

## **Newtown Creek CAG Meeting**

Wednesday, May 8, 2013

6:00 – 8:00 PM

Newtown Creek Wastewater Treatment Plant  
329 Greenpoint Avenue, Brooklyn, New York, NY

## **Meeting Summary**

Ryan Kuonen, CAG Co-Chair, welcomed attendees to the meeting and introduced Michael Sivak and Wanda Ayala from the U.S. Environmental Protection Agency (EPA) Region 2.

Michael Sivak, EPA risk assessor and section chief of Region 2's mega projects group, gave a presentation on Human Health Risk Assessment (HHRA) in the Superfund process. He amended the slides with the following comments and explanations, which are generally summarized below.

*[Note: this meeting summary is intended to accompany the EPA PowerPoint slides to which Michael Sivak referred during the presentation. These slides are posted on the CAG website in the "Resources" tab.]*

### *Introductory Comments*

- Michael Sivak explained that tonight's meeting has two purposes: 1) To continue to inform the community about the Superfund process, which includes HHRA. The presentation discusses the steps of the process. 2) To hear from the CAG about how people currently use the Creek, what the exposures are, and what exposures might be in the future as more people become aware of the cleanup and as redevelopment scenarios play out. The CAG and the community are the "eyes on the ground."
- The Superfund Remedial Investigation determines the nature and extent of contamination at the site. Then the ecological risk assessment is conducted. The ecological risk assessment process is similar but different to the HHRA. Chuck Nace is the EPA ecological risk assessor for the Newtown Creek site; he could also come to speak with the CAG about that process.

### *Background on Risk*

- What is risk? Risk is a function of exposure and toxicity. You have to be exposed to something and it has to have some amount of toxicity (it must have the ability to have adverse health effects). "Adverse" comes in two categories: carcinogenic and non-carcinogenic (liver, kidney, central nervous system, redevelopment, etc). At Superfund sites, the EPA needs to know how people are being exposed and what the toxicity is.
- Cancer risk is expressed as a probability (e.g., 1 in 10,000). Noncancer hazard is presented as a ratio. There is a safe dose before you see a health effect. The ratio is expressed as a numerical number. For example, 5 = an exposure dose of 5 / the safe dose of 1. This would mean you were exposed to a greater dose than is safely allowed. Cancer and noncancer risk are two different types of risk, presented in two very different ways. Note: the "population" referred to in the definition of cancer risk is not about a geographical area.

- There are four steps to the process:

- Data evaluation
- Exposure assessment
- Toxicity assessment
- Risk characterization/uncertainty

The bullets below include questions from the CAG and explanations from Michael Sivak about these four steps.

#### *Data Evaluation*

- Background rates of cancer do not necessarily factor into this HHRA process. The rates cited by health organizations such as the American Cancer Society are very high because people are living longer, we have better diagnostics, etc. Given this, it is not unusual to see increasing rates of cancer. And, we live in a chemical world. Acceptable rates of incidences of cancer and nonthreshold cancer are set by Congress. In 1980, Congress determined the reasons to take action at a Superfund site. This HHRA is not determining whether sick people are sick because of site-related contaminants. The HHRA is determining whether the level of risk at the site is a reason to take cleanup action. Actionable levels of risk are defined by legislation.
- The EPA collects data during the remedial investigation (sampling of sediment, surface water, biota, air, etc.). The risk assessment process is not concerned with every chemical detected in the samples. Because of 300 years of industrial history, EPA samples will detect hundreds of chemicals. Some will be infrequent and not very toxic; thus, there is no need to focus on them. The large list of chemicals then gets screened into something more manageable. At a big site like Newtown Creek, this list could still contain tens to hundreds of chemicals.
  - Frequency of detection matters – if less than 5% of samples contain a chemical, we probably won't look further. The maximum concentration of every chemical gets compared to a safe concentration (the highest level you can be exposed to without a health effect). If the highest level detected is lower than that safe concentration, we'll stop looking at the chemical unless the chemical is a known carcinogen.
  - Known carcinogens are carried through the process, no matter how unlikely they are. For reference, there are only 14 or 15 known human carcinogens (phthalates are not a known human carcinogen). The process involves looking at the frequency of detection and using a risk-based screen. We adjust the safe level down to make sure we have a buffer.
- *A CAG member commented on the aeration project in English Kills. Bacteria are coming up from the bottom of the Creek and could hold carcinogens on surface of bubbles. Will the EPA be looking at the full range of chemicals in both aeration and non-aeration areas, particularly because there are plans to expand aeration?* Michael Sivak noted this potential exposure scenario and explained that inhalation is a difficult scenario to capture. In order to figure out how to capture the volatilized chemicals coming up in the aeration bubbles, the EPA will look at chemicals in surface sediments and compare them to air. Aeration changes the fate and transport process. As a result, the EPA will have to

determine how surface sediments might rise up through the water column and get into the air.

- The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) does not allow the EPA to regulate pathogens and bacteriologicals – only chemicals. The EPA cannot assess exposure to risk associated with pathogens and bacteriologicals.
- The EPA collected samples in the breathing zone for kayakers and additional samples along walkways for nature walk users. If the water is being agitated while the sample is being collected, the sample will reflect that.
- Newtown Creek is an industrial environment: we may see influence from ambient sources around the Creek. Questions that must be asked: Are we seeing things that are not in surface water or in ambient samples above the water line? Are the walkway samples more likely associated with non-site sources?
- *A CAG member asked if material that is left behind by tides and dried in the sun is included.* Yes. If there are areas where the sediments at low tide are exposed and this increases the frequency of exposure in those areas, we can focus individual activities in those areas. Similarly, flooding events will have to be added in. For instance, it is known that people are living on boats near Vernon Ave.; people might encounter sediment when they are getting into and out of boats.
- A Superfund site is defined as the release and where the contaminants come to be. The Newtown Creek site is the sediments and where the contaminants come to be. This does not include the operating facilities, but if there is contamination in sediments and the creek floods onto the streets, the EPA would look at that exposure.

#### *Exposure Assessment*

- Exposure assessment looks at who is likely to be exposed during current and future uses. What are the risks now, and what are the risks in the future if no action is taken? If those risks are unacceptable, then action must be taken. Newtown Creek is a long creek with many tributaries and multiple entrance points. The HHRA may have subsets of data to characterize different types of exposures, for example: sediment exposures at the boat community vs. sediment exposures elsewhere.
- Exposure assessment asks: Who is exposed, where, and how long?

#### *Toxicity Assessment*

- The EPA follows national guidance on where to get information about adverse health effects associated with chemicals. The EPA database called IRIS is the “gold standard” for toxicity information. IRIS is publicly available at [www.epa.gov/IRIS](http://www.epa.gov/IRIS). Toxicity information that the EPA uses must meet two criteria: 1) it must be available in the public domain (i.e., no private companies using proprietary data); and 2) the studies must be peer-reviewed. The EPA looks at that information for both carcinogens and non-carcinogens.
- More information about the safe dose: human bodies have the ability to detoxify and process chemicals depending on what the chemicals are – until the systems that process the chemicals become overwhelmed. Metals, for example: the body processes zinc very well. Lead is very similar to calcium in structure, which is why undernourished kids

sequester lead in bone a lot more. The body does not know what to do with manmade chemicals, so the body gets overwhelmed more quickly. Manmade chemicals tend to have lower levels of safe doses (there are exceptions, but this is a categorical way to think about it). We look at studies for a chemical and choose the most sensitive as the basis for our toxicity value; we also add in safety factors to make sure we are protecting for even the most sensitive individuals (to be more conservative).

- A CAG member asked, “What if it is a large population of immune-compromised people?” Michael Sivak explained that the EPA looks at the most sensitive end point for the population and then adds a safety factor to account for increased susceptibility.

#### *Risk Characterization/Uncertainty*

- During the HHRA process, the EPA also tries to figure out the uncertainties in risk calculation, such as:
  - Did we characterize the site properly?
  - Do we have a good handle on the nature and extent of contamination?
  - Can we calculate the appropriate statistic or are we using a high estimate of what the exposure might be? (A reasonable maximum exposure scenario is used; this is a maximum exposure that is reasonable to assume. For example, it would not be reasonable to assume that people would be swimming in Newtown Creek 365 days a year)
  - Are there chemicals for which we do not have toxicity information?
- All of these uncertainties are compiled as part of the risk characterization.
- The EPA needs to answer these questions because we need to know if we need to remediate. Is there an unacceptable level of risk? If so, the site must be cleaned to acceptable levels of risk. “Acceptable” is based on current uses and probable future uses. For example: at an old industrial site, there is limited exposure because no one is working 7 days per week, no children are allowed, etc. The master plan is to rezone the industrial building as luxury loft condos. Risks associated with current use would be for trespassing, but the future use would be residential.
- *A CAG member noted that as people perceive the water to be cleaner, uses of Newtown Creek will intensify.* Michael Sivak agreed that yes, the Creek will be more attractive to people as it becomes cleaner, but the Creek will not likely ever be pristine.
- The EPA does not control the land use plan; the EPA has no influence on how land or water is zoned. This is a state and city responsibility.
- *A CAG member asked, What if the sole guidance is zoning code and there are no known city plans to rezone?* The EPA land use guidance is online. Years ago, every site was cleaned up for residential land use, but this was a waste of resources. In 1993-94, the EPA developed land use guidance. In order to get a sense of where a site is going in the future, the EPA has to look at historical use, surrounding property use, master plans, current zoning, etc.
- *CAG members asked about state water body classifications.* A lot of conversations need to happen about where everyone wants Newtown Creek to end up. It is an industrial water body but still so active. New York City Department of Environmental Protection (NYCDEP) will have to consider this through its Clean Water Act efforts.

- Everyone is working toward a cleaner Newtown Creek – through Superfund designation, aeration, active facilities, etc. It is too premature to know where the Creek will be after all of this, but it is never too early to ask those questions regularly and to everyone.
- Michael Sivak walked through potential pathways with CAG members and asked for feedback/additions/corrections:
  - Dermal contact with surface water
  - Dermal contact with sediment
  - Inhalation of constituents volatilizing from surface water
  - Inhalation of constituents from aerated water
  - Ingestion of shellfish
- Next the group walked through exposure scenarios: what activities are occurring and how often?
  - Work-related activities along shoreline or over water.
  - Loading barges (splashing, etc.).
  - Residential activities associated with people living on boats on the Creek (breathing in volatiles and aerosols for a higher number of hours/days). This scenario is a unique exposure to sediments because the boat-dwellers walk through sediments. The EPA needs to know where the boats are docking so that the nearby sediment can be documented.
  - Recreational activities: wading, swimming, scuba diving (the EPA mentioned NYCDEP and urban divers; the CAG had not seen much of this), boating, jet skiing, fishing and crabbing, a man who bathes in the Creek with a bar of soap, exercising at the Nature Walk (jogging and biking), kids playing on the Nature Walk steps, exposed sediment at North Brooklyn Boat Club site.
- Additional notes from the CAG about pathways and exposure scenarios:
  - Sediment mounds at combined sewer overflows (CSOs) are exposed every day at low tide.
  - People live on two ferry boats on English Kills; it seems to be a rave scene. Councilwoman Reyna is monitoring the activity.
  - Homeless population on English Kills (sleeping along fence line to Johnson Ave. where it is easy to get down to water. The Montrose Ave. rail bridge is also an access point).
  - Companies around the creek have spaces where employees hang out by the water, like the BBQ area at Waste Management.
- Michael Sivak explained that the HHRA will not include these anecdotes. Rather, the EPA will develop categories of exposures. It is possible that only the highest exposure scenarios will be evaluated.
- *A CAG member noted that the EPA has taken core samples along bottom of the Creek, but there are mounds at the CSOs; these are likely distinct from sediments.* This stage will include data gaps in the sampling; the sediments exposed at low tides could be one of them. The CAG could send a list of all areas where sediments are exposed at low tides so the EPA can be sure to characterize them. The composition will be different in these areas (fewer volatiles, additional CSO components, etc.). The important areas for the CAG to share with the EPA are those where sediments are exposed at low tide and people access them.

- A CAG member asked about the restricted activities noted in the presentation slide (swimming and scuba diving, boating, fishing and crabbing). If the New York State classification for this water body does not allow for recreational use of water, this would include fishing. The EPA will include in its evaluation even the activities that are not encouraged.
- There is no judgment in risk assessment. The EPA process will look at all exposures regardless of whether people are “supposed” to be doing the activities or not.
- The EPA is not using New York State Department of Health information. The responsible parties at the Newtown Creek site are conducting the risk assessment under EPA oversight. The risk assessment process is waiting on this input from the CAG. EPA does not have statistical information to say that people have exposure for a certain amount of time; this is why the anecdotal information used needs to be defensible. The HHRA is not used as a health diagnosis tool. The HHRA will not say that there is a direct link between site contaminants and observed health effects in the population. Its purpose is to identify the need for remedial action.

#### **Meeting Wrap-Up and Discussion of Next Steps**

- The EPA hopes to have more information about the Remedial Investigation for the CAG soon. Caroline Kwan, the remedial project manager for the site, will coordinate with the CAG co-chairs about presenting that data when they are ready. At this point, the data need to be interpreted first.
- The CAG steering committee will meet soon in order to discuss CAG activities and next steps.