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Cleaning Up City Waterways

The long-polluted New York City waterways Gowanus Canal and Newtown Creek, for generations the recipients of various contaminants, are the focus of renewed attention to the cleanup of contaminated sediments. In 2010, the U.S. Environmental Protection Agency (EPA) designated both waterways as federal Superfund sites under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9601 et seq. A Superfund site is one that EPA has determined poses an unreasonable risk to human health or the environment due to the presence of "hazardous substances," a defined term that includes chemicals and metals but excludes petroleum. While nearly any Superfund site presents difficulties, the Gowanus Canal and Newtown Creek are large contaminated sediment sites, in which hazardous substances combined with soil, sand and other material have accumulated on the bottom of these bodies of water, and thus pose a unique array of legal and technical challenges.



The Law Department's Environmental Law Division, together with technical and legal staff from the city's Department of Environmental Protection (DEP), the Mayor's Office of Environmental Remediation (OER) and outside counsel, are working to develop strategies to ensure that the CERCLA cleanups at Gowanus Canal and Newtown Creek will be protective of human health and the environment, cost-effective, and compliant with sound scientific and legal principles. It will be many years before there is a final resolution of the issues arising from these cleanups. However, in this article, I will discuss the Environmental Law Division's ongoing work with DEP and OER to lay the necessary technical and legal foundations to achieve positive results for the city and surrounding neighborhoods at both sites.

Framework for Remediation

CERCLA authorizes EPA to identify contaminated sites, investigate responsible parties, and compel those parties to clean up the sites. 42 U.S.C. 9601 et seq. To address sites requiring a long-term remedial response, EPA established the National Priorities List (NPL). When it places a site on the NPL, EPA begins a multi-step investigation and cleanup process, which often takes years to complete. As a first step in this process, EPA prepares a remedial investigation and feasibility study, which involves identifying the extent of the

contamination and the danger to public health or the environment. The study proposes alternatives to address this contamination, taking into account factors such as effectiveness, cost, and practicability. The second step is the issuance of a Proposed Remedial Action Plan, which is subject to public review and comment, ending with designation by EPA of the final selected remedial alternative.

Gowanus Canal and Newtown Creek are contaminated sediment sites. Sites such as these are among the most problematic sites on the NPL. They are often large, and affect hundreds of properties along their shorelines. Sediment sites also involve contamination in a dynamic aquatic environment, where conditions constantly shift due to tides, weather, boat traffic, and ongoing discharges. In addition, remediation of most contaminated sediment sites requires some amount of dredging, which can be disruptive and very expensive.

A major focus of attention in the remediation of sediment sites is what EPA terms "source control." This refers to preventing sources of ongoing contamination with hazardous substances, which may include contaminated groundwater, erosion of contaminated soil from adjacent land, discharges from sewage treatment plants or stormwater and combined sewer outfalls, from significantly re-contaminating the sediment site after completion of the cleanup. In an ever-changing aquatic environment, this task is extremely difficult. In addition, sources such as piped discharges (including combined sewer outfalls) are also regulated under the Clean Water Act, which is enforced in New York State by the State Department of Environmental Conservation (DEC). Coordination between that statute and CERCLA can be challenging because these statutes have different purposes, and different strategies have been developed under them for addressing discharges.

To assist project managers with these difficult issues, EPA has established the Contaminated Sediments Technical Advisory Group (CSTAG), a panel made up of EPA technical staff from each EPA Region and EPA Headquarters, to recommend remediation strategies to regional staff for large, complex, or controversial contaminated sediment sites, including Gowanus Canal and Newtown Creek. Regional staff must provide a written response to CSTAG's recommendations. In addition, because sediment remedies are often very costly, a second internal EPA advisory panel, the National Remedy Review Board (NRRB), reviews and provides recommendations on

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remedies expected to cost more than \$25 million. EPA has already determined that the Gowanus Canal is subject to NRRB review, and will almost certainly reach the same conclusion with respect to Newtown Creek.

The Gowanus Canal Site

The Gowanus Canal is a 100-foot wide, 1.8-mile channel that borders several neighborhoods in Brooklyn. The Canal was originally a tidal creek, but during the mid-19th century, activities such as damming, dredging and other measures permanently altered the layout of the creek, and the canal soon became a hub of industrial activity. By the 1870s, three manufactured gas plants—which gasified coal to supply homes and industry with fuel for heating, cooking, and lighting—operated along the canal. Public sewers also discharged wastewater collected from the surrounding neighborhoods.

These and similar activities significantly impacted water quality and, as early as the 1900s, the city commenced engineering projects to improve these conditions. In 1911, the city began operating the Gowanus flushing tunnel, which connects the canal to the Upper New York Bay. The tunnel draws water from the bay and pumps it into the canal, thereby improving circulation and "flushing" out pollutants. The flushing tunnel was taken out of service for mechanical reasons in 1960 and was reactivated by the city in 1999, but is now temporarily out of service while the DEP undertakes a capital improvement project that will increase water flows through the tunnel and levels of dissolved oxygen in the canal in order to improve the aquatic environment.

The flushing tunnel upgrade is part of an administrative consent order between the city and DEC under the Clean Water Act to improve water quality in the canal. Other infrastructure improvements will reduce by one-third the discharges from combined sewer outfalls, permitted by DEC, which periodically discharge a mix of stormwater and wastewater into the canal when rainfall events overtax the sewer system. These improvements, which are expected to be completed in 2013, will bring the canal into compliance with applicable New York State water quality standards.

Although heavy industrial use of the canal has declined over time, its legacy of contamination remains in the canal's sediments, and many industrial sources continue to exist, including scrap metal yards, manufacturers, and other industries. On April 9, 2010, EPA issued its final decision to list the canal as a Superfund site, despite the city's objections that the listing was unwarranted because the canal did not meet applicable Superfund criteria. Once the decision was taken, however, the city agreed, in a consent order entered into

with EPA, to perform soil and groundwater investigations on certain upland properties, and, along with the energy supplier National Grid, assisted EPA in identifying entities that can be deemed responsible parties under CERCLA by providing analyses of past property uses along the canal. As a result of these efforts, and EPA's own extensive research, EPA has issued general liability letters to 33 entities or individuals, and has requested information from an additional 54 entities.

EPA is pursuing an accelerated schedule for the Gowanus remediation, which is far more ambitious than the schedules for other large sediment sites around the country, including Newtown Creek. The agency issued its draft remedial investigation in January 2011 and its draft feasibility study in January 2012, and expects to issue its remediation plan by early next year. It intends for cleanup activities to begin in 2016 and be completed in 2020. The city supports a prompt remediation, but has several concerns that need to be addressed. In general, the city believes that there needs to be the same level of extensive data collection and analysis that is normally associated with, and essential for, remediation of contaminated sediment sites. In the city's view, this has not yet taken place. Moreover, EPA, as part of its plan for source control of hazardous substances, has indicated that it will want the city to significantly limit combined sewer outfalls into the canal beyond what is being implemented under the Clean Water Act, a project that would be extremely expensive and take many years to design and construct. The city continues to document these and other concerns in a series of technical letters available on DEP's website.

The city and EPA are engaged in continuing discussions concerning the relationship between the CERCLA cleanup of the canal sediments and the city's ongoing efforts under the Clean Water Act to address combined sewer overflows. On the basis of data gathered by EPA in its remedial investigation and feasibility study, the city takes the position that additional, more robust data should be gathered to better understand the important threshold question of whether additional controls on combined sewer outfalls are needed to limit the "hazardous substances" regulated under Superfund. Moreover, the city takes the position that EPA should also first carefully consider the benefits of the city's current \$140 million capital upgrade, to be completed in 2013, and if data ultimately demonstrates that additional controls are still needed, integrate these measures with the city's forthcoming Long Term Control Plan for the canal under the Clean Water Act.

In November 2011, the city presented these concerns to CSTAG, the above-mentioned EPA advisory panel, which, on Jan. 30, 2012, recommended that EPA Region 2 (the EPA office responsible for New York City) consider taking a significantly different approach to remediating the site. Among other things, CSTAG strongly recommended that EPA

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focus on the coal tar contamination still emanating from manufactured gas plant sites managed by National Grid, while studying other sources of contamination, including combined sewer outfalls, over the longer term. EPA would do this by issuing an Interim Record of Decision, a legal document that enables EPA to address the most serious contamination first and then analyze what impact the remedial action has on overall site conditions. CSTAG also recommended that EPA do a more thorough evaluation of alternatives to expensive deep dredging remedies for the removal of contaminated sediment from the canal.

The city has issued several letters to EPA strongly supporting CSTAG's recommendations concerning the site. The city also continues to press for additional analysis of combined sewer outfalls and further evaluation of the EPA's proposed remediation goals. EPA, the City and National Grid are continuing their technical discussions to resolve these and other complex issues. However, on May 29, 2012, EPA Region 2 issued its response to CSTAG's recommendations, indicating it will not accept some of the panel's major points. Thus, many of the same issues will likely arise again in discussions with the NRRB, the other EPA advisory panel mentioned above, which is scheduled to review the Gowanus Canal project in mid-June.

The Newtown Creek Site

Newtown Creek, including Newtown Creek proper and its five tributaries (Dutch Kills, Maspeth Creek, Whale Creek, East Branch and English Kills), has a total length of approximately 3.8 miles and an area of 780 acres. The creek serves as part of the border between Brooklyn and Queens and touches the neighborhoods of Greenpoint, Williamsburg, Bushwick, Long Island City, and Maspeth. With the exception of certain areas around the mouth of the creek, the Newtown Creek area is primarily industrial, encompassing approximately 1,500 businesses and the City's Newtown Creek Waste Water Treatment Plant, the largest of the 14 such plants in the city.

The area around Newtown Creek has a history of extensive industrial development dating to the early 19th century. During this 200-year industrial history, the creek was lined with oil refineries and petrochemical plants, oil storage facilities, copper and ore smelting plants, manufactured gas plants, fertilizer and glue factories, fat rendering plants, shipbuilders, sugar refineries, hide tanning plants, canneries, sawmills, paint works, lumber and coal yards, and trash incinerators. The area is also the site of one of the largest urban oil spills in North America, discovered in 1978 and believed to be the result of leaking refinery tanks, which have

left 17 to 30 million gallons of oil beneath the Greenpoint area of Brooklyn. DEC estimates that, to date, approximately 11.8 million gallons have been recovered.

EPA placed Newtown Creek on the NPL in late 2010, and initially identified five companies (Phelps Dodge Refining Corp., Texaco Inc., BP Products North America, National Grid and ExxonMobil Corp., known as the "Newtown Creek Group") and the city as potentially responsible parties. To date, EPA has requested information from 13 additional entities, and due to the long industrial history of the creek, it is anticipated that many more responsible parties will be identified.

The city and the Newtown Creek Group companies have agreed to conduct the remedial investigation and feasibility study for the Newtown Creek site and, in July 2011, entered into an administrative settlement agreement and order on consent with EPA to perform the work. After several months' preparation of technical and planning documents, investigative field work on the creek began in early 2012. The city's primary concern in the remedial investigation is that potential contamination loadings into the creek be identified and thoroughly assessed in order to ensure an appropriate remedy that is protective of human health and the environment. In particular, the city believes that groundwater entering the creek and creek sediments is likely to be a significant source of contaminants and must be given sufficient weight in the investigation.

In contrast to the expedited pace of the remedial investigation and feasibility study for the Gowanus Canal, it is anticipated that the investigation and study for Newtown Creek will take at least eight years. More than 40 documents and reports associated with the remedial investigation and feasibility study will be submitted to EPA in the next seven years. The process will include two or more phases of field investigation and evaluation, with the remedial investigation report due in the summer of 2014. The feasibility study report will follow in 2018, after three years of additional study and assessment.

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