

# Multiple Factors Contributed to the Delay in Constructing Combined Sewer Overflow Tanks at the Gowanus Canal Superfund Site in New York City

March 21, 2024 | Report No. 24-P-0029



## Report Contributors

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## Abbreviations

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSO	Combined Sewer Overflow
EPA	U.S. Environmental Protection Agency
OIG	Office of Inspector General
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
ROD	Record of Decision

## Cover Image

Cleanup activities at the Gowanus Canal in September 2023. (EPA OIG image)

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# At a Glance

## Multiple Factors Contributed to the Delay in Constructing Combined Sewer Overflow Tanks at the Gowanus Canal Superfund Site in New York City

### Why We Did This Audit

#### To accomplish this objective:

The U.S. Environmental Protection Agency Office of Inspector General conducted this audit to determine the status of the construction of the combined sewer overflow tanks at the Gowanus Canal Superfund site in Brooklyn, New York City. We initiated this audit in response to an OIG Hotline complaint and congressional interest. The hotline complaint alleged that New York City has failed to construct the tanks in a timely manner and that EPA Region 2 failed to enforce the administrative orders that require the Gowanus Canal Superfund site to have these tanks. These orders were issued pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, informally known as Superfund.

Combined sewer overflow tanks collect rainwater runoff, domestic sewage, and industrial wastewater and then transport this untreated water to a treatment plant. Such tanks would thus act to prevent untreated water from flowing into the Gowanus Canal.

Superfund authorizes the EPA to oversee the cleanup of contaminated sites. The Gowanus Canal Superfund site is contaminated by multiple pollutants that may cause cancer and other health effects.

#### To support this EPA mission-related effort:

- *Cleaning up and revitalizing land.*

#### To address this top EPA [management challenge](#):

- *Maximizing compliance with environmental laws and regulations.*

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### What We Found

Construction of the two combined sewer overflow, or CSO, tanks for the Gowanus Canal Superfund site is approximately six-and-a-half years behind the original schedule, based on a comparison of Region 2's estimated project timelines in the 2013 Record of Decision, or ROD, that detailed the selected remedy for cleaning up the site against the revised project milestones outlined in a 2021 administrative order. Multiple factors contributed to this delay:

- New York City and Region 2 disagreed about important aspects of the ROD's CSO remedy, including CSO tank design and siting. They also disagreed about the estimated costs and schedule for constructing the CSO tanks.
- New York City and Region 2 agreed years after the ROD was issued that the city could acquire privately owned land via eminent domain rather than siting the tanks on city-owned land, as initially recommended by Region 2.
- Despite waiving its right to change the CSO tank remedy, the city spent approximately two years designing a CSO tunnel in lieu of tanks, and Region 2 spent another year evaluating and ultimately denying the CSO tunnel design.
- New York City defunded design efforts for the smaller Owls Head tank for about four years and allocated those funds to the larger Red Hook tank design.
- Region 2 required New York City to salvage building materials from existing structures at the larger CSO tank site after the city had completed a significant portion of the design work. This caused an approximate two-year delay.
- Region 2 waited until 2021 to issue an administrative order that cited New York City's noncompliance with prior administrative orders and required the city to construct the CSO tanks by specific dates.

The causes for the delay occurred primarily before 2021, and Region 2 told us in February 2024 that "the city's current level of performance on the [CSO] tank projects has been highly satisfactory." The past delay, however, has prolonged exposures to contaminants in the Gowanus Canal, and could result in increased costs, such as dredging the canal. As of this audit, the project cost is estimated to be more than \$1 billion—a more than 1,300-percent increase from Region 2's original estimate.

**CSO tank construction delays may increase taxpayer costs to complete the cleanup remedy at the Gowanus Canal Superfund site and prolong community exposure to contaminants.**

### Recommendations and Planned Agency Corrective Actions

We recommend that the regional administrator for Region 2 closely monitor CSO tank construction progress and take immediate action if New York City does not meet the construction requirements and milestones listed in the 2021 administrative order. We further recommend that Region 2 keep the community surrounding the Gowanus Canal apprised of the city's progress. The Agency agreed with our recommendations and provided acceptable planned corrective actions and estimated completion dates. We consider the recommendations resolved with corrective actions pending.



**OFFICE OF INSPECTOR GENERAL**  
U.S. ENVIRONMENTAL PROTECTION AGENCY

March 21, 2024

**MEMORANDUM**

**SUBJECT:** Multiple Factors Contributed to the Delay in Constructing Combined Sewer Overflow Tanks at the Gowanus Canal Superfund Site in New York City  
Report No. 24-P-0029

**FROM:** Sean W. O'Donnell, Inspector General *Sean W O'Donnell*

**TO:** Lisa Garcia, Regional Administrator  
EPA Region 2

This is our report on the subject audit conducted by the U.S. Environmental Protection Agency Office of Inspector General. The project number for this audit was [OA-FY23-0060](#). This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

EPA Region 2 is responsible for the issues discussed in this report.

In accordance with EPA Manual 2750, your office provided acceptable planned corrective actions and estimated milestone dates in response to OIG recommendations. All recommendations are resolved, and no final response to this report is required. If you submit a response, however, it will be posted on the OIG's website, along with our memorandum commenting on your response. Your response should be provided as an Adobe PDF file that complies with the accessibility requirements of section 508 of the Rehabilitation Act of 1973, as amended. The final response should not contain data that you do not want to be released to the public; if your response contains such data, you should identify the data for redaction or removal along with corresponding justification.

We will post this report to our website at [www.epa.gov/oig](http://www.epa.gov/oig).

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## Purpose

The U.S. Environmental Protection Agency Office of Inspector General [initiated](#) this audit to determine the status of combined sewer overflow, or CSO, tank construction at the Gowanus Canal Superfund site in response to a complaint submitted to the OIG Hotline and interest expressed by U.S. Representative Nydia Velasquez, who represents the New York residents who live near the Gowanus Canal. The complaint alleged that New York City has failed to construct CSO tanks as required under Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA, unilateral administrative orders issued by EPA Region 2. The complaint also alleged that Region 2 has failed to enforce the administrative orders.

### Top management challenge addressed

This audit addresses the following top management challenge for the Agency, as identified in the OIG's *U.S. Environmental Protection Agency Fiscal Year 2024 Top Management Challenges report*, issued November 15, 2023:

- Maximizing compliance with environmental laws and regulations.

## Background

The Gowanus Canal in Brooklyn, New York City, is, according to the EPA, one of the nation's most seriously contaminated water bodies. Contamination flows into the canal from numerous upland sources, including former manufactured gas plants—industrial facilities at which gas was produced from coal, oil, and other feedstocks—and overflowing combined sewer systems. A **combined sewer system** collects stormwater runoff, domestic sewage, and industrial wastewater into one pipe. Normally, this system transports the collected stormwater and wastewater to a treatment plant, but sometimes the amount of water being transported exceeds the capacity of the system. When such a **combined sewer overflow**, or CSO, happens, the untreated water flows into nearby water bodies, such as the Gowanus Canal, and subsequently into the New York Harbor. The picture to the left in Figure 1 shows the location of the Gowanus Canal in relation to the New York Harbor, while the picture to the right shows the upper end of the Gowanus Canal following a storm event during which CSOs entered the canal.

**Figure 1: Gowanus Canal area and CSO at the head of the Gowanus Canal**



Source: *At left*, The EPA, "Cleanups In My Community Map" [webpage](#), displaying information credited to NYC OpenData, State of New Jersey, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA (EPA OIG adaptation); *At right*, National Oceanic and Atmospheric Administration, "Gowanus Canal" [webpage](#). (National Oceanic and Atmospheric Administration image)

According to Region 2, actual or threatened releases of hazardous substances from the Gowanus Canal may present an imminent and substantial endangerment to public health, welfare, or the environment. This is because sediment in the canal contains high levels of more than a dozen contaminants, and the canal is considered “impaired waters” under federal water quality standards for “oxygen demand” and “garbage and refuse.” Contaminants in the canal sediment include polychlorinated biphenyls, commonly known as PCBs; polycyclic aromatic hydrocarbons, commonly known as PAHs; and heavy metals such as mercury, lead, and copper. According to the EPA, PCBs and PAHs have been demonstrated to cause a variety of adverse health effects. PCBs have been shown to cause cancer and a number of serious noncancer health effects in animals, including effects on the immune, reproductive, nervous, and endocrine systems. Studies in humans provide supportive evidence for potential carcinogenic and noncarcinogenic effects of PCBs. The EPA has classified seven of the PAH compounds found in the Gowanus Canal as probable human carcinogens.

The primary exposure risks to humans come from the ingestion of fish and crabs from the Gowanus Canal and full-body immersion activities, such as swimming. Potential human health impacts are magnified by the demographics and socioeconomic status of the surrounding Gowanus community. The White House Council on Environmental Quality’s Climate and Economic Justice Screening Tool shows parts of the Gowanus community as disadvantaged. In addition, our data analysis of the EPA’s EJScreen indicates that there are potential environmental justice concerns related to air toxics cancer risks, hazardous waste, and wastewater discharge.<sup>1</sup> In particular, according to Region 2, the Gowanus Canal is regularly used for subsistence fishing by communities with environmental justice concerns surrounding the canal.

### ***Region 2’s Cleanup Plan for the Gowanus Canal Includes the Construction of Two CSO Tanks to Protect Human Health and the Environment***

Under a New York State voluntary program, the potentially responsible party for the Gowanus Canal contamination began cleaning it up in 2003 at one site upland from the canal. In March 2010, the EPA placed the canal on the Superfund National Priorities List. **Superfund** is the informal name for CERCLA, which was established by Congress in 1980 to authorize the EPA to oversee the cleanup of contaminated sites and compel the potentially responsible parties to either perform the cleanup or reimburse the government for EPA-led cleanup work. The EPA maintains the National Priorities List to identify sites of national priority based on known or threatened releases of hazardous substances, pollutants, or contaminants and to guide the EPA in determining which sites warrant further investigation under Superfund.

For each site on the National Priorities List, the EPA issues a Record of Decision, or ROD, which documents which cleanup activities—referred to as the **selected remedy**—will be used at that site. In 2013, Region 2 issued the ROD for the Gowanus Canal Superfund site. In the Gowanus Canal ROD, the selected remedy addresses contaminated sediments, in part by implementing CSO control measures,

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<sup>1</sup> EJScreen is an EPA environmental justice mapping and screening tool that combines environmental and demographic socioeconomic indicators to identify potential environmental justice concerns in a selected location.

including two CSO tanks. The selected remedy also calls for the dredging, or removal, of accumulated canal sediments; capping native sediments with barrier layers to prevent contamination movement; off-site treatment of dredged sediments; and other remedial activities. According to the Gowanus Canal ROD, the goal of the selected remedy is to reduce cancer risks to humans and risks to fish, shellfish, and birds. The Gowanus Canal ROD outlines that construction of CSO tanks is critical to prevent land-based sources of pollution, such as street runoff, from compromising canal areas that have been cleaned through dredging.

### ***Region 2 Issued CERCLA Administrative Orders to Ensure that New York City Constructs the Gowanus CSO Tanks***

Region 2 has determined that New York City is responsible for constructing two CSO retention tanks in the upper and middle portions of the Gowanus Canal to implement the selected remedy in the Gowanus Canal ROD. Region 2's role is to work with and oversee New York City to ensure that it implements the ROD, including the selected CSO control measures. To propel the city to construct the CSO tanks consistent with the selected remedy, Region 2 issued a series of **CERCLA administrative orders** from 2014 through 2021. The first CERCLA administrative order, a unilateral administrative order issued in 2014, required New York City to design two CSO tanks in accordance with the ROD's selected remedy: one larger tank, referred to as the **Red Hook tank**, and one smaller tank, called the **Owls Head tank**. This 2014 administrative order was issued, in part, due to significant differences between how the EPA and New York City regarded the scope, timing, and substance of CSO tank design work. The order noted that the city may be subject to civil and legal penalties if it fails to comply with the order's requirements.

#### **CERCLA Administrative Orders**

CERCLA section 106 authorizes the EPA to issue administrative orders to protect public health and welfare and the environment from an "imminent and substantial endangerment" stemming from an "actual or threatened release of a hazardous substance from a facility." The two types of orders that Region 2 issued to New York City for the Gowanus Canal were a unilateral administrative order and an administrative order on consent. A unilateral administrative order is an enforceable directive by the EPA to require a party to take a particular action, such as a response action. An administrative order on consent is an enforceable agreement between the EPA and another party to formalize agreed-upon actions the parties will take.

In 2016, Region 2 issued a second CERCLA administrative order, this one an administrative order on consent, between Region 2 and New York City that updated the requirements for the Red Hook tank design. The location of the Red Hook tank had been a key point of disagreement between the city and Region 2 when the Gowanus Canal ROD was issued. The ROD assumed that the tanks would be constructed on available city-owned land. In 2015, however, the city requested that Region 2 approve property acquisitions so that the city could build the Red Hook tank at a different location than the city-owned land originally considered. As a result, the 2016 administrative order on consent set a schedule for the city to acquire two privately-owned parcels located at 242 Nevins Street and 234 Butler Street, as well as a third parcel to serve as a staging area. In response to Region 2's concerns regarding the extended timing and increased costs of property acquisition, New York City agreed in the

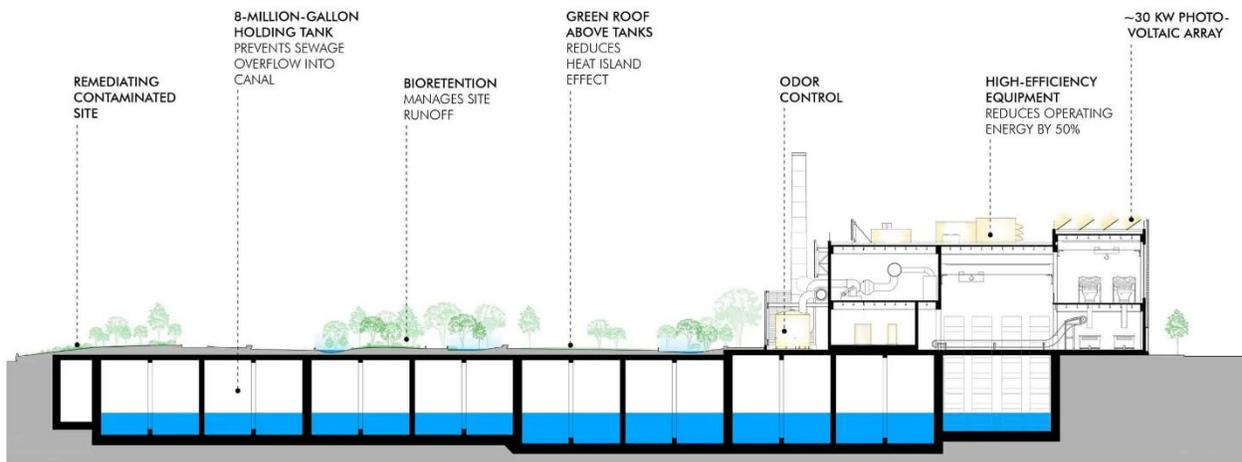
2016 administrative order to waive its rights to claim excused delays, or force majeure, for several potential events, and also to waive its right to challenge the CSO remedy, including the related costs. The requirements in the 2014 administrative order for the city to complete the remedial design for the smaller Owls Head tank remained intact.

For purposes of the 2016 administrative order, a **force majeure** is defined as any event arising from causes beyond the control of the city, or of any entity controlled by the city, including, but not limited to, its contractors and subcontractors, that delays or prevents performance of any obligation under the administrative order despite the city's best efforts to fulfill the obligation.

The 2016 administrative order cites reasons of financial inability to complete the work and failure to obtain necessary approvals from any New York City agency as potential events for which the city may not invoke force majeure.

Figure 2 is an architectural drawing of the Red Hook tank, which is below ground, and the headhouse structure, which is above ground. The headhouse building hosts the mechanical and electrical systems for the CSO tank, odor control equipment, and screens that will remove debris from the sewer overflow.

**Figure 2: Drawing of the Red Hook tank**



Source: New York City Department of Environmental Protection. (Hazen/Brown & Caldwell and Selldorf Architects image)

In 2021, noting that CSO tank construction had been significantly delayed by the city due to noncompliance with the 2014 and 2016 administrative orders, Region 2 issued another unilateral administrative order. While the 2014 administrative order focused on the *design* of the CSO tanks, the 2021 administrative order specifically required the city to *build and operate* the two CSO tanks, as well as to perform monitoring, treatment, and other tasks related to CSO tank construction. The 2021 administrative order also stipulated dates by which New York City must complete CSO tank construction and commence operations. Estimated at approximately \$1.1 billion, this was the largest dollar-value CERCLA unilateral administrative order in the EPA's history.

## Responsible Offices

Region 2's Superfund and Emergency Management Division implements CERCLA and Superfund enforcement and cost-recovery support. As such, the Superfund and Emergency Management Division is responsible for overseeing New York City's implementation of the Gowanus Canal ROD's CSO control measures and the subsequent CERCLA administrative orders.

## Scope and Methodology

We conducted this audit from April 2023 to January 2024 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

We assessed internal control components—as outlined in the U.S. Government Accountability Office's *Standards for Internal Control in the Federal Government*—to determine their significance to our audit objective. Given our limited scope to determine the status of the CSO tanks, we determined that internal control was not significant, and we therefore did not assess Region 2's internal controls to identify any control deficiencies.

To answer our objective, we reviewed the 2022 OIG Hotline complaint; the city's *2008 Gowanus Canal Waterbody/Watershed Facility Plan Report and 2015 Combined Sewer Overflow Long Term Control Plan for the Gowanus Canal*; EPA documents, including the 2013 ROD, the 2014 and 2021 unilateral administrative orders, and the 2016 administrative order on consent; and the Superfund website for the Gowanus Canal. We also reviewed a relevant Government Accountability Office report.

We met with staff from Region 2, including the then-remedial project manager for the Gowanus Canal Superfund site; the portfolio manager and an attorney from New York City; and members of the community group that submitted the hotline complaint. We reviewed applicable project documentation and correspondence between New York City and Region 2, including monthly progress reports. We also analyzed potential environmental justice issues in the communities surrounding the Gowanus Canal using the EPA's EJScreen tool.

## Prior Report

We identified a 2016 Government Accountability Office report that examined the challenges EPA officials faced in managing cleanups of Superfund sediment sites,<sup>2</sup> including the Gowanus Canal. The report concluded the following:

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<sup>2</sup> GAO, [GAO-16-777](#), Superfund Sediment Sites: EPA Considers Management Principles but Could Clarify Certain Procedures (2016).

- The EPA’s two main challenges in managing cleanups were technical complexities and stakeholder involvement. Challenges with stakeholder involvement included competing interests from numerous stakeholders.
- The Gowanus Canal ROD called for significant reduction in discharges of sewage solids. CSO discharges were not addressed by sewer upgrades. To prevent recontamination of the Gowanus Canal following the remedy, the EPA required CSO tanks be constructed to reduce the volume of contaminated solids.
- There were challenges related to CSO tank construction at the Gowanus Canal due to disagreements on design and location. More than one year after the EPA issued the 2014 administrative order, the city submitted preliminary design reports for both tanks. The city disagreed with the EPA’s proposed tank location for the larger tank. The EPA and the city negotiated, which resulted in the 2016 administrative order allowing New York City to build the tank at the city’s preferred location.
- According to the remedial project manager, the decision to build the larger tank in the city’s preferred location would result both in lengthening the schedule for the CSO portion of the selected remedy and in incurring higher costs to the city.

The Government Accountability Office did not make any recommendations specific to the Gowanus Canal Superfund site.

## Results

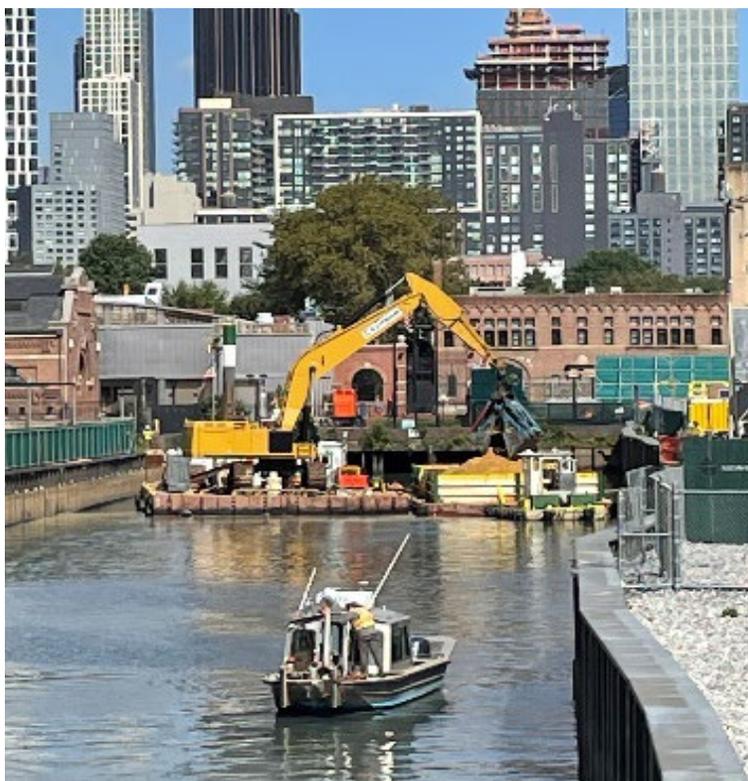
Construction of the Red Hook and Owls Head tanks along the Gowanus Canal is approximately six-and-a-half years behind schedule, based on Region 2’s original time estimates. The Gowanus Canal ROD, issued in September 2013, estimated that the design and construction of the selected remedy, including the two CSO tanks, would take three years and six years, respectively, for a total of nine years. If those time estimates held true and work was initiated immediately after the ROD was issued, New York City would have completed the CSO tanks and achieved the ROD’s goal to reduce cancer risks to humans and risks to fish, shellfish, and birds by September 2022. Instead, the 2021 administrative order adjusted the project schedule so that the Owls Head tank will be completed by May 1, 2028, and the Red Hook tank will be completed by March 31, 2029. Multiple factors contributed to the delay, including the city’s acquisition of private property to build the tanks, the city’s attempts to change the ROD’s CSO control measures, and historical building material salvage efforts. Region 2 told us that the cost and time estimates associated with a ROD’s selected remedy cannot take into consideration all the factors that might accelerate or delay remedy implementation. Further, Region 2 did not issue an administrative order requiring the city to build the tanks until 2021, and Region 2 also had not, as of February 2024, assessed penalties for alleged noncompliance with the prior administrative orders.

The causes for the delay occurred primarily before 2021, and Region 2 stated in February 2024 that it is highly satisfied with New York City’s “current” performance toward meeting the 2021 administrative order’s completion milestones. However, the city told us that the completion milestones are extremely

aggressive and that the city may not meet one or both, which means the delay may be even longer than six-and-a-half years beyond the ROD's original estimates. As of this audit, the project total is estimated to be more than \$1 billion—a more than 1,300-percent increase from Region 2's original estimate. Region 2 believes that the delay to complete the CSO control measures could further increase costs by approximately \$50 million in taxpayer dollars. The delay in CSO tank construction has also resulted in prolonged exposures to contaminants and pollution in the Gowanus Canal.

### ***Status of the Gowanus Canal ROD Selected Remedy***

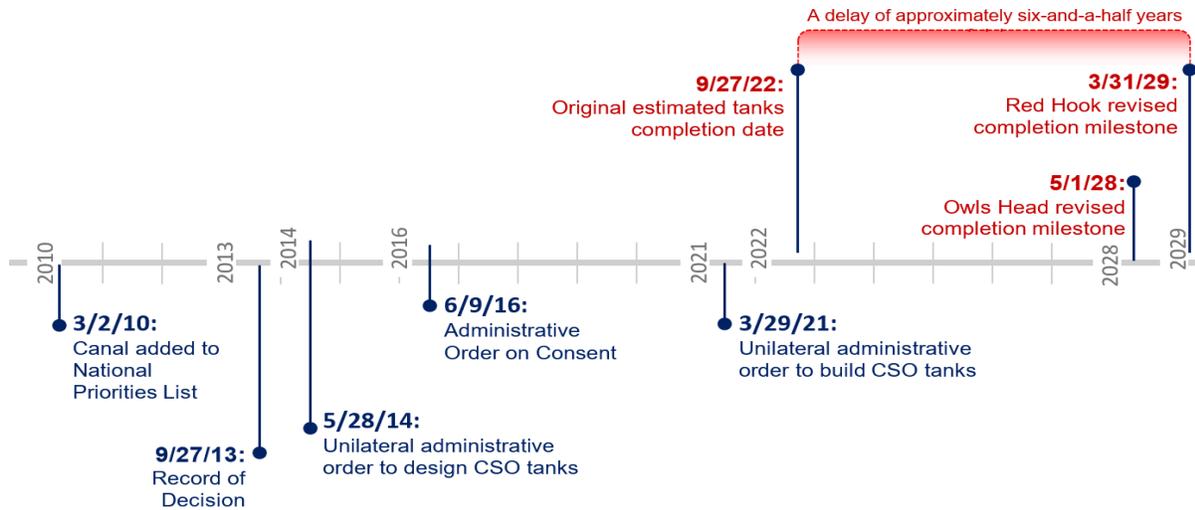
In addition to CSO tank construction, the Gowanus Canal ROD outlined several activities to be completed as part of the selected remedy, including dredging of accumulated canal sediments; capping native sediments with barrier layers to prevent contamination movement; and off-site treatment of dredged or removed sediments. Under Region 2's oversight, the initial phase of dredging in the main channel of the Gowanus Canal began in November 2020. In October 2021, contractors began solidifying portions of the native soil of a stretch of the upper canal using a process called in-situ stabilization, which involves adding a concrete mix into the native soil. In-situ stabilization was completed in August 2022, and the soft sediment in the upper canal has been removed. The cap in the upper portion of the canal is being installed, as shown in the photo below. The EPA anticipates that the capping in the upper canal will be completed by April 2024. In addition, New York City submitted designs for the Red Hook and Owls Head tanks in 2022 and 2023, respectively.



Source: Cap installation in the upper canal in September 2023.  
(EPA OIG image)

As shown in Figure 3 and further detailed in the subsections below, the CSO tank construction portion of the selected remedy has been significantly delayed.

**Figure 3: Gowanus Canal CSO tank timeline**



Source: OIG analysis of the Gowanus Canal ROD and EPA data. (EPA OIG image)

### Status of the Red Hook Tank

A New York City representative stated that the first phase of the Red Hook tank project, which entailed demolition and site preparation, was completed in 2022. The representative stated that, as of June 2023, the Red Hook tank was in the early stages of the construction phase, which consists of below-grade tank excavation and construction.



Source: EPA OIG site visit to Red Hook tank construction site viewed from the Gowanus Canal (at left) and Red Hook tank construction site viewed from Nevins Street (at right). (EPA OIG images taken in September 2023)

The city told us that it is uncertain whether it will meet the 2021 administrative order’s December 31, 2026 milestone to complete this phase of construction. The city expects to achieve this milestone in the first half of calendar year 2027. If subsequent project steps take as long as estimated in the 2021 administrative order, the city will miss the March 31, 2029 milestone to commence Red Hook tank operations.

## Status of the Owls Head Tank

A New York City representative stated that the city had begun demolition and site preparation activities at the Owls Head tank site before the June 1, 2023 milestone. However, Region 2 required the city to construct a bulkhead at the Owls Head tank site to support canal dredging and CSO tank construction, and the city has encountered delays constructing the bulkhead due to underground obstructions, such as boulders; the need to repair an old grit chamber that is part of the city's sewer system; and the need to repair broken outfall pipes and extend them through the bulkhead. Further, the city must relocate certain city facilities and services that are operated from the Owls Head tank site.

A **bulkhead** is any solid vertical structure that serves to separate landward real property from any natural or manmade body of water. For example, a bulkhead separates the Owls Head tank site from the Gowanus Canal.

A **grit chamber** removes heavier solids such as sand, cinder, and eggshells from the influent water so as not to cause excess wear on the pumps and other machinery later in the water treatment cycle.

The Owls Head tank construction efforts are behind that of the Red Hook tank, despite having an earlier 2021 administrative order milestone of May 1, 2028. New York City told us that the smaller scale of the Owls Head tank project would allow it to progress more quickly through construction. Still, the city was noncommittal on whether it would achieve Region 2's final construction milestone for the Owls Head tank given the project's complexities and the number of construction milestones remaining.

## Status Updates for the Gowanus Community

After the EPA listed the Gowanus Canal as a Superfund site, the Agency worked with communities surrounding the Gowanus Canal to establish a community advisory group to be a forum for dialogue among the various stakeholders, including Region 2. Members of the Gowanus Community Advisory Group told us that the then-Region 2 remedial project manager regularly attended Gowanus Community Advisory Group meetings and provided open and honest status information about the ongoing cleanup, problems encountered, and potential problems ahead.

Congress made public involvement an important part of the cleanup process when the Superfund program was established by CERCLA. In addition to other community involvement requirements before the ROD is published, CERCLA requires community involvement for significant changes or amendments to the ROD, including an explanation of any significant differences, any enforcement actions taken, or any settlement or consent decrees entered into. In March 2020, the EPA issued its updated *Superfund Community Involvement Handbook* to guide EPA staff on how the Agency typically plans and implements community involvement activities regarding Superfund sites.

### Key Goals of Superfund Community Involvement

To ensure that community members affected by a Superfund site:

- Are aware of the EPA's activities.
- Have opportunities to influence site cleanup and reuse decisions.
- Are aware that their concerns are considered in the site decision-making process.

Gowanus Community Advisory Group members have told us that the continued delay in the Gowanus ROD implementation and a lack of transparency into Region 2 management’s decision-making regarding overall cleanup at the site have damaged public trust. Further, the then-Region 2 remedial project manager retired in 2023, and Gowanus Community Advisory Group members are concerned that the group will not receive the same level of transparency from Region 2 moving forward. Region 2 stated that it has assigned three remedial project managers to jointly oversee the canal’s ongoing remediation.

### ***Reasons for the Delay in CSO Tank Construction***

As described below, there are a number of causes for the anticipated six-and-a-half year delay in CSO tank construction. The delays are rooted in disagreements between New York City and Region 2 at the time the ROD was developed and issued, as well as subsequent project scope changes and project management decisions.

### ***Early Disagreements Between the City and Region 2***

New York City and Region 2 disagreed about important aspects of the Gowanus Canal ROD’s CSO control measures, including Region 2’s estimated project timelines and costs. City staff told us that the city’s competitive procurement process—which involves contracting private design services for projects like the CSO tanks—alone takes 12 to 18 months generally. Once that process is completed and the design contract is awarded, the contracted design firm would need years to complete the design work for such a complex project in a highly urbanized area. The photo below shows the urban area near the Red Hook tank site. Soon after the ROD was issued, New York City told Region 2 that it disagreed with Region 2’s three-year estimate to complete the CSO tank design work. In a 2014 letter to Region 2, New York City estimated that remedial design work for the CSO tanks would take about five years.



Source: EPA OIG site visit to the Gowanus Canal near the Red Hook tank site in September 2023. (EPA OIG image)

Further, New York City designed CSO tanks that were more complex and more expensive than the tanks that Region 2 originally conceived. The Gowanus Canal ROD assumed a simple tank design and estimated that the two CSO tanks could be constructed for approximately \$78 million. Region 2 based its CSO tank cost estimate on other CSO tanks constructed in New York City at a time when the Gowanus CSO tank design was still conceptual and not detailed. The city told us that the EPA's cost estimate accounted for odor control and pumping of settled solids, but the estimate did not include all the costs involved in building the facility and the equipment the city would use. According to the city, it designed tanks that included screens to remove physical objects that may cause clogs, equipment to remove physical settled solids rather than just pumping them downstream, and a headhouse structure to support the below-ground tanks. Per the city, such tanks prevent system clogs and associated problems, capture CSOs before they enter the canal, and begin treating the captured CSOs before they are routed to nearby wastewater treatment plants. As of the audit, the estimated cost to construct the two city-designed CSO tanks is over \$1 billion.

### Property Acquisition to Construct Tanks

The Gowanus Canal ROD identified city-owned parcels on which the tanks could be constructed, including the western two-thirds of Thomas Greene Park. Region 2 said in the ROD that Thomas Greene Park was a suitable tank location because of its proximity to existing CSO outfalls to the canal. Outfalls discharge untreated or partially treated stormwater and wastewater into nearby waterbodies. The then-Region 2 remedial project manager for the site told us that the park was a suitable location because the site would be excavated to remove soil contamination, leaving a hole where the CSO tank could be placed. Region 2 viewed this solution as potentially saving the city time and money by avoiding property acquisition. However, New York City said that constructing a tank at the park would be disruptive to the community, causing adverse impacts related to noise, traffic, and parking. Further, the city did not want a community that was already underserved by park resources to lose access to Thomas Greene Park. The city preferred to site the Red Hook tank on privately owned parcels adjacent to the canal to minimize impacts to the community. The city also wanted to purchase another privately owned parcel to supplement the city-owned parcels that made up the bulk of the Owls Head site. While New York City told us that it completed the property acquisition in accordance with time frames in the 2016 administrative order, it took more than a year, and approximately \$200 to 300 million, to acquire the privately owned parcels for the Owls Head and Red Hook tank sites via eminent domain.

### CSO Tunnel Proposal

New York City spent approximately \$1.6 million in contract funds designing a CSO tunnel system to be constructed in lieu of the CSO tanks. This was after the city waived its rights to challenge the ROD-selected CSO controls in the 2016 administrative order. Region 2 reviewed and ultimately denied the tunnel proposal in 2019 because of the projected cost increase, projected delays to the canal cleanup effort, increased duration of the risks to human health and the environment, and other factors. Region 2 further concluded that the tunnel would likely not pass a feasibility review, which is defined by the EPA as "a mechanism for the development, screening, and detailed evaluation of alternative remedial actions." While the city advanced planning efforts, performed land use and environmental reviews, and

conducted preliminary design investigations during this period, the city made little substantive progress on the Owls Head CSO tank design. Just prior to commencing design work on the CSO tunnel, the city paused work on the design for the Owls Head tank and did not reallocate funding to Owls Head tank design while it was designing the tunnel and waiting for Region 2 to accept or deny its tunnel proposal. It took about three years for the city to design, and for Region 2 to evaluate and ultimately deny, the proposed CSO tunnel.

### Defunding of the Owls Head Tank Design

Shortly after the city signed the 2016 administrative order, the city defunded the Owls Head tank design efforts and allocated those funds to the design efforts for the Red Hook tank to be sited on privately owned and city-owned property. In 2017, New York City communicated to Region 2 via monthly progress reports and in subsequent email correspondence that the two parties had not negotiated achievable milestones for the Owls Head tank design in the wake of the 2016 administrative order. In these communications, the city said that it would not meet the Owls Head tank design milestone date set forth in the 2014 administrative order. Region 2 maintained that the 2016 administrative order affected only the design milestones for the Red Hook tank and that the design for the Owls Head tank still fell under the 2014 administrative order and was long overdue. However, New York City did not explicitly state in its communications to Region 2 that the city had halted the Owls Head tank design work and allocated the funds to the Red Hook tank. Region 2 said that it was not fully aware of the city's decision to defund Owls Head until February 2020. The city awarded the Owls Head tank design contract in April 2021 and completed the Owls Head tank design in 2023.

### Historical Building Material Salvage

In June 2017, Region 2 alerted New York City that buildings located on the proposed site of the Red Hook tank at 234 Butler Street may need to be preserved in accordance with section 106 of the National Historic Preservation Act, which requires the EPA to consider the effects of remediation projects on historic properties and consult with the state historic preservation office. Soon after, New York City submitted to the EPA a design package for site preparation and demolition at the site, citing that the design package may need substantial modifications to account for building preservation. The photo below is one of these buildings, known as Gowanus Station.



Source: The EPA. (EPA image)

Later in 2017, New York City evaluated the structures and expressed concern about keeping the buildings in place during construction of the Red Hook tank. The city preferred instead to salvage some of the decorative materials for reuse in the Red Hook tank's headhouse and otherwise remove the historic buildings, including the exterior brick. The city wrote to Region 2 several times that brick salvage was not feasible or practical due to the poor condition of the brick and the resources needed to clean and reuse it. There was significant disagreement between the city and Region 2 regarding preserving the century-old brick until a city contractor, in October 2018, concluded that the old brick was not suitable for a structural wall but could be used as a veneer attached to a structural wall. Region 2 accepted the contractor's assessment and did not require the city to reuse the salvaged brick to rebuild primary walls. In February 2019, Region 2 and the New York State Historic Preservation Office announced a Memorandum of Agreement that required New York City to use salvaged building materials, including the brick, to the extent possible as a veneer on the Red Hook tank's headhouse walls. It took about three years to resolve all issues pertaining to the salvage efforts, delaying Red Hook tank construction by about two years. Region 2 told us that the city's final restoration design is a satisfactory outcome.

### 2021 Administrative Order Issued Years After Apparent Noncompliance

Based on our review of project milestones, monthly progress updates from New York City, and correspondence between Region 2 and New York City, it was apparent that in 2016 the city was noncompliant with the Gowanus Canal ROD and the 2014 administrative order. Rather than penalizing the city for noncompliance, Region 2 issued the 2016 administrative order. It was not until the 2021 administrative order that Region 2 cited New York City for noncompliance with the prior administrative orders and required the city to construct the CSO tanks by specific dates. The city, in its notice of intent to comply with the 2021 administrative order,<sup>3</sup> committed to performing the removal action and remedial actions required by the ROD, namely design and construction of the CSO tanks and bulkhead for the Owls Head tank location, while also maintaining that, for various technical reasons, it could not comply with certain aspects of the 2021 administrative order, including deadlines for work. As of February 2024, Region 2 had not assessed penalties to the city for noncompliance with the administrative orders. Given the limited scope of our audit, we did not assess whether EPA penalties would be appropriate or justifiable.

### *Delays May Increase Costs and Continue Health Risks to the Community*

As a result of the construction delay, the costs for completing the CSO tanks may increase. According to New York City staff, the city's contractor has been working overtime to meet the construction timeline. These additional efforts could further increase the cost of the construction portion of the project—which, at an estimated \$999 million, is already \$921 million over Region 2's original \$78 million estimate for the *entire* project. Further, according to Region 2, CSO solids continue to be discharged to the previously dredged portion of the canal, and there is a risk of reaccumulation until the CSO tanks are completed. New York City will incur additional expenses if already dredged portions of the canal need to be redredged to remove sediments deposited by CSOs that would have been contained in the CSO

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<sup>3</sup> New York City's Notice of Intent to Comply letter is dated July 14, 2021.

tanks, had they had been constructed on time. Further, the community surrounding the Gowanus Canal faces ongoing risk of exposure to carcinogens and other contaminants in the canal.

Region 2 stated in February 2024 that “the city’s current level of performance on the retention tank projects has been highly satisfactory, and the city has attempted to identify ways to shorten the lengthy design and construction schedules for the two tanks to come more in line with the expectations of EPA’s selected remedy.”

## Conclusions

The Red Hook and Owls Head tank construction work is approximately six-and-a-half years behind schedule, when comparing the original project times estimated in the 2013 ROD to the revised project milestones established in the 2021 administrative order. Based on data provided to us by New York City, additional delays are possible. Although Region 2 issued a ROD and three administrative orders to progress the city’s CSO tank construction efforts, the Agency could have been more aggressive in enforcing the ROD and the early administrative orders. If New York City is to achieve milestones set in the 2021 administrative order, Region 2 must closely oversee the city’s construction efforts and take immediate action if further delays are encountered. Also, given the significant delays to date, Region 2 should publicly report key progress updates to help ensure transparency and public accountability.

## Recommendations

We recommend that the regional administrator for Region 2:

1. Closely monitor combined sewer overflow tank construction progress at the Gowanus Canal Superfund site and take immediate action, including enforcement actions if appropriate, if New York City misses any future tank project milestones from the 2021 administrative order.
2. Post on the EPA’s public website the milestones from the 2021 administrative order regarding the Gowanus Canal Superfund site, New York City’s progress towards completing these milestones, and any actions taken to ensure the city stays on schedule.

## Agency Response and OIG Assessment

Region 2 agreed with our recommendations. For Recommendation 1, Region 2 committed to monitoring New York City’s CSO tank construction progress via weekly and monthly summary reports from the city and quarterly senior-level meetings with the city to assure that construction milestones are achieved and that rapid engagement occurs if milestones are missed. Further, Region 2 stated that while the EPA does not publicly discuss possible enforcement actions, Region 2 “will take actions necessary to ensure that the work is performed to the agency’s satisfaction.”

For Recommendation 2, Region 2 stated that it will continue to provide monthly project updates at Gowanus Community Advisory Group meetings and update the Gowanus Canal site’s “Superfund Profile Page” on the EPA’s public website to include links to information about the CSO tank construction

activities and key milestones from the 2021 administrative order. On a quarterly basis, Region 2 will post updates on the city's progress towards meeting these milestones. If changes in the CSO tank schedules are required, the region will explain the schedule changes and announce approved amendments to the schedules at the monthly community advisory group meetings and on the EPA's public website.

After receiving Region 2's response to the draft report, we met with Region 2 to discuss its estimated completion dates for corrective actions to ensure that the Agency would implement these actions until both Gowanus CSO tanks are operational. Region 2 later provided a written response that confirmed the Agency's intentions to continue corrective actions until New York City's construction work is complete and the CSO tanks are operational.

We believe that the proposed corrective actions and estimated completion dates satisfy the intent of our recommendations. Therefore, we consider Recommendations 1 and 2 resolved with corrective actions pending. Appendix A contains the Agency's response to the draft report.

## Status of Recommendations

Rec. No.	Page No.	Recommendation	Status*	Action Official	Planned Completion Date
1	14	Closely monitor combined sewer overflow tank construction progress at the Gowanus Canal Superfund site and take immediate action, including enforcement actions if appropriate, if New York City misses any future tank project milestones from the 2021 administrative order.	R	Regional Administrator for Region 2	3/31/29
2	14	Post on the EPA's public website the milestones from the 2021 administrative order regarding the Gowanus Canal Superfund site, New York City's progress towards completing these milestones, and any actions taken to ensure the city stays on schedule.	R	Regional Administrator for Region 2	3/31/29

\* C = Corrective action completed.  
 R = Recommendation resolved with corrective action pending.  
 U = Recommendation unresolved with resolution efforts in progress.

## Agency's Response to Draft Report



### REGION 2 ADMINISTRATOR

NEW YORK, N.Y. 10007

February 20, 2024

#### **MEMORANDUM**

**SUBJECT:** Response to Office of Inspector General Draft Report No. OA-FY23-0060, "Multiple Factors Contributed to the Delay in Constructing Combined Sewer Overflow Tanks at the Gowanus Canal Superfund Site in New York City," dated January 11, 2024

**FROM:** Lisa F. Garcia, Regional Administrator, Region 2

LISA GARCIA Digitally signed by LISA GARCIA  
Date: 2024.02.20  
15:07:29 -05'00'

**TO:** Erica Hauck, Director  
Pollution Control and Cleanup Directorate, Office of Inspector General, Office of Audit

Thank you for the opportunity to respond to the issues and recommendations in the subject audit report. The agency agrees with the report recommendations and has provided high-level intended corrective actions and estimated completion dates to the extent that we can.

Following is a summary of the agency's overall position, followed by its response to each of the report recommendations. More detailed, specific comments and suggestions on the audit report are included in the attachment.

#### **AGENCY'S OVERALL POSITION**

Region 2 appreciates the Office of Inspector General's (OIG's) initiative to undertake an evaluation of the Region's oversight of the design and construction of the two combined sewer overflow (CSO) retention tanks, an integral part of the agency's 2013 Record of Decision (ROD) for the Gowanus Canal Site in Brooklyn, New York. The audit report provides a coherent summary of many events that took place over more than 15 years, and your office's independence and detachment from these events adds a valuable perspective.

Using the liability provisions and enforcement tools of the Superfund law, EPA has compelled New York City, a potentially responsible party for the site, to implement the CSO retention tank portion of the remedy, as described in the ROD. Several sections of the audit report that summarize differences between the agency and the City that led to CSO tank delays do not reach a conclusion as to the cause of the delays. In a number of those instances, EPA has stated its contention that the City was largely responsible for specific delays. EPA believes that the factual record and the final outcome of such issues support statements where the City's actions at the time were not in good faith. Having said that, the City's current level of performance on the retention tank projects has been highly satisfactory, and the City has attempted to identify ways to shorten the lengthy design and construction schedules for the two tanks to come more in line with the expectations of EPA's selected remedy. The City deserves credit for its recent performance. Still, the agency will continue to be vigilant in overseeing this work.

EPA would like to thank the OIG for its engagement with members of the wider Gowanus community, offering them a voice in this process. The agency's community outreach efforts for this site are robust, but we can certainly do more to hear and be responsive to our stakeholders. Our response to Recommendation 2 highlight how the Region plans to address your concerns.

AGENCY'S RESPONSE TO REPORT RECOMMENDATIONS

Recommendation #	Recommendation	High-Level Intended Corrective Action(s)	Estimated Completion by (Quarter and FY)
1	Closely monitor combined sewer overflow tank construction progress at the Gowanus Canal Superfund site and take immediate action, including enforcement actions if appropriate, if New York City misses any future tank project milestones from the 2021 administrative order.	<p>1.1 The Region performs field oversight for the RH-034 and OH- 007 CSO tank installation work. In addition, New York City submits weekly summary reports and monthly summary reports that cover the active construction, as well as a comprehensive status updates of future phases of the work.</p> <p>The Region will continue senior- level (SEMD director or higher) meetings with the City at least quarterly to assure continued attainment of the approved schedule, and rapid engagement in the case of potential missed milestones.</p> <p>EPA does not publicly discuss possible enforcement actions, but will take actions necessary to ensure that the work is performed to the agency's satisfaction.</p>	Q2 FY2024 (March 2024) – These are ongoing quarterly meetings - measured by the next senior-level face-to- face meeting that the Region expects to continue through at least the next 12 months, if not longer.

Recommendation #	Recommendation	High-Level Intended Corrective Action(s)	Estimated Completion by (Quarter and FY)
2	Post on the EPA's public website the milestones from the 2021 administrative order regarding the Gowanus Canal Superfund site, the City's progress towards completing these milestones, and any actions taken to ensure the City stays on schedule.	<p>2.1 The Region provides project updates on all the ongoing work, including progress on the tank work, at monthly Community Advisory Group (CAG) meetings. The CAG meetings are recorded, so anyone can watch them by going to the CAG website. Links to the CAG website have been placed on the Region's Gowanus SPP website.</p> <p>EPA will update the site's Superfund Profile Page on EPA's public website to include a link to information about the CSO tank construction activities. The link will include key milestones from the 2021 Administrative Order, along with progress updates on meeting these milestones to be updated at least quarterly.</p>	<p>Q2 FY2024 (Completed)</p> <p>Q3 FY2024 (June 2024)</p>
		<p>2.2 EPA will use multiple tools to inform the public of actions taken to ensure the City stays on schedule, and any changes to the schedule that EPA authorizes. Those tools include posting updates to EPA's Site Profile Page, publishing Site Progress Updates (approximately quarterly), and reporting out at monthly CAG meetings. In the event that changes in the CSO tank schedules are required, the Region will explain the schedule change and post approved amendments to the schedule in these multiple formats.</p>	<p>Q3 FY2024 (June 2024) – commensurate with the next Site Progress Update.</p>

CONTACT INFORMATION

If you have any questions regarding this response, please let me know or have your staff communicate with Arlene Chin, Region 2's Audit Coordinator, at (212) 637-3408 ([Chin.Arlene@epa.gov](mailto:Chin.Arlene@epa.gov)), or Rudnell (Rudy) O'Neal, Manager, Grants and Audit Management Branch, at (212) 637-3427 ([Oneal.Rudnell@epa.gov](mailto:Oneal.Rudnell@epa.gov)).

Attachment

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