times multiple sampling events that can take many years.

Once the contamination has been identified, EPA develops a list of possible ways to address it. The tools, techniques and processes are organized into alternatives, often with multiple elements that are evaluated using a number of criteria, including protectiveness of human health and the environment, ease of implementation, cost and time to reach cleanup goals.

Based on results of the feasibility study portion of this phase, EPA will develop a Proposed Plan for cleaning up the site. The Agency will issue a public notice through the local media to notify the community, so interested members of the community can comment on the Proposed Plan. In addition, the Agency may hold a public meeting to discuss the Proposed Plan. EPA then will develop a Responsiveness Summary to

formally respond to public comments received. If, based on public comments, the Proposed Plan is changed substantially, EPA will issue an explanation of the changes made and invite public comment on the changes.

Risk Assessment

Each Superfund site is unique in terms of the contaminants present and their potential health and environment effects. Therefore, EPA conducts human health and ecological risk assessments on a site-by-site basis. The risk assessment estimates the current and possible future risks, if no action were taken to clean up the site. Superfund's goal is to manage risks to acceptable levels, and risk managers incorporate risk assessment information with a variety of site factors to select the best cleanup strategies.

The Superfund human health risk assessment process has four steps:

1. Data collection and evaluation: What chemicals are detected, and are at levels of concern for human health?

2. Exposure assessment: How might people be exposed to detected chemicals above levels of concern, either currently or in the future, and how frequently do these exposures occur? (This is where the community has the most input)

3. Toxicity assessment: What types of health effects (both cancer and non-cancer such as liver, kidney or developmental effects) are associated with the chemicals that have been detected above levels of concern?

4. Risk characterization: Based on what types of chemicals are present, at what levels and what health effects are associated with these, and what exposures might occur, what are the conclusions of the human health risk assessment? What uncertainties have been identified?

Each step involves an analysis of specific data or assumptions related to the areas of contamination and potential human exposures to contaminants of concern.

The Superfund ecological risk assessment process has three steps:

1. Problem Formulation: Information is gathered (such as habitat types, observed species and species likely to be present based on habitat types) to help determine what, in terms of aquatic and terrestrial organisms (plants, animals),

and environmental sensitive areas (wetland, stream), is at risk and what needs to be protected

2. Data collection and analysis: What chemicals are detected, and what aquatic and terrestrial organisms are exposed and to what degree they are exposed and if that level of exposure is likely or not to cause harmful ecological effects
3. Risk Characterization: Based on what types of chemicals are present, at what levels and what ecological effects are associated with these, and what exposures might occur, what are the conclusions of the ecological risk assessment? What uncertainties have been identified?

Similar to human health risk assessment, each step involves an analysis of specific data or assumptions related to the areas of contamination and potential ecological exposures to contaminants of concern.

Community input can augment and improve EPA's estimates of exposure and risk.