RECORD OF DECISION

Wappinger Creek Superfund Site
Operable Unit 1
Wappingers Falls, Dutchess County, New York

United States Environmental Protection Agency
Region 2
New York, New York

September 2026

762752

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Wappinger Creek Superfund Site
Wappingers Falls, Dutchess County, New York
EPA Superfund Site Identification Number: NYN000201758

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the selected interim remedy to address sediment and streambank soils for Operable Unit (OU) 1 at the Wappinger Creek Superfund Site (Site) in Wappingers Falls, Dutchess County, New York. The U.S. Environmental Protection Agency (EPA) selects this interim remedy in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601-9675 (CERCLA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300. This decision document explains the factual and legal basis for selecting the remedy. The administrative record for the remedial decision, established pursuant to the NCP, 40 CFR 300.800, contains the documents that form the basis for EPA's selection of the interim remedy (see **Appendix III**).

The State of New York has been consulted on the proposed remedy in accordance with CERCLA §121(f), 42 U.S.C. §9621(f), and it concurs with the selected remedy (see **Appendix IV**).

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances at or from the Site, if not addressed by implementing the selected response action described in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The interim remedy described in this document addresses total mercury contamination in sediment and streambank soils in the upper portion of the Site. This OU is the first of two anticipated OUs for the Site. EPA anticipates that an eventual, final remedy for the Site will be selected as part of OU2. The major components of the selected remedy include the following:

- Dredging of contaminated sediment and excavation of streambank soils that exceed the remedial action level of 1.1 milligrams per kilogram for total mercury, followed by placement of clean backfill;

- Management, treatment, and disposal of removed materials;
- Restoration of remediated areas;
- Implementation of monitoring programs, which include baseline, construction-phase, and long-term monitoring, to establish initial and long-term environmental conditions, track progress towards achieving remedial action objectives, verify remedy implementation, and assess performance of the remedy;
- Implementation of a robust pre-design investigation to fill the data gaps and collect necessary information for the remedial design; and
- Institutional controls in the form of administrative and/or informational measures to limit exposure to Site contamination, including outreach programs to inform the public of the existing New York State Department of Health Hudson River & Tributaries Fish Advisory, which includes the entirety of the Site.

The estimated present-worth cost of the selected remedy is $88,098,000. Green remediation techniques, as detailed in New York State Department of Environmental Conservation's Green Remediation Program Policy DER-31, will be considered during the implementation of the selected remedy in order to reduce short-term environmental impacts.[1]

DECLARATION OF STATUTORY DETERMINATIONS

Part 1: Statutory Requirements

The selected interim remedy meets the requirements for remedial actions set forth in Section 121 of CERCLA, 42 U.S.C. § 9621, because it meets the following requirements: (1) it is protective of human health and the environment; (2) it meets a level or standard of control of the hazardous substances, pollutants, and contaminants that at least attains the legally applicable or relevant and appropriate requirements (ARARs) under federal and state laws[2]; (3) it is cost-effective; and (4) it utilizes permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable. In addition, Section 121 of CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous substances as a principal element.

1 https://extapps.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf

2 Chemical-specific ARARs will be addressed by the eventual, final remedy and have not been identified for this interim remedy. It is nonetheless expected that the selected interim remedy attains location- and action-specific ARARs and to be considered advisories, criteria, and guidance.

Part 2: Statutory Preference for Treatment

The selected remedy partially meets the statutory preference for treatment as a principal element. The remedy involves ex-situ treatment of dredged sediment and streambank soils using stabilization amendments to facilitate transportation for off-site disposal. Dewatering liquids would be treated on-site, with contaminants captured in media such as granular activated carbon, which would be regenerated (a form of treatment) or disposed of (with treatment as needed to meet disposal facility requirements).

Part 3: Five-Year Review Requirements

A review of the remedial action, pursuant to CERCLA Section 121(c), will be conducted every five years after the commencement of the remedial action to ensure that the remedy continues to provide adequate protection to human health and the environment because this remedy will result in hazardous substances remaining on-site above health-based levels that would allow for unlimited use and unrestricted exposure.

ROD DATA CERTIFICATION CHECKLIST

This ROD contains the remedy selection information noted below. More details may be found in the Administrative Record file for the remedial decision.

- Chemicals of concern and their respective concentrations may be found in the "Summary of Site Characteristics" section;
- Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD are discussed in the "Current and Potential Future Land and Resource Uses" section;
- Baseline risk represented by the chemicals of concern may be found in the "Summary of Site Risks" section;
- Cleanup levels established for chemicals of concern and the basis for these levels maybe be found in the "Remedial Action Objectives" section;
- Estimated capital, annual operation and maintenance, and total present-worth costs are discussed in the "Summary of Remedial Alternatives" section;
- A discussion of principal threat waste may be found in the "Principal Threat Waste" section;
- Key factors used in selecting the remedy (*i.e.*, how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision) may be found in the "Summary of Comparative Analysis of Alternatives" and "Statutory Determinations" sections.

AUTHORIZING SIGNATURE

Pat Evangelista Digitally signed by Pat Evangelista
Date: 2026.09.28 20:49:34 -04'00'

September 28, 2026

Pat Evangelista, Director
Superfund & Emergency Management Division

Date

RECORD OF DECISION
DECISION SUMMARY

Wappinger Creek Superfund Site
Operable Unit 1
Wappingers Falls, Dutchess County, New York

United States Environmental Protection Agency
Region 2
New York, New York
September 2026

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SITE NAME, LOCATION AND DESCRIPTION

The Wappinger Creek Site (Site), located in Wappingers Falls, Dutchess County, New York, is defined as the tidally influenced portion of Wappinger Creek (Creek). The Site consists of a zone of sediment contamination that begins at the base of Wappingers Falls by the Market Street Industrial Park (Industrial Park) and extends approximately two miles downstream to where the Creek meets with the Hudson River. The Site is primarily oriented in a northeast-southwest fashion. A map of the Site is provided in **Figure 1**.

For the purposes of EPA's investigation, the Site was divided into the following five sections, presented upstream to downstream:

- Industrial Park section: This is the uppermost section of the Site and is located adjacent to the Industrial Park, which was the historical source of contamination. It is bounded on each shore by retaining walls along both sides of the Creek. This section is prone to flooding during storm events because of the narrow channel and low-lying floodplains.
- Upper Shoal section: This section is downstream of the Industrial Park section and upstream of the embayment.
- Embayment section: The Embayment section is the lowermost section of the Site to be addressed as part of Operable Unit One (OU1) and is bounded by the Hudson River Line (HRL), described further below. This section of the Creek is part of, and adjacent to, the embayment, defined as a recess or indentation of the Creek shoreline. The embayment is the primary depositional area of the Site and is largely protected from the Creek flow by the embayment peninsula.
- Lower Shoal section: This section of the Creek is downstream of the embayment but upstream of the confluence of the Creek with the Hudson River.
- Confluence section: This section of the Creek is downstream of the Lower Shoal section, extending to the confluence of Wappinger Creek with the Hudson River.

Wappinger Creek is currently designated as a Class C(T) Fresh Surface Water under New York State Codes, Rules, and Regulations (6 CRR-NY, Article 10, Part 857), meaning that the Creek is an active recreational fishery that may support a trout population and is suitable for contact recreation. The Site and its surrounding areas are used for residential, recreational, and commercial purposes; there is at least one boat launch and several identified fishing access points. A hydroelectric dam that controls the water levels in Wappinger Lake is located upstream of Wappingers Falls and discharges directly into the Site. The Industrial Park is located along the banks of the Site, approximately 0.2 miles downstream of Wappingers Falls. The Industrial Park has been active for more than 180 years and is currently home to several commercial facilities, operating within the existing historical industrial buildings. There are no ongoing discharges of waste materials to the Creek, and no additional structures have been added to the Industrial Park since industrial operations ceased.

Topography varies in the vicinity of the Site, with steep slopes bounding the west side of the Creek and developed land to the east. The Reese Audubon Sanctuary borders the Creek along the northwestern (northern) bank. Open space, Reese Park, residential properties, and a Department of Public Works facility are located along the southeastern (southern) bank of the Creek. Two tributaries flow directly into the Site: an unnamed tributary, which meets the Creek within the Industrial Park section, and Hunter Creek, which meets with the Creek in the Upper Shoal section. Most of the upland areas, including the Industrial Park, lie within the 100-year floodplain.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

The primary source of historical contamination at the Site is attributed to the operations that took place at the Industrial Park over its 180-year history, beginning in the early 1800s through the late 1900s. Wappinger Creek has served as a stormwater drainage and direct discharge structure, historically receiving manufacturing waste and by-products from industrial activities. Channels and lagoons were constructed within the footprints of the historical facilities directly adjacent to the Site, which served as manufacturing waste basins which flowed into the Creek.

Historic tenants at the Industrial Park included Dutchess Bleachery, which operated along both sides of the Creek. Mercuric chloride may have been used to dye cloth at the bleachery. Wastewater from the bleachery was reportedly discharged into a channel that emptied into a lagoon (later named the Three Star Lagoon) and subsequently into Wappinger Creek. Adjacent to Dutchess Bleachery was a facility that manufactured felt hats, a process which historically used mercuric nitrate. A manufactured gas plant also operated on the southern bank of the Creek. During plant operations, coal was barged up the Creek from the Hudson River and stored in large sheds located on the northern and southern banks of the Creek. Coal is also known to naturally contain mercury, which was emitted during this process. Coal cinders were used as fill behind the retaining wall built on the southern bank near the industrial facilities.

Following the closure of Dutchess Bleachery, a metal plating facility known as Three Star Anodizing moved into the Bleachery's former location along the southern bank of the Creek. From approximately 1958 to 1980, wastewater was discharged to the Three Star Lagoon and emptied into the Creek at a rate of 20,000 to 60,000 gallons per day. Sometime after 1980, the wastewater was discharged to the Wappingers Falls sewage treatment plant. The Three Star Anodizing facility was later leased to another metal plating facility (Watson Metals) before operations finally ceased in 1995.

Previous NYSDEC Investigations

Initial investigations at the Site were primarily led by New York State Department of Environmental Conservation (NYSDEC) and began when the sanitary facilities in the Three Star Anodizing buildings failed a dye test in 1971. As a result, the facility was required to obtain a State Pollutant Discharge Elimination System (SPDES) permit in 1975 to continue discharging wastewater to the Creek. Between 1977 and 1979, NYSDEC documented that the Three Star Anodizing facility operations occasionally

exceeded SPDES effluent limitations for nickel and copper. An investigation conducted in the mid-1980s revealed that wastewater from the Three Star Anodizing operations contained caustic dyes, acids, and various trace metals including copper, nickel, chromium, aluminum, and zinc. In 1983, NYSDEC listed the Three Star Anodizing Site as a Class 2 site, which indicated that the Three Star Anodizing Site posed a significant threat to public health or the environment and remedial action was required. The Three Star Anodizing Site is comprised of upland areas on the southern side of Wappinger Creek and a portion of the Creek adjacent to the former facility.

The first remedial investigation (RI) for the Three Star Anodizing Site was conducted by NYSDEC between 2001-2002 and investigated sediment within the tidal portion of Wappinger Creek, surface water and sediment in the Three Star Lagoon, and soil and groundwater within the former facility footprint. NYSDEC conducted a supplemental RI from 2005 to 2007 and concluded that Wappinger Creek sediment was impacted by the nearby activities at the Three Star Anodizing Site. The 2007 RI also revealed that surface soil, subsurface soil, and groundwater beneath the Three Star Anodizing facility was contaminated with volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and various inorganic contaminants, including mercury, lead, and chromium. Surface water sample results were generally within the then-current NYSDEC water quality screening values. However, elevated levels of contaminants, primarily PAHs and inorganic contaminants, exceeded the then-current NYSDEC ecological screening values.

In 2007, NYSDEC performed a Fish and Wildlife Impact Analysis using RI data to identify chemicals of potential ecological concern (COPECs) for Wappinger Creek and the Three Star Anodizing Site. Mercury and antimony constituted the inorganic COPECs with the highest calculated hazard quotient (HQ) values, an indicator of potential risk to human health. Other COPECs identified included cadmium, chromium, and zinc as well as semi-volatile organic compounds (SVOCs).

In March 2009, NYSDEC signed a Record of Decision (ROD) for the Three Star Anodizing Site. The NYSDEC ROD designated the upland portion of the Three Star Anodizing Site as OU1. The main components of NYSDEC's OU1 remedy included the removal and disposal of contaminated soil, debris, asbestos-containing materials and waste containers, installation of soil and asphalt covers, dredging of sediment from the Three Star Lagoon, groundwater treatment via chemical injections, installation of a sub-slab depressurization system at an onsite building, and restoration of remediated areas. No remedy was selected for the Creek, which was designated as a separate OU. In October 2009, NYSDEC conducted a third RI focusing on the Creek. Samples were collected along the Creek near the Three Star Anodizing properties and analyzed for metals, including mercury and methylmercury (MeHg). The 2010 RI report concluded that results were generally consistent with the findings from the 2007 RI report. The identified chemicals of concern (COCs) were antimony, arsenic, cadmium, chromium, lead, mercury, zinc, and cyanide.

Initial EPA Involvement

In 2004, EPA conducted a removal action at the request of NYSDEC to clear debris and remove containers with known and unknown waste from the Three Star Anodizing facility buildings. Onsite structures that were deemed unstable or prevented access to the waste containers were demolished to complete this removal action. Approximately 12,000 gallons of liquid and 20 compressed gas cylinders were removed and disposed offsite.

In 2015, as part of EPA's Hazard Ranking System evaluation, EPA's Region 2 Site Assessment Team collected soil, surface water, and sediment samples near the Industrial Park along the Creek. Samples were also collected from Wappinger Lake and upstream of the Industrial Park to evaluate background conditions. All soil, surface water, and sediment samples were analyzed for VOCs, SVOCs, and metals. A subset of sediment samples was also analyzed for dioxins, furans, and MeHg. While the 2015 investigation identified mercury and benzo(a)pyrene (BAP), a type of PAH, as the main contaminants of concern in sediment, a review of historical documents identified several other contaminants, including VOCs, other PAHs and metals, and manufactured gas plant cinders.

EPA placed the Site on the National Priorities List on September 9, 2016. To date, EPA has not identified any viable potentially responsible parties at the Site. As a result, EPA elected to investigate the Site using federal funds.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

EPA released the RI report, Focused Feasibility Study (FFS) report, and the Proposed Plan for the Site, as well as other documents considered by EPA, to the public for comment on July 23, 2026. EPA made these documents available to the public in the administrative record file at the EPA Superfund Records Room in Region 2, New York, and online: www.epa.gov/superfund/wappinger-creek. The notice of availability for these documents was published in the Poughkeepsie Journal on July 23, 2026.

The public comment period on these documents was initially held from July 23, 2026 to August 21, 2026, but was extended to September 21, 2026 after receiving a request from the public. The extension was announced via a press release and a mass email to the Site mailing list on August 7, 2026 and August 13, 2026, respectively.

On July 30, 2026, EPA conducted a public meeting at the Grinnell Community Library in Wappinger Falls to inform local officials and members of the public about the Superfund process, present the findings of the RI, FFS, and EPA's Proposed Plan to the community, review current and planned remedial activities at the Site, and respond to questions from area residents and other attendees. EPA's responses to the comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary (see **Appendix V**).

SCOPE AND ROLE OF RESPONSE ACTION FOR OU1

The selected remedy for OU1 addresses sediment and streambank soil contamination at the Site as part of an interim remedial action. At Superfund sites, site remediation activities are sometimes separated into different phases, or operable units, so that remediation of different geographic areas of a site can proceed separately, resulting in a more efficient and expeditious cleanup of the entire site.

This interim remedy addresses risks posed by total mercury (THg) and prevents migration of THg in sediment found within the upper portion of the Site. Three upstream sections (Industrial Park, Upper Shoal, and Embayment sections) are targeted as part of this interim remedy. These locations contain high concentrations of THg in sediment, which is considered to be source material most likely to be redistributed across the Site, while also exhibiting a lower potential for recontamination from sediment deposition related to tidal impacts from the Hudson River. The extent of influence from the Hudson River, which also serves as the boundary of OU1, is marked by the HRL and discussed further below. EPA anticipates that remediating THg-contaminated sediment in the upper portion of the Site will reduce THg contaminant concentrations in sediment throughout the Site, reduce the potential for mercury methylation and bioaccumulation in the food web and remove other collocated, site-related contaminants, thereby reducing risks to human and ecological receptors. Streambank soils are also targeted by this interim remedy because of their potential to erode and re-contaminate the sediment bed after the remedial action is complete.

While this interim remedy will only address sediment and streambank soil in the upper portion of the Site, it will form a part of the overall Site remedial strategy. Once targeted contaminated sediment is remediated in the upper portion of the Site and the interim performance criteria have been met, a post-construction monitoring program would be implemented. Exact details of the monitoring program will be determined in the future and will include sampling for biotic (e.g., fish tissue) and abiotic (e.g., sediment, soil, surface water, pore water) media. A subsequent sitewide remedy would be developed based on the data from the post-construction monitoring. The post-construction monitoring program would inform the development of future sitewide objectives, verify that the interim remedy is functioning as designed, and evaluate the effectiveness of the interim remedy. This monitoring program would be designed to ensure that media are monitored such that trends in concentrations of site-related contaminants can be evaluated. Additionally, the data would be used to identify any potential ongoing sources of contamination, evaluate changes in the system over time, and assess the natural recovery of the Creek system.

Using the results of the post-construction monitoring, the subsequent trends and site characterization can be evaluated to identify the nature and extent and the fate and transport of contamination remaining at the Site. EPA would use this information to develop a final site-wide remedy. EPA anticipates that a final remedial decision for the Site will be memorialized in a subsequent ROD.

SUMMARY OF SITE CHARACTERISTICS

Geology and Hydrogeology

Wappinger Creek is a 41-mile long freshwater creek that originates in extensive headwater wetlands and lakes in northern Dutchess County. The Wappinger Creek watershed drains over 130,000 acres and is fed by approximately 320 miles of tributaries. Upstream of the Site, Wappinger Creek flows through Wappinger Lake and over Wappingers Falls. Surface water drainage in the Site area is toward the Creek and its associated wetlands and tributaries, and the overall drainage at the Site is towards the Hudson River. A shallow, unconsolidated aquifer of glacial/alluvial origin is the primary aquifer that interacts with the Creek. The groundwater elevation observed is close to the surface water elevation at the Site. Locally, shallow groundwater adjacent to the Creek flows toward and discharges to the Creek.

Wappinger Creek is tidally influenced between Wappingers Falls and the confluence with the Hudson River. During the tidal cycle of the Hudson River, surface water levels at the Site can fluctuate as much as 3.5 feet at the upstream end of the tidal portion adjacent to the Industrial Park and up to 4 feet in the lower sections. The interaction between groundwater and surface water at the Site is also tidally influenced. Groundwater elevations were observed to vary up to three feet through a daily tidal cycle. Shallow groundwater adjacent to the Site flows toward and discharges to the Creek. Deep groundwater may discharge to the Creek in areas where the bedrock surface is shallow after traveling through the fractured bedrock beneath the Creek.

Wappinger Creek sits above glacial and fluvial deposits bound on either side by bedrock outcrops. The Site is located within a stream valley that has cut a bedrock canyon in the uplifted bedrock to the east of the Hudson River. In the Industrial Park and Upper Shoal sections, the overburden overlies a shale/graywacke bedrock. Portions of the Lower Shoal and Confluence sections overlie bedrock consisting of limestone and dolostone. Unconsolidated material encountered near the Site consisted of fill material, naturally deposited alluvium, and glacial till. These materials were present at depths ranging from 6 to 12 feet bgs.

A description of the Site and its physical characteristics, broken out into its five sections, is provided below.

Industrial Park Section: The Creek at the Industrial Park section is approximately 2,300 feet long and 90 feet wide and is narrow relative to downstream sections. Very little surface sediment is present in the areas closest to the hydroelectric dam where water velocity is greatest. An unnamed tributary is located downstream of the retaining walls and flows intermittently into Wappinger Creek during and after precipitation events. Generally, the Creek profile is shallowest on the south side, with water depths ranging from approximately 7.5 feet during high tide to approximately 3.5 feet during low tide. The water depth increases to approximately 8 to 12 feet towards the northern shore, indicating the main channel as the Creek begins to bend towards the southwest, where gravelly sediment and sandy

streambanks were observed. The Creek channel is subject to higher stream velocities, which is consistent with the coarser-grained sediment found within this section of the Site.

Upper Shoal Section: The Upper Shoal section is approximately 700 feet long, bending towards the south before widening to approximately 250 feet and curving back to the southwest. Water flow velocity decreases as the Creek becomes wider, creating sediment accumulation in low-velocity areas. The sediment deposit primarily comprises silt and organic material rather than sand and gravel. Moving downstream, increasing thicknesses of surface sediment are present outside of the main Creek channel along the shoal areas. Coarse-grained fluvial sediment is also present outside of the channel in the Upper Shoal section. Generally, the Creek profile is shallowest on the south side of the Creek, with water depths ranging from approximately 3 to 4 feet during high tide to less than 1 foot during low tide. The water depth increases to approximately 8 to 12 feet towards the northern shore, indicating the main channel.

Embayment Section: The Embayment section is approximately 780 feet long. A shallow embayment, which is defined as a recess or indentation of the Creek shoreline, is located along the northwest shore following a bend directing the Creek to the southwest. This approximately 400- by 600-foot feature is bounded by steep slopes with exposed bedrock to the northwest and the embayment peninsula to the southeast. The embayment peninsula contains established trees and vegetation. The ground surface at the midpoint of the embayment peninsula is low enough that it is sometimes submerged during high tide, allowing for additional hydraulic connection to the channelized portion of the Creek. The main flow of the Creek bypasses the embayment, which experiences minimal water velocity and can be described as quiescent. The sediment within the embayment comprises silt and organic matter, and the area also supports aquatic plant growth throughout. As a result of these conditions, the embayment is considered to be the primary depositional area of the Site.

Generally, the Creek profile is shallowest on the northwest side of the Creek, within the embayment with water depths ranging from approximately 3 feet during high tide to less than 1 foot during low tide. The water depth increases to approximately 8 to 12 feet towards the southern shore, indicating proximity to the main channel.

The Embayment section marks the extent of this interim remedy, using the HRL as the boundary of sediment exchange with the Hudson River. Additional data will be collected in the future to refine the HRL and the extent of impacts from the Hudson River for site-related contaminants.

Lower Shoal Section: The Lower Shoal section is approximately 2,600 feet long and is located downstream of the Embayment section. This section of the Site varies in width, ranging from approximately 400 feet to approximately 900 feet. The bottom sediment materials in this section of the Creek primarily comprise sand with silty organic matter and some gravel underlain by silt in the shallower area alongside the Creek channel. Generally, the main flow in this section of the Creek occurs along the Creek channel with water depths up to 14 feet. Shallow intertidal areas occur along both the northern and the southern shores throughout this section; approximately half of the area in

this section of the tidal Creek occurs at depths of less than 3 feet. Proceeding downstream, the main Creek channel shifts from the south side of the Creek to the north side of the Creek.

Confluence Section: The Confluence section of Wappinger Creek is approximately 2,600 feet long and narrows to approximately 140 feet before widening to approximately 800 feet where it meets the Hudson River. The bottom sediment materials in this section of the Creek primarily comprise silt and sand, with rock and cobble content increasing with sediment depth. Generally, the main flow in this section of the Creek occurs along its southern shore. Channel depths range from 12 feet to approximately 26 feet. Generally, the Creek profile is shallowest on the northern side, with water depths ranging from approximately 5 feet during high tide to less than 3 feet during low tide. As the Creek cross section progresses to the southern shore, water depth increases to approximately 15 to 26 feet in the main channel.

Results of the Remedial Investigation (by media)

During 2021 and 2022, EPA conducted an RI and collected soil, sediment, surface water, porewater, groundwater, air and fish samples to define the nature and extent of contamination at the Site. For the purposes of EPA's RI, the five sections of the Site were further broken up and sampled along Transects T1-T30. Background samples were also collected at Wappinger Lake upstream of the site.

In addition to sample collection, a hydrogeological assessment was also performed at the Site, which included a thermal infrared imaging survey; installation of monitoring wells, staff gauges, stilling wells, and piezometers; porewater and groundwater screening; long-term water level monitoring; and synoptic water level measurements. A bathymetric survey was conducted to measure Creek depth and map the underwater features at the Site.

Based on the results of the RI, EPA determined that THg is the principal COC in sediment at the Site. The forms of mercury that comprise THg at the Site are inorganic mercury and MeHg. Other site-related contaminants include inorganic compounds (lead, total chromium, cyanide, and arsenic) and organic compounds (PAHs, polychlorinated biphenyls (PCBs), pesticides, and dioxin/furans), which were found throughout the Site at high concentrations. The discussion below summarizes the RI findings of the site-related contaminants within the media sampled at the Site.

<u>Sediment and Streambank Soils</u>

Sediment is the primary media contaminated with THg and other site-related contaminants and is the focus of the interim remedy. The highest concentrations of site-related contaminants are generally observed between 0.5 to 2.0 feet below sediment surface (bss), indicating depositional burial of historically contaminated sediment at the Site. Supporting figures and tables are provided in **Appendix I and II**, respectively. Sample locations are provided in **Figures 2-1 through 2-4**. A summary of sample results are provided in **Tables 1 and 2.**

Sitewide contamination is also highest along the outer margins of the channel and in the shoal areas where the sediment bed contains softer, fine-grained material. These areas exhibit thicker sediment beds because of the slower water velocities that flow along the inside of the Creek bends, allowing for deposition of particulates to occur more readily. This depositional tendency is evidenced by the consistently higher concentrations of inorganic and organic contaminants in the streambank soils along the embayment peninsula, within the embayment area itself, and in the floodplain material within the wetlands bordering the northern bank of the embayment area.

The embayment is notably one of the most contaminated areas of the Site, mainly because of its semi-protected, shallow environment away from the main Creek channel that allows particulates, including contaminants, to settle out of the water column. Some of the highest concentrations of inorganic contaminants within the Creek were also detected in areas near the former business operations in the Industrial Park, particularly along the southern bank. This area is directly next to the historical Industrial Park footprint, where depositional features of the Creek are present.

Total Mercury and Methylmercury*:* THg concentrations ranged from 0.0074 to 210 milligrams per kilogram (mg/kg), with an average detected concentration of 4.73 mg/kg. Elevated concentrations of THg are observed primarily within the top 2 feet of sediment, with the highest concentrations observed vertically within the 0.5 to 2-foot bss depth interval. Concentrations increase moving downstream past the historical source areas within the Industrial Park section, where they remain elevated at many sample locations between the Upper and Lower Shoal sections. The highest concentration of THg was found in the Embayment section, with significantly elevated concentration levels also detected along the outer margins of the Upper and Lower Shoal sections. An overview of total mercury concentrations in sediment is provided as **Figure 2-5**. Streambank soils are most impacted with THg along the banks of the Embayment section. Downstream of the embayment area, concentrations drop to below background levels.

MeHg concentrations are highest within the Embayment section where the water is the shallowest and in areas where vegetation is dominated by water lilies. The highest concentrations of MeHg were in shallow surface sediment (0 to 2 inches bss) throughout the Creek, ranging from 0.04 to 5.39 nanograms per gram.

Although MeHg concentration levels are highest in the Embayment section, mercury methylation is enhanced in the shoal areas, which are dominated by water chestnut plants, and in sediment that is regularly exposed to the atmosphere during low tide. The shoal areas represent the largest footprint of increased MeHg (*e.g.*, ratio of MeHg to inorganic mercury) within the Creek. This is because mercury methylation in a freshwater system, such as the Creek, is most active in the top two inches of surface sediment where anaerobic microorganisms can function with a fresh supply of oxidized substrate to enhance their activity. However, MeHg concentrations are highest in the Embayment section where there are approximately three to five times higher THg concentrations relative to the shoal areas. This indicates that the availability of THg, rather than methylating conditions, is driving MeHg concentrations at the Site.

***Lead, total chromium, cyanide, and arsenic**:* Lead, chromium, and cyanide follow a similar contaminant distribution to that of THg. Higher concentrations of these contaminants were also more frequently detected in the shallow sediment from 0.5 to 2.0 feet bss within the embayment and shoal areas, with concentrations increasing immediately downstream of the Industrial Park section. In contrast to other inorganic contaminants at the Site, arsenic levels did not reveal a notable difference in concentrations throughout the top two feet. However, the lateral distribution of arsenic is similarly concentrated in the embayment and shoal areas and downstream of the Industrial Park section. Lead is detected at its highest concentration of 3,200 mg/kg within the Industrial Park section. Total chromium, cyanide, and arsenic are detected at their highest concentration within the Embayment section at 3,100 mg/kg, 74 mg/kg, and 82 mg/kg, respectively. Streambank soil contamination for lead, total chromium, cyanide, and arsenic is most severe along the embayment area wetlands, and immediately downstream of the Industrial Park section.

Benzo(a)pyrene: PAHs, particularly BAP, are the most prevalent organic contaminant group in Site sediment. BAP follows a similar distribution pattern to the inorganic contaminants, with its highest concentrations observed within the 0.5- to 2-foot bss interval, with concentrations decreasing below 2 feet bss. The most significant BAP impacts in sediment are in the Upper Shoal and Embayment sections. BAP impacts in streambank soils are observed primarily along the southern bank throughout the Industrial Park section and Upper Shoal section. Heavier impacted streambank soils are present along the northern bank that in the Upper Shoal section, and throughout the northern bank of the embayment area.

Pesticides and dioxins/furans: Pesticides and dioxins/furans were found to be most elevated in Site sediment within the Industrial Park section, adjacent to areas of historical operations and downstream of the Industrial Park section. The northern bank of the Embayment section has the most significantly impacted streambank soils at the Site. Dioxin/furan concentrations throughout the remainder of the Creek are primarily elevated in the shoal areas.

***Polychlorinated biphenyls**:* PCB Aroclors were detected within all sections of the Site. However, the distribution of PCB Aroclors does not follow the same trend observed for the other site-related contaminants, particularly in the lower portions of the Site. The highest PCB concentration detected was 0.36 mg/kg at in the Industrial Park section, where Aroclor 1254 was found to be more than double the concentration of any other PCB detection at the Site (**Figure 2-6**). However, both the number of detections and the median concentration levels of PCBs are higher in the Lower Shoal and Confluence sections than the upper portions of the Site. Additionally, no PCBs are present along multiple transects in the Lower Shoal section which have many detections for the other site-related contaminants. Furthermore, there is a distinct transition point in the distribution and composition of Aroclors at approximately Transect T15, located in the Embayment section (**Figure 2-7**). Samples collected upstream of Transect T15 in the Industrial Park, Upper Shoal, and Embayment sections have a different Aroclor signature (Aroclors 1248, 1254, and 1260) than the samples collected from the transects downstream of T15 and are closer to the Hudson River (Aroclors 1242 and 1254). Aroclors 1260 and 1248 were not detected in the Embayment, Lower Shoal or Confluence sections.

This distribution of Aroclor fingerprints likely corresponds to a discrete release in the Industrial Park that has contributed to Aroclor 1248, 1254, and 1260 concentrations in the upper portion of the Site. The presence of Aroclor 1254 downstream of T15 likely relates to the discrete release in the Industrial Park and the subsequent migration of contamination across the Site over time. Aroclor detections closest to the Hudson River confluence, or downstream of T15, also have a prevalence of Aroclor 1242, which is the most commonly detected Aroclor in Hudson River sediment. The change in Aroclor signatures could partially explain the role of the Hudson River's influence through the deposition of impacted sediment into the Creek during periods of tidal fluctuation, storm events, and shifts in seasonal flow, where historically buried contaminated sediment have been potentially resuspended and transported into the Creek.

Based on the Aroclor signature change at Transect T15, the HRL was established to estimate the boundary of influence from the Hudson River within the Site. This line divides the Site into an area below the HRL (where there is a higher potential for recontamination) and an area above the HRL (where there is a lower potential for recontamination). Because the embayment is not prone to the most significant channel flows and is the most heavily impacted section at the Site, it was deemed, in its entirety, to be a priority area for early risk reduction through implementation of an interim remedy. Consequently, the HRL boundary was moved just south of the Embayment section, between Transects T17 and T18, and may be refined in the future as additional data is collected.

Groundwater and Porewater

Groundwater and porewater are not considered impacted media at the Site. Groundwater discharges into the Creek along its length; however, impacts to the Creek from groundwater discharge are not expected at the Site given the low contaminant concentrations.

VOCs are present in groundwater upland of the Industrial Park section, but primarily in areas adjacent to and within areas of known historical operations. The presence of VOCs is likely related to direct waste discharges, and the infiltration and seepage of waste storage into the water table over extended periods of time. Similarly, PAH-impacted groundwater and porewater are primarily confined to the Industrial Park section. Groundwater discharges into the Creek along its length; however, impacts to the Creek from groundwater discharge are not expected at the Site given the low contaminant concentrations.

Site-related inorganic contaminants including lead, mercury, and chromium were detected at slightly elevated concentrations at one porewater sample location. However, their presence is likely a result of elevated turbidity levels as they were not detected in the corresponding filtered sample.

Surface Water

Contamination in surface water is present at low concentrations. VOCs were not detected at elevated concentrations in any of the surface water samples collected during either sampling round. SVOC-

impacted surface water is very limited at the Site, with most surface water detections within the Embayment section. Pesticides were only detected in the Lower Shoal and Confluence sections when Creek flows were elevated, suggesting that resuspension of pesticides from the sediment bed to the water column is likely occurring during high-flow events.

Lead was the only inorganic contaminant detected at slightly elevated concentrations in surface water samples. Differences in the inorganic contaminants present in sediment and surface water indicate that inorganic contaminant mass within the sediment is not readily migrating into the surface water. Concentrations and the number of detections are generally higher in unfiltered samples, indicating inorganic material is primarily present in the particulate phase.

Air

Ambient air samples were collected to determine whether potential elemental mercury trapped in the Creek sediment may be volatilizing to the air. Elevated mercury vapor readings were not detected during field screening of the breathing zone (space where a person breathes as they stand, sit, or lie) using a Jerome mercury vapor analyzer during sample collection. Additionally, mercury was not detected in any of the air samples collected.

Fish Tissue

A limited number of fish samples were collected to determine concentrations of Site contaminants in fish species in the Creek. Bottom feeder (common carp and channel catfish) and predatory fish (largemouth and smallmouth bass) species were collected from eight locations: four in the Industrial Park section, two from the Upper Shoal section, and two from the Embayment section. Only two predator species were collected during the fish sampling program, one from the Upper Shoal section and one from the Embayment section. THg and MeHg were detected in all collected fish. Lead, chromium, arsenic, cyanide, BAP, Aroclors 1254 and 1260, select pesticides, and dioxin/furans were also detected; however, these compounds were not detected in every fish.

Interim Remedy Remediation Strategy

The RI data conclusions support the premise for an interim remedy for the upper portion of the Site in order to address risks and to prevent source migration of THg in sediment even while some uncertainties remain.

Sources of Greatest Risk: Owing to the complex behavior, distribution, and toxicity of THg, it has been identified as the primary risk driver at the Site. THg-impacted sediment is particularly extensive in the Upper Shoal and Embayment sections, and areas where shallow sediment are exposed during low tides can potentially provide conditions suitable for mercury methylation. If left untreated, these areas can lead to biotic exposure to the mercury. Streambank soils are also targeted in this interim remedy

because of their potential to erode and to re-contaminate the sediment bed after the interim remedy is complete.

Impacts from the Hudson River: Evidence indicates that flood tides transport contaminated suspended solids from the Hudson River to the Creek surface water and sediment bed. One line of evidence evaluated the distribution of Aroclor 1242 as a proxy to estimate the potential areal extent of Hudson River sediment depositing within the Creek. The evaluation indicates that this solids deposition is less pronounced, and recontamination from depositing solids is less likely to occur in the upper portion of the Site. The extent of this area, and the boundary of this interim remedy, is marked by the HRL. Additional data will be collected in the future to refine the HRL and the extent of impacts from the Hudson River for PCBs and other site-related contaminants.

Depositional and Erosional Areas of the System: While some uncertainties exist in the depositional and erosional nature of all portions of the Site, the embayment and multiple shoal areas are present above the HRL. These areas are composed of deposits of finer-grained and potentially mobile sediment. Fine-grained particulates are more likely to have sorbed contaminants and to be redistributed within the system if disturbed within the Site by anthropogenic activities or a high energy episodic flow event. As a result, the embayment and shoals are considered to be depositional areas that may act as source material of THg to other areas of the Site if left untreated.

CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

Land Uses

The current land use within the identified Site boundary is predominantly characterized as recreational. NYSDEC classified the lower section of the Creek, including Wappinger Lake, as a NYSDEC Class C(T) stream, meaning its waters are best suited for primary and secondary contact recreation and fishing, and are also suitable for fish propagation and survival. The Creek is used by recreational users for activities, including swimming, kayaking, and fishing. Waterway traffic consists primarily of small watercraft boats, canoes, and kayaks. Public access is provided by the boat launch on Creek Road. Properties adjacent to the Site are zoned for a mix of residential and industrial use.

NYSDEC classified Wappinger Creek as a Class C(T) stream, meaning the Creek is an active recreational fishery that may support a trout population and is suitable for contact recreation. The Creek is also stocked with trout annually for recreational fishing. Wappinger Creek is also home to many species of fish, including largemouth bass, bluegill, pumpkinseed, red breasted sunfish, and brown bullhead.

Beyond recreation, the entirety of the Site represents a section of the Creek that is designated as a Significant Coastal Fish and Wildlife Habitat. This section of the Creek supports protected species, provides habitat for migratory and resident warmwater fisheries and wildlife species, and serves as a fish spawning, nursery, and wintering habitat. According to the United States Fish and Wildlife Service

(USFWS), the Site is located within areas that provide habitat for the endangered Indiana bat, threatened northern long-eared bat, and the monarch butterfly. Any in-creek construction will require coordination with EPA, NYSDEC, other federal partners and stakeholders around fish and habitat protection windows.

The future land use of the Site is likely to remain similar to current conditions because the nature of the associated activities is not expected to change.

Groundwater Use

Groundwater is not addressed as part of this OU because available data suggests that it is not a significant source of contamination to the Creek. The groundwater investigation within the Creek identified a limited area of contamination with no active sources of VOCs.

The residential community of New Hamburg, north of the Site and located within the Town of Poughkeepsie, is serviced by public water supply. The part of the Town of Wappinger that is adjacent to the south side of the Creek is not serviced by the Village of Wappingers Falls water department; residences in this area are serviced by private wells.

Remedy Resilience

Potential Site impacts from severe weather events have been assessed, and the performance of the remedy is not expected to be impacted because of these events. The locations most prone to flooding are in the low-lying areas by the Industrial Park section and the wetlands adjacent to the Embayment section. While increased flooding may be experienced in these portions of the Site during high tides and from increased severe rain events, the removal of source material would prevent the spread of contaminated sediment across the Site or to inland/upland areas. Flooding events are also not expected to impact future operations and monitoring activities for the Site.

SUMMARY OF SITE RISKS

As part of the RI/FS, EPA conducted a baseline risk assessment to estimate the current and future effects of contaminants on human health and the environment. A baseline risk assessment is an analysis of the potential adverse human health and ecological effects of releases of hazardous substances from a site in the absence of any actions or controls to mitigate such releases, under current and future land uses. The baseline risk assessment includes a baseline human health risk assessment (BHHRA) and a screening level ecological risk assessment (SLERA). Following results of the SLERA, a baseline ecological risk assessment (BERA) was subsequently completed at the Site to refine the evaluation of ecological risks from contaminants at the Site. The baseline risk assessments provide the basis for taking action and identify the contaminants and exposure pathways that need to be

addressed by the remedial action. This section of the ROD summarizes the results of the baseline risk assessments for the Site.

Human Health Risk Assessment

A four-step process is utilized for assessing site-related human health risks for a reasonable maximum exposure scenario:

- Hazard Identification – uses the analytical data collected to identify the chemicals of potential concern (COPCs) at the Site for each medium, with consideration of a number of factors explained below;
- Exposure Assessment - estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are potentially exposed;
- Toxicity Assessment - determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and
- Risk Characterization - summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks. The risk characterization also identifies contamination with concentrations which exceed acceptable levels, defined by the National Contingency Plan (NCP) as an excess lifetime cancer risk greater than 1×10^{-6} to 1×10^{-4} or a noncancer Hazard Index greater than 1; contaminants at these concentrations are considered COCs and are typically those that will require remediation at the Site. Also included in this section is a discussion of the uncertainties associated with these risks.

Hazard Identification

In this step, the COPCs in each medium were identified based on such factors as toxicity, frequency of occurrence, fate and transport of the contaminants in the environment, concentrations, mobility, persistence, and bioaccumulation. Analytical information that was collected to determine the nature and extent of contamination was evaluated to determine the presence of chemicals exceeding concentrations of potential concern. Based on this information, the risk assessment focused on selecting COPCs in surface water, sediment, and fish tissue which may pose significant risk to human health.

The principal COC identified is THg. A comprehensive list of all COPCs can be found in the BHHRA in the administrative record for the remedial decision. Only the COCs, or those chemicals responsible for unacceptable risks and hazards, are listed in **Table 3**. As stated earlier, the focus of the interim remedy is THg because of its widespread nature and ability to bioaccumulate in the food web.

Exposure Assessment

Consistent with Superfund policy and guidance, the BHHRA is a baseline human health risk assessment and therefore assumes no remediation has been performed and no institutional controls are in place to mitigate or remove hazardous substance releases. Cancer risks and noncancer hazard indices were calculated based on an estimate of the reasonable maximum exposure (RME) expected to occur under current and future conditions at the Site. The RME is defined as the highest exposure that is reasonably expected to occur at a site.

The Creek is used by recreational users for activities, including swimming, kayaking, and fishing. The properties adjacent to the Site are currently zoned for residential and industrial use. Several properties adjacent to the Industrial Park section are active commercial facilities. Downstream of the Industrial Park section, residential properties border the Creek. EPA anticipates that the future land use for this area will remain the same as current conditions because the nature of the associated activities is not expected to change. The BHHRA evaluated potential risks to populations associated with both current and potential future land uses.

Exposure pathways were identified for each potentially exposed population and each potential exposure scenario for surface water, sediment, and fish tissue. A summary of the exposure pathways included in the BHHRA can be found in **Table 4**. Typically, exposures are evaluated using a statistical estimate of the exposure point concentration, which is usually an upper bound estimate of the average concentration for each contaminant, but in some cases may be the maximum detected concentration. A summary of the exposure point concentrations for the COCs in each medium can be found in **Table 5**, while a comprehensive list of the exposure point concentrations for all COPCs can be found in the BHHRA.

Toxicity Assessment

In this step, the types of adverse health effects associated with contaminant exposures and the relationship between magnitude of exposure and severity of adverse health effects were determined. Potential health effects are contaminant-specific and may include the risk of developing cancer over a lifetime or other noncancer health effects, such as changes in the normal functions of organs within the body (*e.g.*, changes in the effectiveness of the immune system). Some contaminants are capable of causing both cancer and noncancer health effects.

Under current EPA guidelines, the likelihood of carcinogenic risks and noncancer hazards related to exposure to site chemicals are considered separately. Consistent with current EPA policy, it was assumed that the toxic effects of the site-related chemicals would be additive. Thus, cancer and noncancer risks associated with exposures to individual COPCs were summed to indicate the potential risks and hazards associated with mixtures of potential carcinogens and noncarcinogens, respectively.

Toxicity data for the BHHRA were provided by the Integrated Risk Information System (IRIS) database, the Provisional Peer Reviewed Toxicity Database (PPRTV), or another source that was identified as an appropriate reference for toxicity values. This information is presented in **Table 6** (noncancer toxicity data summary) and **Table 7** (cancer toxicity data summary). Additional toxicity information for all COPCs is presented in the BHHRA.

Risk Characterization

This step summarized and combined outputs of the exposure and toxicity assessments to provide a quantitative assessment of Site risks. Exposures were evaluated based on the potential risk of developing cancer and the potential for noncancer health hazards.

Noncancer risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intakes and benchmark comparison levels of intake (reference doses, reference concentrations). Reference doses (RfDs) and reference concentrations (RfCs) are estimates of daily exposure levels for humans (including sensitive individuals) which are thought to be safe over a lifetime of exposure. The estimated intake of chemicals identified in environmental media (*e.g.*, the amount of a chemical ingested from contaminated drinking water) is compared to the RfD or the RfC to derive the hazard quotient (HQ) for the contaminant in the particular medium. The HI is obtained by adding the hazard quotients for all compounds within a particular medium that impacts a particular receptor population.

The HQ for oral and dermal exposures is calculated as below. The HQ for inhalation exposures is calculated using a similar model that incorporates the RfC, rather than the RfD.

HQ = Intake/RfD

Where: HQ = hazard quotient
Intake = estimated intake for a chemical (mg/kg-day)
RfD = reference dose (mg/kg-day)

The intake and the RfD will represent the same exposure period (i.e., chronic, subchronic, or acute).

The HI is calculated by summing the HQs for all chemicals for likely exposure scenarios for a specific population. The noncancer HI is a “threshold level”, set at an HI of less than 1, below which noncancer health effects are not expected to occur. An HI greater than 1 indicates that the potential exists for noncarcinogenic health effects to occur related to site-related exposures, with the potential for health effects increasing as the HI increases. When the HI calculated for all chemicals for a specific population exceeds 1, separate HI values are then calculated for those chemicals which are known to act on the same target organ. These discrete HI values are then compared to the acceptable limit of 1 to evaluate the potential for noncancer health effects on a specific target organ. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium

or across media. A summary of the noncarcinogenic risks associated with these chemicals for each exposure pathway is contained in **Table 8**.

The noncancer HI for adult, adolescent and child anglers consuming bottom fish (channel catfish and common carp) is 52, 57 and 92, respectively, primarily attributable to BAP, Aroclor 1254, Aroclor 1260, and MeHg. The HI for adult, adolescent and child anglers consuming predatory fish (largemouth and smallmouth bass) is 25, 27 and 44, respectively, primarily attributable to BAP, Aroclor 1254, Aroclor 1260, and MeHg. Total HIs were above EPA's threshold of unity for receptors consuming fish from Wappinger Creek but not for recreational users of the creek who are only exposed to sediment and surface water.

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a carcinogen, using the cancer slope factor (SF) for oral and dermal exposures and the inhalation unit risk (IUR) for inhalation exposures. Excess lifetime cancer risk for oral and dermal exposures is calculated from the following equation, while the equation for inhalation exposures uses the IUR, rather than the SF:

Risk = LADD x SF

Where: Risk = a unitless probability (1 x 10-6) of an individual developing cancer
LADD = lifetime average daily dose averaged over 70 years (mg/kg-day)
SF = cancer slope factor, expressed as [1/(mg/kg-day)]

These risks are probabilities that are usually expressed in scientific notation (such as 1×10^{-4}). An excess lifetime cancer risk of 1×10^{-4} indicates that one additional incidence of cancer may occur in a population of 10,000 people who are exposed under the conditions identified in the assessment. Again, as stated in the National Contingency Plan, the acceptable risk range for site-related exposure is 10^{-6} to 10^{-4}.

Cancer risk results are presented in **Table 9** and indicate that for anglers and their families consuming the fillets of bottom-feeding fish, there was an unacceptable cancer risk for adults, adolescents and children (all 2×10^{-3}), primarily attributable to BAP, Aroclor 1254 and Aroclor 1260. There was also unacceptable risk for anglers consuming predatory fish (5×10^{-4}), primarily from PCB Aroclors 1254 and 1260, and arsenic.

In summary, cancer risks and noncancer hazards for recreators in direct contact with Creek surface water and sediment were all below a level of concern. However, there are unacceptable cancer risks and noncancer hazards identified for anglers and their families who consume the fillets of bottom-feeding and predatory fish. THg and MeHg were detected in all collected fish. Cancer risks are primarily attributable to BAP, PCB Aroclors 1254 and 1260 and arsenic. Noncancer hazards are primarily attributable to BAP, Aroclors 1254 and 1260, and MeHg. The noncancer hazards and cancer risks from all COPCs can be found in the BHHRA.

Ecological Risk Assessment

A four-step process is utilized for assessing site-related ecological risks for a reasonable maximum exposure scenario: Problem Formulation - a qualitative evaluation of contaminant release, migration, and fate; identification of contaminants of concern, receptors, exposure pathways, and known ecological effects of the contaminants; and selection of endpoints for further study. Exposure Assessment--a quantitative evaluation of contaminant release, migration, and fate; characterization of exposure pathways and receptors; and measurement or estimation of exposure point concentrations. Ecological Effects Assessment--literature reviews, field studies, and toxicity tests, linking contaminant concentrations to effects on ecological receptors. Risk Characterization--measurement or estimation of both current and future adverse effects.

A SLERA was conducted to evaluate the potential for ecological risks from the presence of contaminants in surface water, sediment, and biological tissue. Surface water and sediment concentrations, as well as calculated food chain exposures, were compared to ecological screening values as an indicator of the potential for adverse effects in ecological receptors. The SLERA determined that site-related COPECs in sediment, surface water, and fish tissue pose a risk (i.e., HQs exceeded 1.0 for one or more contaminants) to ecological receptors using the site. The SLERA concluded that additional ecological evaluation was warranted.

Risks estimated in the SLERA were refined in the subsequent Baseline Ecological Risk Assessment (BERA), which further evaluated potential risk to ecological receptors using more realistic exposure scenarios. Results of the BERA indicated that exposure to site-related COPECs in sediment, fish tissue, and benthic macroinvertebrate tissue pose a risk to upper trophic level ecological receptors using the Site (**Table 10**). Specifically, the BERA showed that the primary drivers of potential adverse effects were from exposure to:

- Aluminum, antimony, barium, chromium, copper, lead, and mercury in aquatic invertivorous birds (represented by the spotted sandpiper)
- Lead and mercury in piscivorous birds (represented by the great blue heron)
- Aluminum in insectivorous mammals (represented by the little brown bat)
- Aluminum and mercury in omnivorous mammals (represented by the raccoon)
- Total PCBs and mercury in piscivorous mammals (represented by the mink)

Additionally, the potential impact of site-related contaminants on the benthic invertebrate community was evaluated, and toxicity tests evaluated the impacts on survival and growth of exposure of benthic invertebrates to sediment from the Site. Results of these evaluations did not indicate any site-related factors impacting community composition or toxicity to benthic invertebrates. A complete summary of all exposure scenarios can be found in the BERA. Based on the results of the ecological risk assessment, mercury is the primary driver of risk, and remedial action is necessary to protect ecological receptors and the environment from actual or threatened releases of hazardous substances.

Uncertainties

The procedures and inputs used to assess risks in these evaluations, as in all such assessments, are subject to a wide variety of uncertainties. Risk assessment in general involves conservative assumptions and scenarios in order to be protective of sensitive populations. These uncertainties arise from various stages of the risk assessment process. The key uncertainties in the OU1 BHHRA include:

1. **Environmental data** – Uncertainty is often associated with the estimation of chemical concentrations. Errors in the analytical data may stem from errors inherent in sampling and/or laboratory procedures. The quality control review procedure helped to eliminate many laboratory errors.

   Samples were collected from known and suspected areas of contamination (biased sampling) to delineate the nature and extent of contamination. Although this sampling methodology provided a reasonable estimation of the level of confidence at known or suspected contaminated areas potentially impacted by the site, the possibility exists that the data sets formed by these samples do not accurately represent the level of overall contamination. The large number of samples for sediment, surface water, and bottom fish fillets reduces uncertainty in risk estimates for these media. Only two predatory fish fillet samples were available from the creek so there is more uncertainty associated with risk estimates for this category of fish.

2. **Exposure Parameter Estimation** – Uncertainties also arise in the estimation of exposure parameters. The calculation of Exposure Point Concentrations is based on the 95% or higher UCL of the mean concentrations over an exposure unit, and the use of maximum-detected concentrations in areas with fewer samples. There were only two predatory fish tissue samples from the Creek. The limited number of samples resulted in use of the maximum-detected concentrations as EPCs for all COPCs in the risk calculations for this medium. Use of maximum concentrations may overestimate long-term exposures.

3. **Toxicological data –** The derivation of toxicity values introduces uncertainty. Toxicity values, including RfDs and SFs, are often extrapolated from animal data to humans using uncertainty factors. This process may overestimate differences between species and among humans, as these factors are designed to be protective. Toxicity values are often based on observed dose-response relationships when the chemical is dissolved in water or is in some other readily soluble form. However, additional chemicals in sediment may exist in forms that are not readily absorbed. In this risk assessment, intakes from metals other than arsenic and organics (such as PCBs from sediment) were not adjusted for relative bioavailability, which may have overestimated risks.

4. **Risk characterization** – Risk characterization involves uncertainties related to chemical mixtures. The assessment assumes additive effects of chemical mixtures, which may underestimate or overestimate actual risks because of potential interactions between

chemicals. Summing excess lifetime cancer risks and calculating HIs for noncancer effects provides a conservative estimate, though interactions among chemicals remain uncertain.

Sources of uncertainties in the BERA process are discussed below, as well as whether the assumptions used are likely to over- or underestimate ecological risks from COPECs at the site. In general, because the BERA used conservative assumptions, risks are likely overestimated. The main sources of uncertainty include natural variability, error, and insufficient knowledge. Four key uncertainties include:

1. **Natural variability**—An inherent characteristic of ecological systems, their stressors, and their combined behavior in the environment. Biotic and abiotic parameters in these systems may vary to such a degree that the exposure and response of similar assessment endpoints in the same system may differ temporally and spatially. Factors that contribute to temporal and spatial variability include differences in individual organism behavior (within and between species), changes in weather or ambient temperature, unanticipated interference from other stressors, interactions with other species in the community, differences between microenvironments, and numerous other factors.
2. **Problem formulation**—The conceptual site model identifies pathways for contaminant exposure, but certain pathways, like inhalation, were not quantitatively evaluated, which may result in underestimating potential risk. Surrogate receptors were used to represent species groups, assuming they remain within contaminated areas.
3. **Exposure Assessment**—Simplifications in exposure assessments, including the characterization of exposure point concentrations, chemical distributions, and assumptions about bioavailability introduce uncertainty.
4. **Effects Assessment and Risk Characterization**—Uncertainties in effects assessment stem from the use of literature-derived data, which may vary as a result of differences in test protocols and conditions. Additionally, risk characterization relies on single values for exposure and effects concentrations, which can introduce uncertainty. Simplifying assumptions in food chain models also contribute to uncertainty. Finally, use of Wappinger Lake as a reference location for risk comparison has inherent uncertainty as the two water bodies, while linked, are not identical in habitat and water flow regimes.

More specific information concerning public health risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the BHHRA and BERA reports.

Basis for Taking Action

Actual or threatened releases of hazardous substances from OU1, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to the public health, welfare, or the environment.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are media-specific goals to protect human health and the environment; they specify the COCs, the exposure route(s), receptor(s), and acceptable contaminant level(s) for each exposure route. These objectives are based on available information and standards such as applicable or relevant and appropriate requirements (ARARs), to-be-considered (TBC) advisories, criteria and guidance, and site-specific risk-based levels and background (i.e., reference area) concentrations.

The following interim RAOs were established for OU1:

1. Control contaminated sediment that is a source of unacceptable human health risks from ingestion of contaminated fish by addressing THg at levels above the remedial action level (RAL) in sediment and streambank soils at locations upstream or above the HRL.
2. Control contaminated sediment that is a source of unacceptable ecological risk (via direct contact, ingestion, or uptake into the food chain) by addressing THg at levels above the RAL in sediment and streambank soils at locations upstream or above the HRL.
3. Control contaminated sediment that is a source to Wappinger Creek and could migrate to downstream environmental media by addressing THg at levels above the RAL in sediment and streambank soils located upstream or above the HRL.

Remediation Goals

Since this is an interim remedy with the objectives of THg source control and migration reduction, the remedial action is not intended to achieve acceptable risk levels for human and ecological exposures. Thus, an interim cleanup level, or a RAL, for THg was established that is consistent with the objectives of the interim remedy. The RAL defines the condition when remedial action is warranted owing to THg contamination in sediment and streambank soils; THg concentrations above the RAL in sediment and streambank soils will be remediated. RALs are commonly used at sediment sites to develop remedial alternatives and delineate areas exceeding a defined concentration threshold. They are utilized for source reduction remedies prior to final risk-based preliminary remediation goals being developed for the site.

To achieve the RAOs, EPA has identified a RAL of 1.1 mg/kg for THg to define source materials that require remediation. The RAL of 1.1 mg/kg was derived as a multiple of a risk-based level developed using background information from Wappinger Lake. This level is intended to identify the most significant sources of THg that could be targeted as part of an interim remedy to reduce risk to human and ecological receptors. It is also anticipated that it would reduce migration concerns within sediment and to other environmental media. Additionally, the RAL of 1.1 mg/kg is consistent with the NYSDEC "Technical Guidance for Screening Sediment and Assessment of Contaminated Sediment," which defines sediment concentrations above 1 mg/kg for mercury as being "highly contaminated and likely to pose a risk to aquatic life."[3]

The practical outcome of applying the RAL approach to this site is that a large mass of material that is acting as a continuing source to the rest of the Site will be addressed. In addition, given the widespread presence of THg, addressing THg above the RAL is also expected to address other site-related contaminants. Streambank soils above the RAL will also be remediated so they do not serve as an ongoing source to sediment and to reduce the potential for recontamination of remediated sediment. However, it should be noted that this RAL is not a final remediation goal for Site sediment or streambank soils. A subsequent or final remedy will identify the final remediation goals for site-related contamination in sediment and streambank soil, along with other Site media, for the entire length of the Site. Additional discussion of how the RAL was developed can be found in the FFS Report.

SUMMARY OF REMEDIAL ALTERNATIVES

CERCLA Section 121 requires that a remedial action be protective of human health and the environment, cost effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) establishes a preference for remedial actions which employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants and contaminants at a site. CERCLA Section 121(d), 42 U.S.C. §9621(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants, which at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA Section 121(d)(4), 42 U.S.C. §9621(d)(4).

Potential technologies applicable to sediment and streambank soil remediation were identified and screened using the effectiveness, implementability, and cost criteria, with emphasis on effectiveness. Those technologies that passed the initial screening were assembled into alternatives.

This ROD evaluates in detail four remedial alternatives for addressing the contamination associated with the Site. The time to implement a remedial alternative reflects only the time required to construct

3 https://extapps.dec.ny.gov/docs/fish_marine_pdf/screenasssedfin.pdf

or implement the remedy and does not include the time required to negotiate with any responsible parties, design the remedy, procure contracts for design and construction, or conduct operation and maintenance at the Site. Detailed information regarding the alternatives can be found in the FFS Report.

Description of Common Elements of All Alternatives

With the exception of the No Action alternative (Alternative 1), all of the alternatives include the following common components:

***Dredging**:* Each of the active remedial alternatives includes various amounts of dredging that will reduce the volume of contaminated sediment in the Creek. Dredging of sediment could be implemented through various methods, including mechanical dredging methods, *e.g.*, barge-mounted excavators. The exact methodology for dredging and in-water transport of contaminated sediment would be further evaluated and determined in the future during the remedial design (RD).

Excavation of Streambank Soils: Each of the active remedial alternatives includes excavation of streambank soils that will reduce their volume in the Creek. Based on currently available data, excavation depths are specified to a maximum depth of 0.5 feet, with an estimate of 10% of the streambank length and a width of 50 feet for each alternative. The estimated volume of streambank soils to be excavated across all alternatives is 1,900 bank cubic yards. The remedial extent of streambank soils was developed using the 100-year floodplain in the vicinity of the remedial areas as a guide. The exact boundaries will be refined with additional sampling as part of the pre-design investigation (PDI).

Capping: Alternatives 2 and 3 include placement of reactive caps to control the migration of THg and prevent methylation of THg into MeHg. Alternative 4 includes the placement of backfill materials without the use of a reactive cap as sediments are dredged to below the RAL under this alternative. Once streambank soils are excavated, only backfill will be needed since there is less potential for underlying contamination (if it remains) to migrate upward to the soil surface; however, the need for reactive caps or soil cover for the streambank soils will be evaluated during PDI and RD. Operation and maintenance (O&M) of the caps, as described in the alternatives below, would be needed.

Sediment and Streambank Soil Management, Treatment, and Disposal: Each active alternative includes the management, treatment, and disposal of removed materials. Dredged sediment and excavated streambank soils will be off-loaded and managed in an area near the Creek. After removal, dewatering will be required to reduce the amount of water and prepare the contaminated materials for transport and treatment or disposal. Wastewater generated during the dewatering process would require treatment prior to discharge to Wappinger Creek. The water from the dewatering process will be pumped through an on-site temporary water system prior to discharge. It is expected that treated water would meet discharge standards. Details regarding the dewatering process and wastewater treatment requirements would be further developed as part of the RD.

Following the dewatering process, sediment and streambank soils would be transported off-site and disposed of at a facility approved for receiving such contaminated materials. The approved facilities must be in compliance with EPA's Off-Site Rule, as established in the NCP. The type and location of the disposal facility will depend on the nature and concentrations of the waste materials. The disposal options being considered include both Subtitle C and D landfills. This could be a hazardous waste landfill, municipal solid waste landfill, construction and demolition debris landfill or industrial non-hazardous waste landfill, depending on the results of waste characterization during remedial action.

Restoration of Remediated Areas: Each of the active alternatives will require restoration of streambank soils after the remedial action is completed. The excavated areas would be backfilled with clean material and restored to their original grade. Additional data may be collected to support vegetative restoration of remediated areas.

All remedial alternatives would most likely disturb contaminated sediments in wetland areas. A field delineation of the wetlands will need to be performed to determine the extent of actual wetland areas and types. Additional data collection may also be necessary to support habitat reconstruction of remediated areas. Disturbance during remediation is considered temporary, and no permanent wetland loss is anticipated. Each of the alternatives will include wetland mitigation in an area equivalent to the area of wetland disturbed by the remedial action, ensuring there would be no net change in overall acreage of wetlands. If reduction of wetlands is unavoidable, a third-party compensatory mitigation option would be considered to the extent necessary to meet ARARs.

Evaluation Monitoring: An evaluation monitoring program will be developed that includes baseline monitoring, construction-phase monitoring, and long-term monitoring. This program will assess the performance of the remedy, whether the RAOs have been achieved, O&M needs, the impact from ongoing sources post-implementation and the potential for natural recovery in the system. Sampling will include biotic (*e.g.*, fish tissue) and abiotic (*e.g.*, sediment, soil, surface water, porewater) media. Results will be used to support future decisions for the anticipated final remedy.

Pre-Design Investigation: A robust PDI will be conducted to fill in the data gaps and collect necessary information for the RD. The data gaps include, but may not be limited to, potential upland sources that could re-contaminate Creek sediment; refinement of lateral and vertical extent for remediation; assessing multiple lines of evidence to determine the extent of Hudson River impacts; a second bathymetric survey to support analysis of net deposition and erosion areas; and full characterization of all the potential mercury methylation pathways. The PDI will also collect the information necessary for wetland delineation and habitat reconstruction activities following remedial action.

Institutional Controls: Because contaminated materials that do not allow for unlimited use and exposure will remain onsite below the HRL, institutional controls (ICs) would be developed to protect the receptors to the Creek. ICs would involve administrative and legal measures, *i.e.*, legal controls, and/or informational measures, *e.g.*, risk communication programs, intended to inform activities within the Creek that could pose unacceptable risks to human health and the environment. EPA will

work with local and state authorities to implement ICs, which could include notification programs to inform the community of the New York State Department of Health (NYSDOH) Hudson River & Tributary fish advisory already in place for the Creek, and/or other environmental and health advisories. The existing fish advisory may also be updated, or a waterbody-specific fish advisory for the Creek may be enacted. For areas where caps are implemented, waterway use restrictions, signage, or regulated navigation and land use restrictions would likely be implemented pursuant to ICs to prevent damage to the cap, *e.g.*, no boat anchoring. The specific categories and types of IC instruments to be used would be determined during the RD phase of the project.

Five-year reviews will be conducted as a component of the alternatives that would leave contamination in place above levels that allow for unlimited use and unrestricted exposure. A review of the remedial action, pursuant to CERCLA Section 121(c), is conducted every five years after the commencement of remedial action to ensure that the remedy continues to provide adequate protection to human health and the environment because this remedy results in hazardous substances remaining on-site above health-based levels that allow for unlimited use and unrestricted exposure.

Description of Remedial Alternatives

Alternative 1: No Action

Capital Cost:	$0
Annual O&M Costs:	$0
Present-Worth Cost:	$0
Construction Time:	0 years
Estimated time to reach RAOs:	Not applicable

Alternative 1, the “No Action” alternative, is required by the NCP to provide an environmental baseline against which impacts of the other remedial alternatives can be compared. No action would be initiated to remediate contaminated media or otherwise mitigate the migration of contamination that poses unacceptable risks to human health and the environment. This alternative also does not include monitoring or institutional controls.

Alternative 2: Dredge to Depth of One Foot; Capping of Underlying Contamination

Capital Cost:	$68,281,000
Annual O&M Cost:	$828,000
Present-Worth Cost:	$77,298,000 (includes 20 years of O&M)
Implementation or Construction Time:	12 months (spread over 2 years)
Estimated time to reach RAOs:	2 years

Alternative 2 focuses on targeted removal and in-place containment of contaminated sediment and streambank soils in conjunction with ICs, access controls, and monitoring. This alternative would remove a significant amount of THg mass in sediment followed by placement of an amended cap to reduce/eliminate exposure of benthic organisms to THg contamination. The estimated volume of sediment dredged under this alternative is 35,800 bank cubic yards (BCY).

Alternative 2 would consist of removing levels of THg greater than the RAL of 1.1 mg/kg in surface sediment within the remedy footprint to a depth of 1 foot. In addition to the 1-foot dredge, an over-dredge thickness of 6 inches (*i.e.*, 1.5 feet total depth) is estimated based on Site conditions and cap constructability assumptions and will be refined during RD. There may be instances where the over-dredge depth will be more or less than 6 inches.

Following dredging, a reactive cap (*e.g.*, sand and activated carbon) would be needed to provide a physical barrier to contain the THg contamination from migrating from deeper sediment to the post-remedy surface sediment. Once bound to the activated carbon, contaminants are effectively isolated, reducing their bioavailability and associated risks. EPA expects that the total thickness of the cap will match the depth of dredge to ensure that the post-remediation sediment surface does not exceed the pre-existing bathymetric surface. A suitable habitat layer will be placed above the reactive cap to create conditions for the re-establishment of natural conditions in the Creek. An erosion protection layer to maintain the stability of the cap surface may also be required.

O&M activities will be necessary to ensure that the alternative is functioning as intended and protective of human health and the environment. Anticipated activities include periodic inspections of the reactive cap, bathymetric surveys to evaluation the condition of the reactive cap, and sampling to support post-construction monitoring. Under this alternative, the use of a reactive cap would require an indefinite duration of O&M. However, the present worth cost of O&M for this alternative is based on a 20-year estimate. It is expected that after this period, results of 5-year reviews for the interim remedy components would inform final remedy decisions that integrate these components.

Alternative 3: Dredge to Depth of Two Feet Maximum; Capping of Underlying Contamination

Capital Cost:	$89,568,000
Annual O&M Cost:	$816,000
Present-Worth Cost:	$98,472,000 (includes 20 years of O&M)
Implementation or Construction Time:	14 months (spread over 2 years)
Estimated time to reach RAOs:	2 years

Alternative 3 focuses on removal and in-place containment of contaminated sediment and streambank soils in conjunction with ICs, access controls, and monitoring. This alternative removes more THg mass in the sediment than Alternative 2. Similar to the previous alternative, Alternative 3 includes the placement of a reactive cap to reduce/eliminate exposure of benthic organisms to THg contamination. The estimated volume of sediment to be dredged under this alternative is 44,600 BCY.

Alternative 3 would consist of removing levels of THg greater than the RAL of 1.1 mg/kg to a depth of 2 feet within select portions of the proposed remedy footprint, and to a removal depth of 1 foot in the remainder of the proposed remedy footprint. The targeted depth of removal is based on the depth of the RAL exceedance. If the concentration of THg exceeds the RAL between at a depth of 1 to 2 feet, then that location will be dredged to 2 feet. In areas where dredging is limited to 1 foot, an additional over-dredge thickness of 6 inches (*i.e.*, 1.5 feet total depth) is estimated based on Site conditions and cap constructability assumptions and will be refined during RD. There may be instances where the over-dredge depth is more or less than 6 inches.

Following dredging, a reactive cap (*e.g.*, sand and activated carbon) would be needed to provide a physical barrier to contain the THg contamination from migrating from deeper sediment to the post-remedy surface sediment. Once bound to the activated carbon, contaminants are effectively isolated, reducing their bioavailability and associated risks. EPA expects that the total thickness of the cap will match the depth of dredge to ensure that the post-remediation sediment surface does not exceed the pre-existing bathymetric surface. A suitable habitat layer will be placed above the reactive cap to create conditions for the re-establishment of natural conditions in the Creek. An erosion protection layer to maintain the stability of the cap surface may also be required.

O&M activities will be necessary to ensure that the alternative is functioning as intended and protective of human health and the environment. Anticipated activities include periodic inspections of the reactive cap, bathymetric surveys to evaluate the condition of the reactive cap, and sampling to support post-construction performance monitoring. Under this alternative, the use of a reactive cap would require an indefinite duration of O&M. However, the present worth cost of O&M for this alternative is based on a 20-year estimate. It is expected that after this period, results of 5-year reviews for the interim remedy components would inform final remedy decisions that integrate these components.

Alternative 4: Dredge to Remove Any RAL Exceedance; Backfill to Grade in the Dredge Footprint

Capital Cost:	$83,072,000
Annual O&M Cost:	$464,000
Present-Worth Cost:	$88,098,000 (includes 20 years of O&M)
Implementation or Construction Time:	19 months (spread over 3 years)
Estimated time to reach RAOs:	3 years

Alternative 4 primarily focuses on removal of contaminated sediment and streambank soils, followed by the associated backfill in conjunction with ICs, access controls, and monitoring. This alternative removes the greatest amount of THg mass by removing all RAL exceedances of 1.1 mg/kg. Containment and treatment are not the focus of this alternative, and this alternative will not require a reactive cap. The estimated volume of sediment to be dredged under this alternative is 60,200 BCY.

Under this alternative, all sediment and streambank soils with THg concentrations exceeding the RAL of 1.1 mg/kg will be dredged. Based on contaminant levels, dredge depths for this alternative will vary between 1 foot to 5.5 feet.

For Alternative 4, a clean backfill layer (*e.g.*, sand) will be placed with a suitable habitat layer to create conditions for the re-establishment of natural conditions in the Creek. The total thickness of these layers will match the depth of dredge to ensure that the post-remediation sediment surface matches the pre-existing bathymetric surface. Since this alternative does not include a reactive cap, O&M activities would be limited to periodic Site inspections and post-construction performance monitoring to evaluate the effectiveness of the remedial action.

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting a remedy, EPA considered the factors set out in CERCLA Section 121, 42 U.S.C. §9621, conducting a detailed analysis of the viable remedial alternatives, pursuant to the NCP, 40 CFR §300.430(e)(9), EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (OSWER Directive 9355.3-01) and EPA's A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents, OSWER 9200.1-23.P. The detailed analysis consisted of an assessment of the individual alternatives against each of nine evaluation criteria and a comparative analysis focusing upon the relative performance of each alternative against those criteria.

The first two criteria are known as "Threshold" criteria because they are the minimum requirements that each response measure must meet in order to be eligible for selection as a remedy:

1. *Overall protection of human health and the environment* addresses whether a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, and/or institutional controls.
2. *Compliance with ARARs* addresses whether a remedy would meet all of the applicable (legally enforceable), or relevant and appropriate (requirements that pertain to situations sufficiently similar to those encountered at a Superfund site such that their use is well suited to the site) requirements of federal and state environmental statutes and requirements or provide grounds for invoking a waiver. Other federal or state advisories, criteria, or guidance may be identified by EPA as "to be considered," or "TBCs." While TBCs are not required to be adhered to under the NCP, they may be useful in determining what is protective or how to carry out certain actions or requirements.

The following "Primary Balancing" criteria are used to make comparisons and to identify the major trade-offs between alternatives:

3. *Long-term effectiveness and permanence* refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met. It also addresses the magnitude, effectiveness and reliability of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.
4. *Reduction of toxicity, mobility, or volume via treatment* refers to a remedial technology's expected ability to reduce the toxicity, mobility, or volume of hazardous substances, pollutants or contaminants at the site through treatment.
5. *Short-term effectiveness* addresses the period needed to achieve protection and any adverse impacts on human health and the environment that may be posed to workers, the community, and the environment during the construction and implementation periods until cleanup goals are achieved.
6. *Implementability* refers to the technical and administrative feasibility of a remedy, from design through construction and operation, including the availability of materials and services needed, the administrative feasibility, and coordination with other governmental entities.
7. *Cost* includes estimated capital and O&M costs, and the net present-worth costs calculated using a 7% discount rate per current EPA guidance.

The following "Modifying" criteria are considered after the formal public comment period on the Proposed Plan is complete:

8. *State acceptance* indicates whether, based on its review of the RI/FS and the Proposed Plan, the State supports, opposes, and/or has identified any reservations with the remedy.
9. *Community acceptance* refers to the public's general response to the proposed alternative and the other alternatives described in the Proposed Plan and the RI/FS reports. Factors of community acceptance to be discussed include support, reservation, and opposition by the community.

A comparative analysis of the remedial alternatives based upon the evaluation criteria noted above follows.

<u>Overall Protection of Human Health and the Environment</u>

Alternative 1 (No Action) is not protective of human health and the environment because it does not eliminate, reduce, or control risk of exposure to contaminated sediment. Alternatives 2, 3, and 4 were given a rating of adequate. Since this is an interim remedy, the alternatives presented are not required to reach protective levels for human health and the environment until a final remedy is selected. However, they are considered to be adequate exposure and migration control in the short term.

Alternatives 2, 3, and 4 each include removal of contaminated sediment but vary in the depths of sediment removal. By reducing concentrations of THg, these alternatives would reduce contributions to human exposure that would otherwise occur through ingestion of contaminated fish from recreational fishing as well as ecological exposure (through dietary exposure and direct contact) with contaminated sediment. In addition, all three of these alternatives would reduce migration of mercury from sediment in the upstream portion of the site to downstream media (sediment, streambank soils, and surface water) through reactive capping of areas above the RAL following targeted removal for Alternatives 2 and 3, or the removal of all sediments above the RAL in Alternative 4.

Compliance with ARARs

Under CERCLA, remedial actions must comply with all applicable federal and state environmental requirements, standards, criteria, and limitations, unless such ARARs are waived under certain specific conditions. Because the remedy for OU1 is an interim remedy, identification of final ARARs is not necessary at this time. It is nonetheless expected that each of the active alternatives could be designed in such a way that it attains location- and action-specific ARARs and TBC advisories, criteria, and guidance. Chemical-specific ARARs would be addressed through the process of selecting the eventual, final remedy for OU2 and thus have not been identified for this interim remedy.

Under Alternative 1 (No Action), contaminants would continue to be left in the Creek sediment. This Alternative would not be protective of human health and the environment because it does not prevent exposure to or reduce contamination. No action-specific or location-specific ARARs would be triggered because no action would be taken, therefore, ARARs would not be attained

Alternatives 2, 3, and 4 are expected to comply with location- and action-specific ARARs for water quality monitoring during excavation of sediment and wastewater discharges resulting from sediment dewatering. Erosion and sediment controls would be implemented to protect water quality and maintain a stable Creek system, thus complying with New York State Environmental Conservation Law and Clean Water Act discharge limitations. Compliance with the New York Solid Waste and Hazardous Waste Management regulations, as well as the federal Resource Conservation and Recovery Act and Toxic Substances Control Act requirements will be maintained through characterization of sampling and proper management of removed materials. Wastewater discharges from dewatering activities to surface water and coastal zones would be conducted in compliance with Clean Water Act and New York's SPDES requirements.

Alternatives 2, 3, and 4 may also impact water bodies, essential fish habitats, wetlands, floodplains, and other sensitive areas that are part of the Site. These alternatives may affect endangered species, migratory birds, and archaeological resources. Consultations with federal agencies, NYSDEC, and other state agencies such as the State Historic Preservation Office would be conducted to identify the substantive requirements of these requirements to protect these resources, and steps would be taken to implement measures that ensure compliance with the pertinent ARARs and TBCs.

There are currently no federal or state promulgated chemical-specific ARARs for sediment. There are, however, other federal or state advisories, criteria, or guidance. Any final remedy considered by EPA must comply with all federal and state environmental standards, requirements, criteria, or limitations unless they are waived under certain specific conditions. Compliance with federal water quality criteria, state water quality standards, and soil cleanup objectives are expected to be achieved with the final remedy for OU2.

Long-Term Effectiveness and Permanence

Alternative 1 would not provide long-term effectiveness and permanence, as no remedial activities would be conducted. In addition, no controls would be put in place to limit exposure of human or ecological receptors to unacceptable risks, and contaminants could continue to migrate within the upper portion of the Site and to downstream media.

Alternatives 2 and 3 would provide long-term effectiveness and permanence through a similar combination of targeted removal and off-site disposal, containment, ICs, monitoring, and access controls. These alternatives rely on in-place containment, through reactive capping, to manage residual contamination by reducing the mass of mercury in the system available to receptors, thereby reducing human health and ecological exposures. The effectiveness of the ICs is dependent on the legal and administrative enforcement of these controls, and EPA will work with state and local authorities to ensure these controls are in place and enforced.

For Alternatives 2 and 3, long-term effectiveness and permanence would be highly dependent on the integrity and design life of the cap, periodic inspections, post-construction monitoring and maintenance, and enforcement of ICs to ensure adequate protection in the interim until a final remedy for the Site is selected. If the engineered caps were compromised, contaminated sediment left in place could pose a risk of exposure or migration. Alternative 3 is expected to offer greater long-term effectiveness and permanence than Alternative 2 because of several factors, including the following: (a) additional source removal through deeper excavation of contaminated sediment, (b) reducing the volume of material requiring long-term containment, (c) reduction in the long-term flux of THg, and (d) provision of a thicker physical barrier to erosive forces potentially exposing underlying contaminated sediment. As a result, Alternative 3 is subject to fewer long-term concerns related to potential breach of containment than Alternative 2.

Alternative 4 would provide the highest long-term effectiveness and permanence among the alternatives evaluated, as it would involve removal of all contaminated sediment and streambank soils in exceedance of the THg RAL and off-site disposal at a permitted facility. By eliminating the need for long-term containment and minimizing residual risk, Alternative 4 offers the most reliable long-term protection.

Based on the considerations above, Alternative 1 is the least satisfactory for long-term effectiveness and permanence. Alternative 2 is rated moderate, Alternative 3 is rated moderate to high, and Alternative 4 is rated high for long-term effectiveness and permanence.

Reduction in Toxicity, Mobility, or Volume via Treatment

For Alternative 1, only natural recovery processes would potentially reduce contaminant concentrations in sediment and surface water because it does not include any affirmative remedial activities. Under this alternative, there would be no reduction of toxicity, mobility, or volume through treatment.

Alternatives 2 through 4 would partially meet the statutory preference for treatment as a principal element of the remedial alternative. These alternatives involve ex-situ treatment of dredged sediment and streambank soils using stabilization amendments to facilitate transportation for off-site disposal. Dewatering liquids would be treated on-site, with contaminants captured in media such as granular activated carbon, which would be regenerated (a form of treatment) or disposed of (with treatment as needed to meet disposal facility requirements). In addition to the ex-situ treatment of dredged sediment, sediment exceeding the RAL that remains in place for Alternatives 2 and 3 following the targeted removal would be managed with a reactive cap. While the reactive cap would not directly treat underlying contaminated sediment, it would employ passive treatment to any aqueous media that may contain dissolved phase contamination moving through the cap layers.

Alternative 2 would provide a moderate reduction in toxicity, mobility, or volume through treatment. The shallow depth of dredging and smaller volume of treated sediment reduces the overall treatment volume and long-term contaminant reduction potential. Alternatives 3 and 4 would provide a moderate to high reduction in toxicity, mobility, or volume through treatment. Alternative 3 involves a smaller quantity of dredged sediment and streambank soils that would be treated to facilitate off-site disposal than Alternative 4. However, Alternative 3 does include the addition of a reactive cap to passively treat potential dissolved contaminants in porewater, enhancing long-term contaminant mobility reduction through treatment. Under Alternative 4, the combination of dredging to remove all RAL exceedances, a large volume of treated sediment, and treatment of dewatering liquids is expected to result in significant reductions in toxicity and mobility through treatment.

Short-Term Effectiveness

Alternative 1 would cause the fewest short-term impacts, as no remedial activities would be conducted. Because no construction activities would occur, there would be no short-term risks to workers, the community, or the environment associated with this alternative. Alternatives 2 through 4 would involve construction activities and dredging of contaminated sediment and streambank soils, resulting in temporary impacts to the community, workers, and the surrounding environment. Alternatives 2 and 3 are estimated to take approximately two years to complete, and Alternative 4 is

expected to take approximately three years because of the larger volume of sediment to be removed and backfilled.

Community impacts for Alternatives 2 through 4 include increased traffic, potential nuisance odors and noise, dust generation, and temporary restricted use of the Creek. These impacts would be most significant under Alternative 4 because of the higher volume of sediment and streambank soils excavation and material transport. Careful selection of haul routes, time-of-day restrictions, signage, and flaggers would help mitigate traffic-related safety hazards. Additional mitigation measures would include dust suppression, perimeter air monitoring, and restricting work hours to reduce community disruption.

Risks to workers would be present owing to the need to excavate, handle, and manage contaminated sediment and streambank soils. Alternative 2 would have the lowest risk to workers because it has the shallowest excavation depth. Alternative 3 would increase risk slightly with deeper excavation, while Alternative 4 would pose the greatest risk owing to the full excavation of contaminated sediment. Proper work procedures would be established and implemented to protect workers. Adherence to appropriate health and safety plans and Site management protocols would be required to mitigate risks. Safety measures may include dust suppression, use of personal protective equipment, and establishment of work zones would protect workers during remedy implementation.

Short-term environmental impacts are expected for Alternatives 2 through 4 because of in-water dredging and disturbance of contaminated sediment and streambank soils. These impacts include increased turbidity, resuspension of contaminated material, temporary habitat loss, and impacts on aquatic species. Alternative 4 would have the greatest environmental impact as it involves the most extensive dredging and backfill.

Based on these considerations, Alternatives 2 and 3 are rated moderate for short-term effectiveness owing to lower extent of excavation and disruption, and shorter implementation time. Alternative 4 is rated low to moderate owing to the highest level of construction activity and associated impacts on the community, workers, and environment.

Implementability

There are no implementability issues for Alternative 1 because it does not involve active remediation.

Alternatives 2, 3, and 4 involve dredging and in-place containment of contaminated sediment and streambank soils in the Creek using well-established technologies. Construction of reactive caps (Alternatives 2 and 3) and backfilling (Alternative 4) are relatively straightforward activities. However, each of these alternatives face similar site-specific technical challenges. These include restricted access for dredging equipment owing to shallow water depths, tidal conditions, fixed bridges with limited clearance, and overhead utilities. Equipment mobilization is complicated by the absence of waterway access from the Hudson River, requiring all machinery to be trucked in and launched via limited

shoreline entry points. A temporary water treatment system may be required for treatment and discharge of wastewater collected from dewatering processes. Staging/processing area(s) would be required to facilitate dewatering and loading for off-site transportation and disposal. Finding suitable staging areas would be challenging given the limited space available near the Site.

Alternatives 2, 3, and 4 would also require coordination with multiple regulatory agencies. Coordination with NYSDEC would be needed for dredging within Federal Emergency Management Agency-designated floodways and for disturbance to wetlands. Coordination with the State Historic Preservation Office would be required for any cultural resource surveys, and the United States Fish and Wildlife Service or state agency for threatened and endangered species would also be required. Approvals and permitting for off-site transportation of dredged material must be secured through the New York State Department of Transportation, with possible involvement from other state and local agencies. ICs would need to be developed and coordinated with relevant regulatory entities. Additionally, approval from permitted facilities meeting EPA's Off-Site rule would be required for the acceptance of contaminated sediment, including hazardous waste where applicable. EPA will continue to work with the National Oceanic and Atmospheric Administration as appropriate during remedy implementation.

Based on these considerations, Alternatives 2 and 3 have a rating of moderate and Alternative 4 has a rating of low to moderate for implementability owing to increased complexity from the more extensive dredging.

Cost

Cost includes estimated capital and O&M costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent. This is a standard assumption in accordance with EPA guidance.

The estimated capital, O&M, periodic, and present worth costs are presented in the table below and discussed in further detail in the FFS Report. The costs were calculated assuming a 7% discount rate over a period of 20 years. Alternative 1 has no cost because no activities are implemented.

Alternative	**Capital Cost**	**Annual O&M Costs**	**Periodic Cost***	**Present Worth Cost**
Alternative 1 – No Action	$0	$0	$0	$0
Alternative 2 – Dredge to Depth of 1 Foot; Capping of Underlying Contamination	$68,281,000	$828,000	$532,000	$77,298,000
Alternative 3 – Dredge to Depth of 2 Feet; Capping of Underlying Contamination	$89,568,000	$816,000	$564,000	$98,472,000
Alternative 4 – Dredge to Remove Any RAL Exceedance; Backfill to Grade	$83,072,000	$464,000	$240,000	$88,098,000

*Periodic costs are assumed to occur every 5 years.

State Acceptance

NYSDEC concurs with EPA's selected alternative. A letter of concurrence is provided in **Appendix IV**.

Community Acceptance

Community acceptance considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

EPA solicited input from the community on the remedial alternatives. The Proposed Plan was released for public comment on July 23, 2026 and accepted comments through September 21, 2026. Oral comments were recorded from attendees during the July 30, 2026 public meeting. Comments received during the public comment period indicate that the public generally supports the selected remedy. The Responsiveness Summary located in **Appendix V** addresses all comments received during the public comment period.

PRINCIPAL THREAT WASTE

The NCP establishes an expectation that the EPA will use treatment to address the principal threats posed by a site whenever practicable (NCP Section 300.430(a)(1)(iii)(A)). The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for the migration of contamination to groundwater, surface water, or air, or acts as a source for direct exposure. Principal threat wastes are source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment in the event that exposure should occur. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of alternatives, using the remedy selection criteria described above. The manner in which principal threat wastes are addressed provides a basis for making a statutory finding that the remedy employs treatment as a principal element.

Site records indicate that mercuric chloride and other similar mercuric salts were used during historical operations along the Creek. Sediment contaminated with mercury acts as a potential reservoir of ongoing contaminant migration and direct exposure to ecological receptors. However, the mercury that is present at the Site is not in its elemental form, which would be considered highly mobile source material. There is no evidence of the import, handling, or conversion of elemental mercury, and the results during the RI revealed no observations of elemental droplets and no vapor detections during coring or air screening. Thus, Site sediment contaminated with mercury is not considered to be principal threat waste.

SELECTED REMEDY

Based upon considerations of the results of the RI/FS, the requirements of CERCLA, the detailed analyses of the response measures and public comments, EPA has determined that Alternative 4, *Dredge to Remove Any RAL Exceedance; Backfill to Grade in the Dredge Footprint*, is the appropriate remedy for the Site OU1, because it best satisfies the requirements of CERCLA Section 121, 42 U.S.C. §9621, and the NCP's nine evaluation criteria for remedial alternatives, 40 CFR §300.430(e)(9).

Description of the Selected Remedy

The major components of the selected remedy are as follows:

- Dredging of contaminated sediment and excavation of streambank soils that exceed the RAL of 1.1 mg/kg for THg, followed by placement of clean backfill;
- Management, treatment, and disposal of removed materials;
- Restoration of remediated areas;
- Implementation of monitoring programs, which include baseline, construction-phase, and long-term monitoring, to establish initial and long-term environmental conditions, track progress towards achieving RAOs, verify remedy implementation, and assess performance of the remedy;
- Implementation of a robust PDI to fill the data gaps and collect necessary information for the RD; and
- Institutional controls in the form of administrative and/or informational measures to limit exposure to Site contamination, including outreach programs to inform the public of the existing NYSDOH Hudson River & Tributaries Fish Advisory, which includes the entirety of the Site.

Green remediation techniques, as detailed in NYSDEC's Green Remediation Program Policy DER-31, will be considered during the implementation of the selected remedy to reduce short-term environmental impacts.

Summary of the Rationale for the Selected Remedy

Alternative 4 was selected as the preferred alternative because it is expected to achieve the greatest levels of risk reduction and long-term effectiveness with comparable short-term impacts and costs to the other active alternatives. This alternative permanently removes the highest volume of contaminated sediment that is considered source material, thereby preventing migration over time to other portions of the Site. Since all exceedances of THg above the RAL would be removed, thus no cap placement, this alternative does not require continual monitoring of a reactive cap system to maintain

protectiveness. It is expected that Alternative 4 would reduce risk and achieve all RAOs within a reasonable timeframe. The remedial extent of Alternative 4 is shown on **Figure 3** in **Appendix I.**

Based upon the information currently available, EPA believes that the selected remedy meets the threshold criteria and provides the best balance of tradeoffs compared to the other alternatives with respect to the balancing criteria. EPA expects the remedy to satisfy the following statutory requirements of Section 121 of CERCLA: 1) it is protective of human health and the environment; 2) it complies with ARARs to the extent required for an interim remedy; 3) it is cost effective; and 4) it utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. As discussed below, the selected remedy partially meets the statutory preference for treatment as a principal element. The selected remedy will be readily implementable using technologies proven to be effective at this Site. The short-term effects of the remedy include potential impacts to workers and the nearby community, but these would be mitigated using the appropriate health and safety measures.

Expected Outcomes of the Selected Remedy

This selected interim remedy focuses on risk reduction. The expected outcome of this interim remedy is that a large mass of material that is acting as a continuing source to the rest of the Site will be addressed. Remediating THg-contaminated sediments above the RAL in the upper portion of the Site will reduce THg contaminant concentrations in sediment and other impacted media, reduce the potential for mercury methylation and bioaccumulation in the food web and, incidentally, remove other collocated contaminants, thereby reducing risks to human and ecological receptors.

STATUTORY DETERMINATIONS

As previously noted, CERCLA Section 121, 42 U.S.C. § 9621(b)(1), mandates that a remedial action must be protective of human health and the environment, cost effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) establishes a preference for remedial actions which employ treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, or contaminants at a site. CERCLA Section 121(d), 42 U.S.C. § 9621(d), further specifies that a remedial action must attain a degree of cleanup that satisfies ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA Section 121(d)(4), 42 U.S.C. § 9621(d)(4).

For the reasons discussed below, EPA has determined that the selected remedy meets the requirements of CERCLA Section 121, 42 U.S.C. §9621.

Protection of Human Health and the Environment

The selected remedy would provide adequate protection to human health and the environment in the interim, through the achievement of the RAOs, until a final remedy for the Site is selected. The interim remedy would reduce human exposure (through ingestion of contaminated fish from recreational fishing) and ecological exposure (through dietary exposure) to contaminated sediments by reducing concentrations of THg. Lowering THg mass in sediment and the concentration of THg in surface sediment would be expected to reduce formation of MeHg in sediment and subsequent uptake within the food web. This interim remedy would reduce direct contact exposure risks associated with contaminated sediment for ecological receptors through a combination of targeted removal and reactive capping. Migration of THg from the sediment bed and associated pore water to downstream media (sediments, streambank soils, and surface water) would be reduced through the residuals control layer following targeted removal. ICs involving risk communication would be implemented since this is an interim remedy focused on THg and not a final site-wide action addressing all contaminants.

Compliance with ARARs

Identification of final ARARs is not necessary at this time because the selected remedy is an interim remedy. Chemical-specific ARARs will be addressed by the eventual, final remedy selected for OU2 and thus have not been identified for this interim remedy. It is nonetheless expected that the selected remedy will be designed in such a way that it attains location- and action-specific ARARs and TBC advisories, criteria, and guidance, such as the New York State Environmental Conservation Law and Clean Water Act discharge limitations, New York Solid Waste and Hazardous Waste Management regulations, Resource Conservation and Recovery Act, and Toxic Substances Control Act. A complete list of ARARs, TBCs, and other guidance are presented in **Tables 11-1 through 11-4 in Appendix II**.

Cost-Effectiveness

A cost-effective remedy is one in which costs are proportional to its overall effectiveness (40 C.F.R. § 300.430(f)(1)(ii)(D)). Overall effectiveness is based on the evaluations of long-term effectiveness and permanence, reduction in toxicity, mobility, and volume through treatment, and short-term effectiveness. Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness). Overall effectiveness was then compared to costs to determine cost-effectiveness.

Each of the alternatives underwent a detailed cost analysis. In that analysis, capital and operation and maintenance costs were estimated and used to develop present-worth costs. In the present-worth cost analysis, operation and maintenance costs were calculated for the estimated life of each alternative. The total estimated present worth cost for implementing the selected remedy is $88,098,000 (**Table 12** in **Appendix II**).

Based on the comparison of overall effectiveness to cost, the selected remedy meets the statutory requirement that Superfund remedies be cost effective (40 C.F.R. § 300.430(f)(1)(ii)(D)) in that it represents reasonable value for the money to be spent. A 20-year timeframe was used for planning and estimating purposes to remediate sediment and streambank soils, although remediation timeframes could exceed this estimate.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

The selected remedy utilizes permanent solutions and treatment technologies to the maximum extent practicable. The selected remedy provides the best balance of trade-offs among the alternatives with respect to the evaluation criteria with respect to the balancing criteria set forth in Section 300.430(f)(1)(i)(B) of the NCP and represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the Site. The selected remedy satisfies the criteria for long-term effectiveness and permanence by permanently removing contaminated sediment and streambank soils above the RAL and reducing the level of risk to humans and ecological receptors, thereby reducing the toxicity, mobility, and volume of contamination.

Preference for Treatment as a Principal Element

CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances as a principal element (or justify not satisfying the preference). The selected remedy partially meets the statutory preference for treatment as a principal element of the remedy. A component of the interim remedy includes ex-situ treatment of dredged sediment and streambank soils using stabilization amendments to facilitate transportation for off-site disposal. Dewatering liquids would be treated on-site, with contaminants captured in media such as granular activated carbon, which would be regenerated (a form of treatment) or disposed of (with treatment as needed to meet disposal facility requirements).

Five-Year Review Requirements

A review of the remedial action, pursuant to CERCLA Section 121(c), will be conducted every five years after the commencement of the remedial action to ensure that the remedy continues to provide adequate protection to human health and the environment because this remedy will result in hazardous substances remaining on-site above health-based levels that would allow for unlimited use and unrestricted exposure.

DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for OU1 of the Site was released July 23, 2026. The Proposed Plan identified *Alternative 4: Dredge to Remove Any RAL Exceedance; Backfill to Grade in the Dredge Footprint* as the preferred alternative.

There are no significant changes from the preferred alternative presented in the Proposed Plan.

APPENDIX I

FIGURES

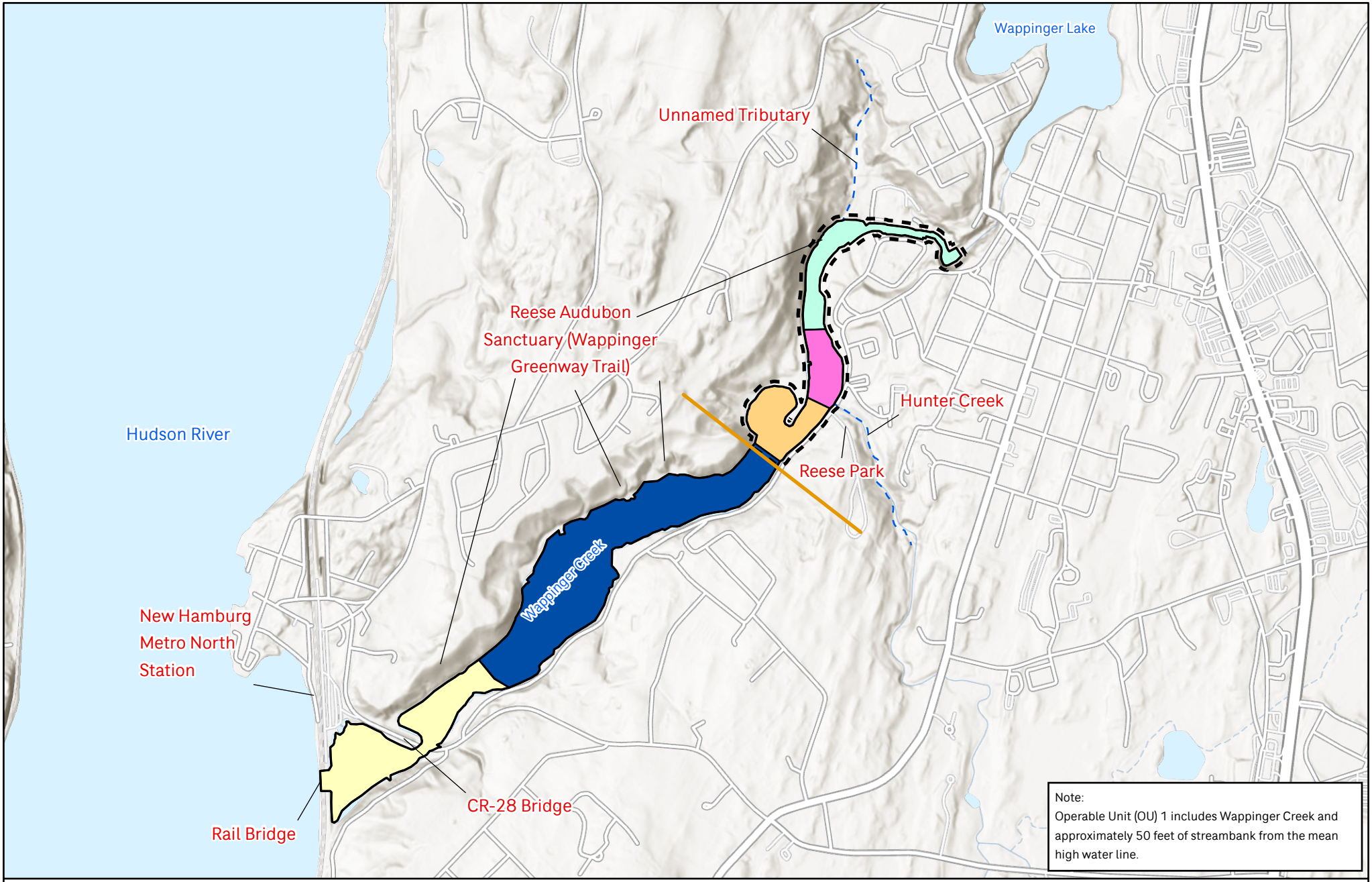


Figure 1

Site Overview

Wappinger Creek Superfund Site
Wappingers Falls, New York

CDM Smith

PANZ C:\Users\PANZ\OneDrive - CDM Smith\Documents\ArcGIS\Projects\253508 Wappinger\253508_WappingerCreek.aprx 7/15/2026

SED2
SED1
BKFP-05
BKFP-04
BKFP-03
T6-C
T7-E
T7-D
T6-B
T6
T-5C
T-5B
T-5A
T5
T-4C
T-4B
T4
T4-A
T3
T-3C
T-3B
T-3A
BKFP-02
T2
T-2C
T-2B
T-2A
T1
T-1C
T-1B
T-1A
BKFP-01
T6-A
T7-C
T7
T7-B
T7-A
BKFP-06
SED3
T8-D
T8-C
T8
T8-B
T8-A
BKFP-07
T9
T9-C
T9-B
T9-A
BKFP-08
T10
T10-C
T10-B
T10-A
BKFP-09
T11-D
T11-C
T11-B
T11-A
T11
BKFP-14
BKFP-10
T12-E
T12-D
T12-C
T12-B
T12-A
T12
Wappinger Creek

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

RI Sample Locations

- Sediment Core
- Background Sediment Core
- Sediment Core (not collected)
- Bank/Floodplain Sample
- Sampling Transects

Creek Sections (not all shown)

- Industrial Park
- Upper Shoal
- Embayment
- Lower Shoal (Downstream)
- Confluence

Bathymetry

Elevation (feet amsl)

-25	-15	-5
-24	-14	-4
-23	-13	-3
-22	-12	-2
-21	-11	-1
-20	-10	0
-19	-9	1
-18	-8	2
-17	-7	3
-16	-6	

Acronyms

amsl - above mean sea level
RI - Remedial Investigation

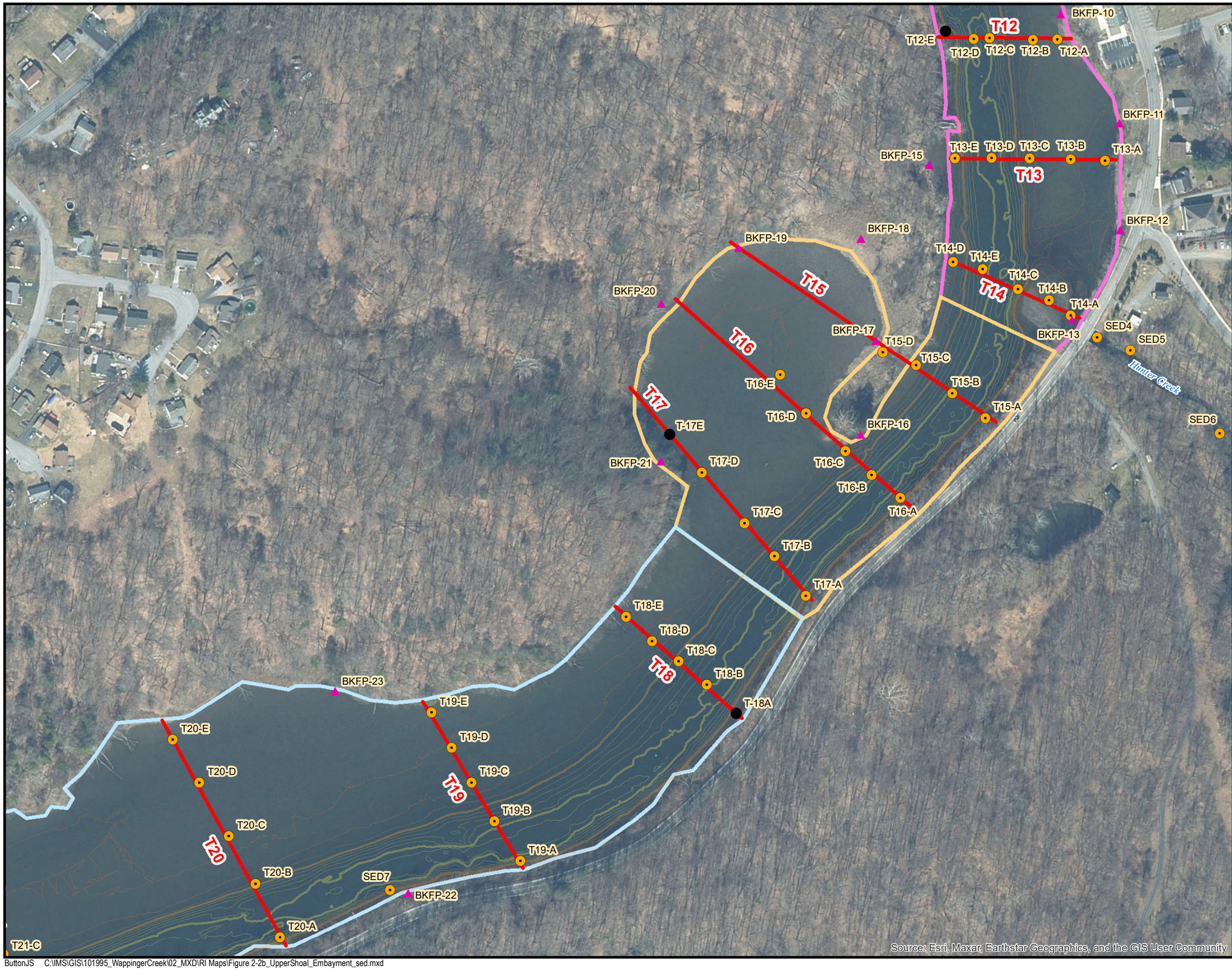
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0 100 200 400 Feet

Figure 2-1
Sediment Sampling Locations
- Industrial Park Section
Wappinger Creek Superfund Site
Wappingers Falls, New York

CDM Smith

ButtonJS C:\IMS\GIS\101995_WappingerCreek\02_MXD\RI Maps\Figure 2-2a_Industiral_sed.mxd



RI Sample Locations

- Sediment Core
- Background Sediment Core
- Sediment Core (not collected)
- Bank/Floodplain Sample
- Sampling Transects

Creek Sections (not all shown)

- Industrial Park
- Upper Shoal
- Embayment
- Lower Shoal (Downstream)
- Confluence

Bathymetry

Elevation (feet amsl)

-25	-15	-5
-24	-14	-4
-23	-13	-3
-22	-12	-2
-21	-11	-1
-20	-10	0
-19	-9	1
-18	-8	2
-17	-7	3
-16	-6	

Acronyms

amsl - above mean sea level
RI - Remedial Investigation

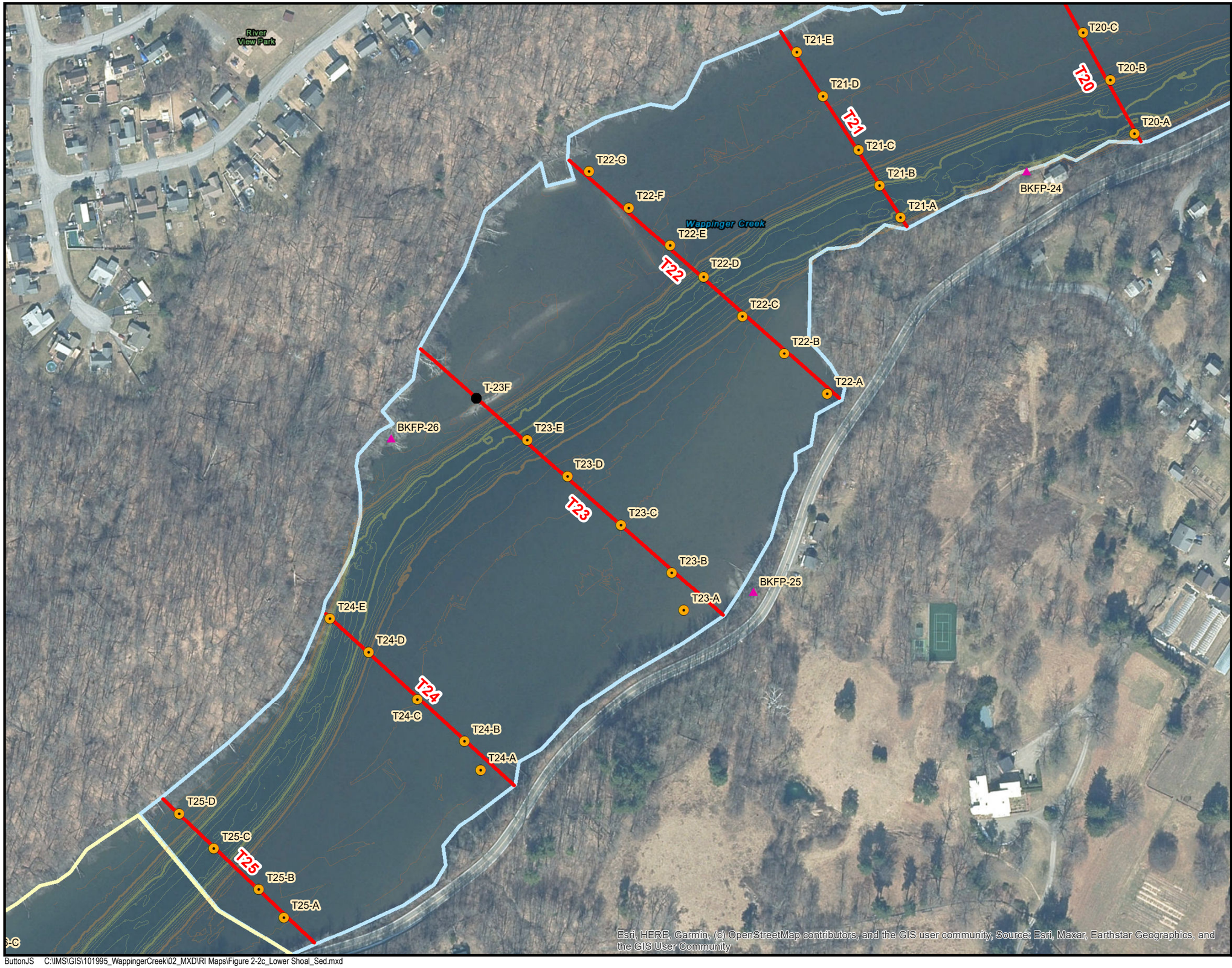
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0 100 200 400 Feet

Figure 2-2
Sediment Sampling Locations
- Upper Shoal/Embayment Section
Wappinger Creek Superfund Site
Wappingers Falls, New York

CDM Smith

ButtonJS C:\IMS\GIS\101995_WappingerCreek\02_MXD\RI Maps\Figure 2-2b_UpperShoal_Embayment_sed.mxd



RI Sample Locations

- Sediment Core
- Background Sediment Core
- Sediment Core (not collected)
- Bank/Floodplain Sample
- Sampling Transects

Creek Sections (not all shown)

- Industrial Park
- Upper Shoal
- Embayment
- Lower Shoal (Downstream)
- Confluence

Bathymetry

Elevation (feet amsl)

-25	-15	-5
-24	-14	-4
-23	-13	-3
-22	-12	-2
-21	-11	-1
-20	-10	0
-19	-9	1
-18	-8	2
-17	-7	3
-16	-6	

Acronyms

amsl - above mean sea level
RI - Remedial Investigation

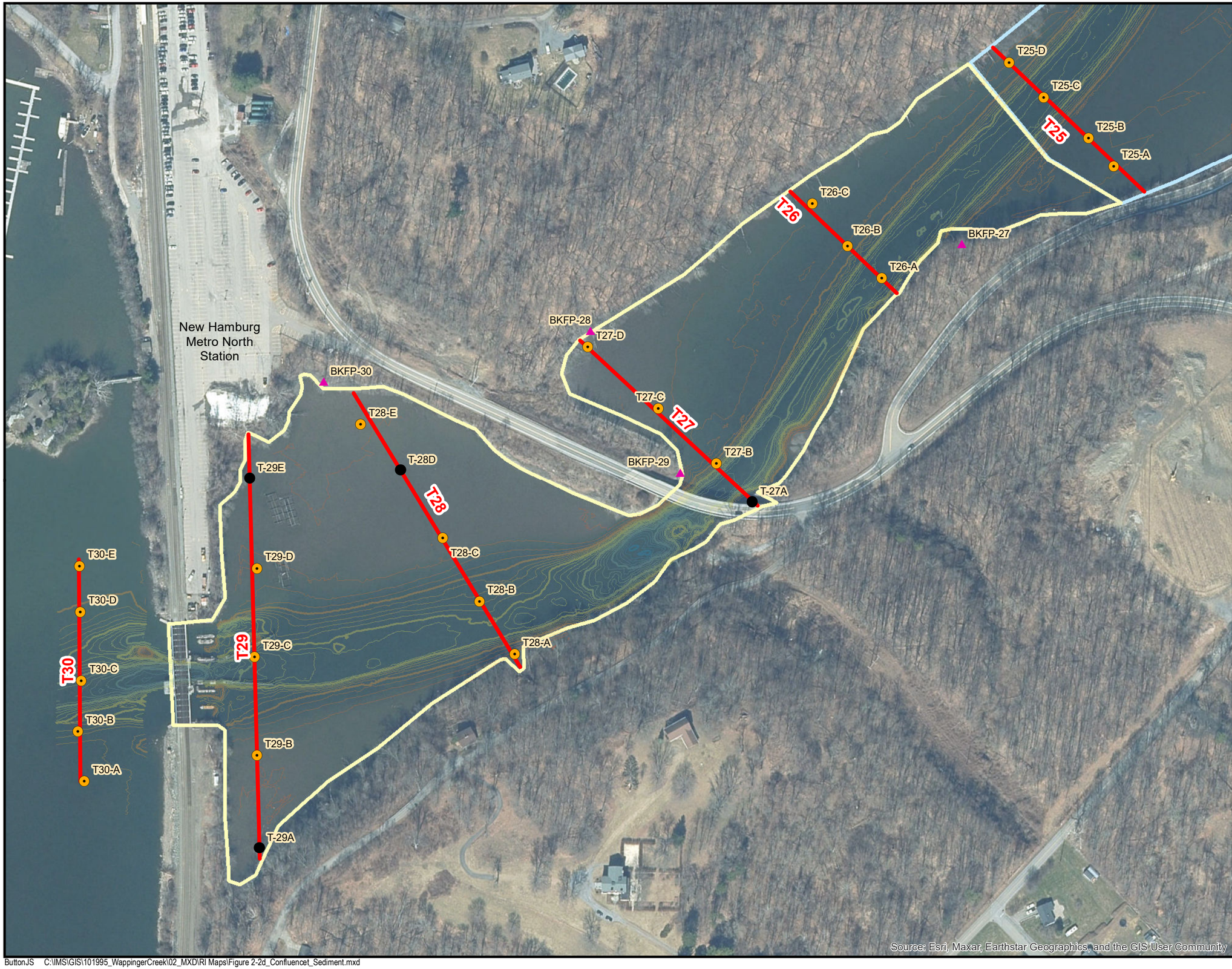
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0 100 200 400 Feet

Figure 2-3
Sediment Sampling Locations
- Lower Shoal Section
Wappinger Creek Superfund Site
Wappingers Falls, New York

CDM Smith

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RI Sample Locations

- Sediment Core
- Background Sediment Core
- Sediment Core (not collected)
- Bank/Floodplain Sample
- Sampling Transects

Creek Sections (not all shown)

- Industrial Park
- Upper Shoal
- Embayment
- Lower Shoal (Downstream)
- Confluence

Bathymetry

Elevation (feet amsl)

-25	-15	-5
-24	-14	-4
-23	-13	-3
-22	-12	-2
-21	-11	-1
-20	-10	0
-19	-9	1
-18	-8	2
-17	-7	3
-16	-6	

Acronyms

amsl - above mean sea level
RI - Remedial Investigation

N
W E
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0 100 200 400 Feet

Figure 2-4
Sediment Sampling Locations
- Confluence Section
Wappinger Creek Superfund Site
Wappingers Falls, New York

CDM Smith

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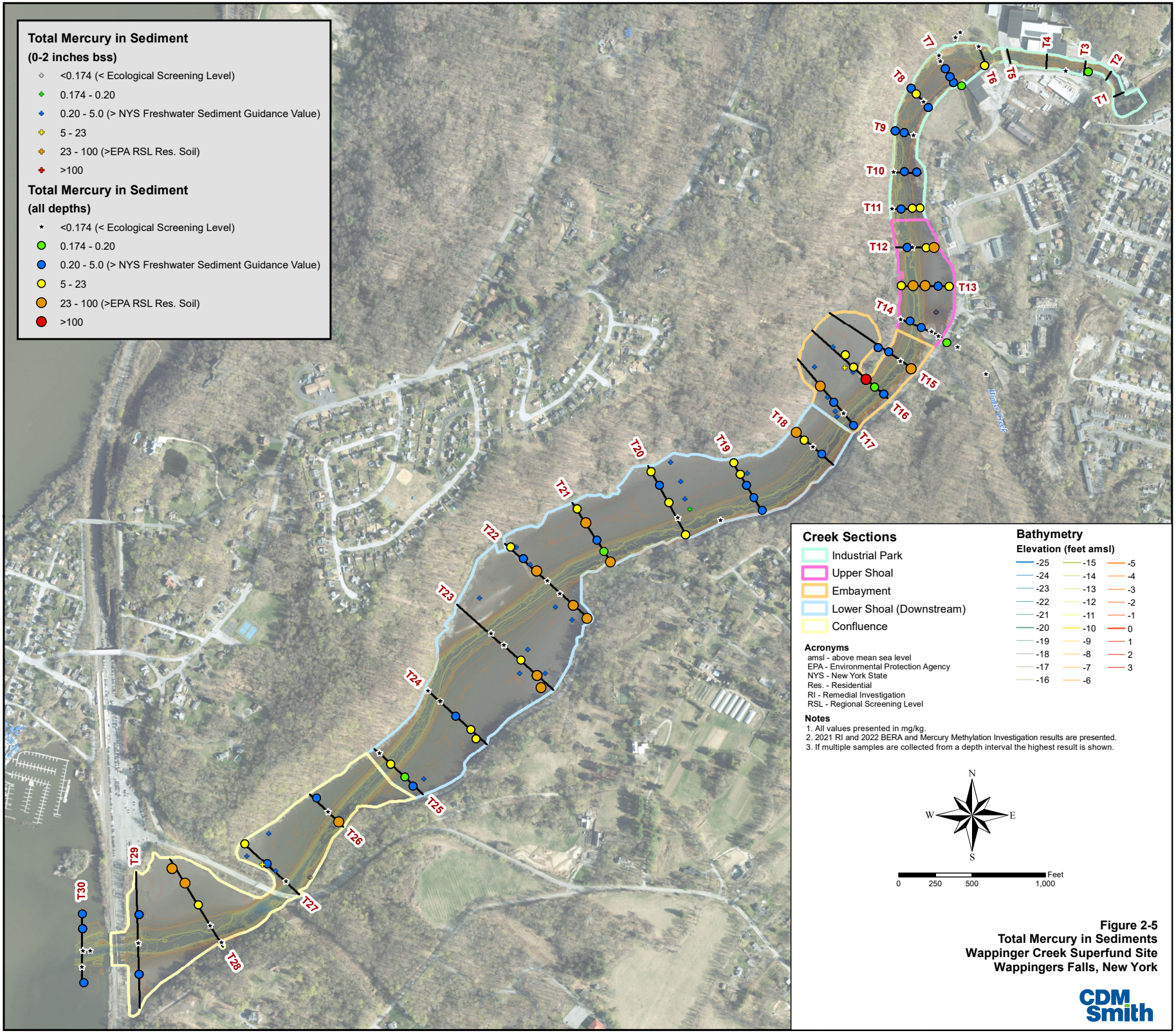
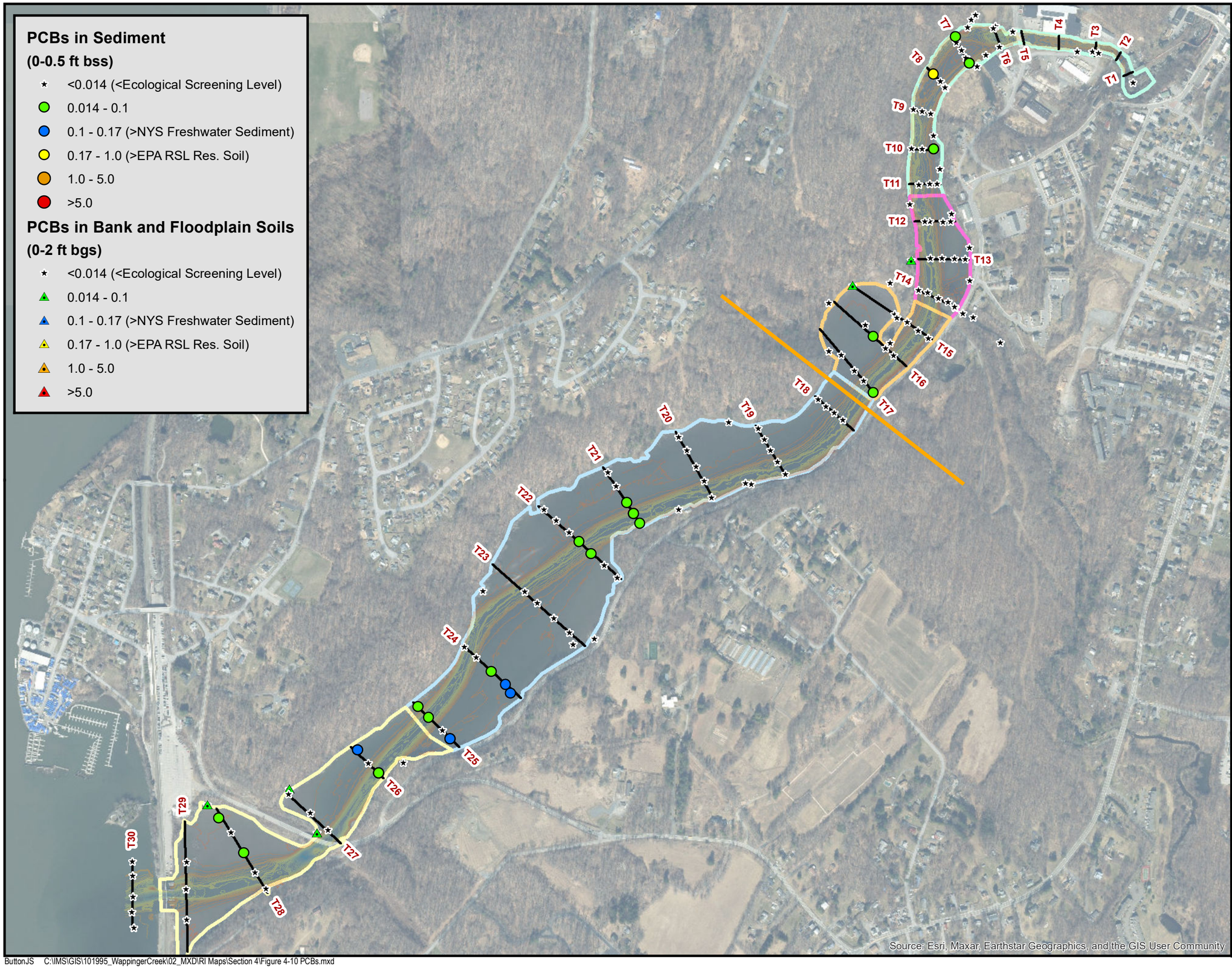


Figure 2-5
Total Mercury in Sediments
Wappinger Creek Superfund Site
Wappingers Falls, New York

CDM Smith



PCBs in Sediment
(0-0.5 ft bss)

- <0.014 (<Ecological Screening Level)
- 0.014 - 0.1
- 0.1 - 0.17 (>NYS Freshwater Sediment)
- 0.17 - 1.0 (>EPA RSL Res. Soil)
- 1.0 - 5.0
- >5.0

PCBs in Bank and Floodplain Soils
(0-2 ft bgs)

- <0.014 (<Ecological Screening Level)
- 0.014 - 0.1
- 0.1 - 0.17 (>NYS Freshwater Sediment)
- 0.17 - 1.0 (>EPA RSL Res. Soil)
- 1.0 - 5.0
- >5.0

Creek Sections

- Industrial Park
- Upper Shoal
- Embayment
- Lower Shoal (Downstream)
- Confluence
- Sampling Transects
- Estimated Hudson River Line

Bathymetry
Elevation (ft amsl)

-25, -24, -23, -22, -21, -20, -19, -18, -17, -16, -15, -14, -13, -12, -11, -10, -9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3

Notes

1. All values presented in mg/kg.
2. 2021 RI and 2022 BERA Investigation results are presented.
3. If multiple samples are collected from a depth interval the highest result is shown.

Acronyms

amsl - above mean sea level
BERA - Baseline Ecological Risk Assessment
EPA - Environmental Protection Agency
NYS - New York State
Res. - Residential
RI - Remedial Investigation
RSL - Regional Screening Level

N
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0 325 650 1,300 Feet

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 2-6
PCBs in Sediments
Wappinger Creek Superfund Site
Wappingers Falls, New York

CDM Smith

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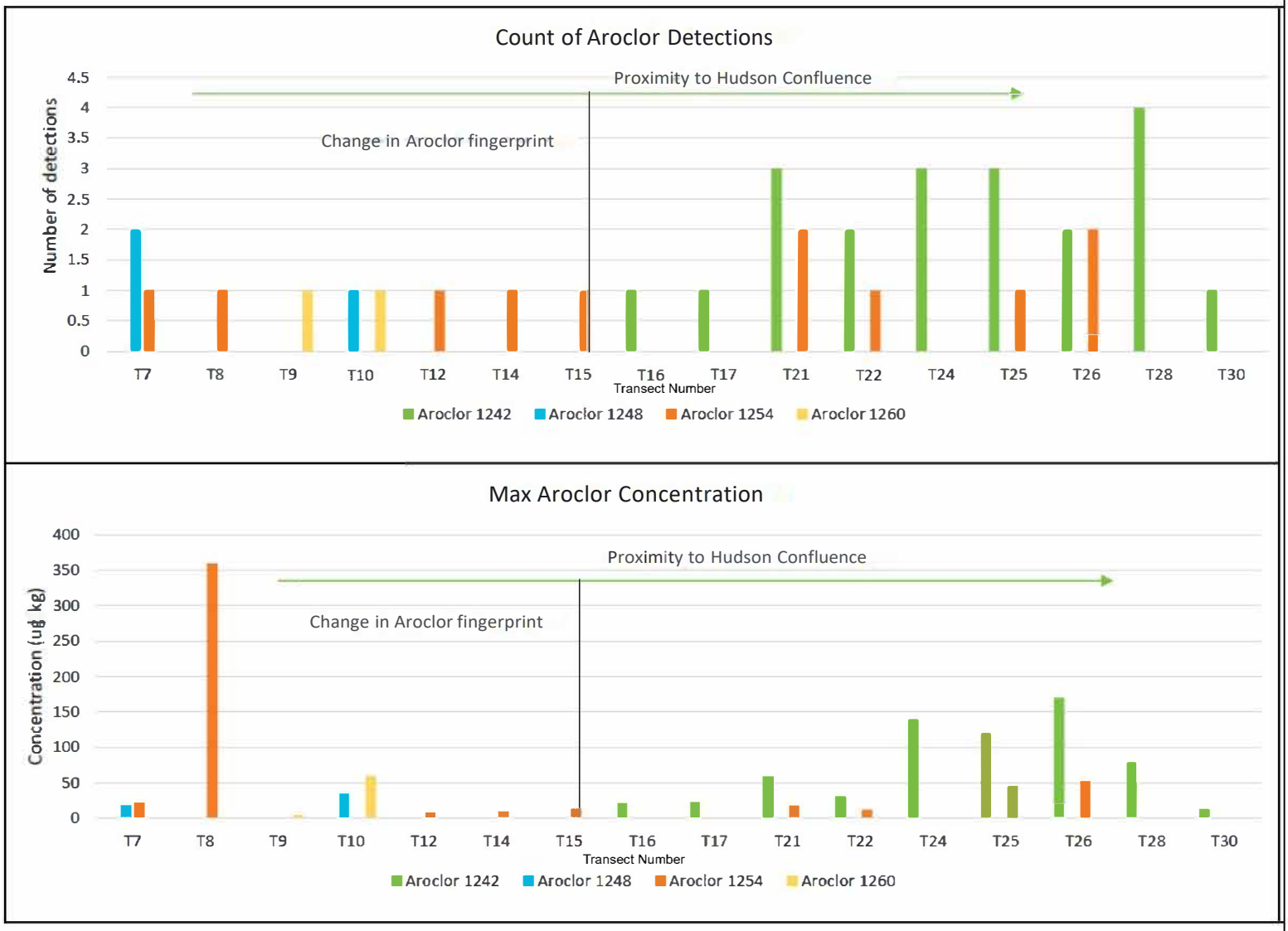


Figure 2-7
PCB Aroclor Detections and Max Concentrations in Sediments
Wappinger Creek Superfund Site
Wappingers Falls, New York

CDM Smith



N

Scale: 1:5,300

0 200 400 US Feet

- Intertidal Zone
- Mean Lower Low Water (-1.67 ft NAVD88)
- Mean Higher High Water (-2.22 feet NAVD88)
- Tributaries
- RI Sampling Transects
- Creek Shoreline
- Estimated Hudson River Line
- > RAL sample location (All Depth)
- Streambank Sample > RAL (All Depths)
- 1% Annual Chance Flood Hazard area immediately outside floodway
- Area not targeted for sediment removal
- Area targeted for one foot of sediment removal
- Area targeted for two feet of sediment removal
- Area targeted for deeper than 2 feet of sediment removal
- Bedrock Outcrop Wall

Notes:
1. MHHW calculated to be 2.22 ft NAVD88.
2. MLLW calculated to be -1.74 ft NAVD88.
3. Intertidal zone - the area between MHHW and MLLW. This zone is intermittently exposed to the atmosphere at lower tides and inundated at higher tides.
4. Bathymetric contours ae presented in feet amsl in NAVD88.
5. Reactive cap thickness assumed to be full sediment removal depth to maintain existing bathymetry.
6. Streambank soil removal will be generally in the vicinity of the streambank RAL exceedances and will be refined as part of the PDI.

2 ft Depth of removal below sediment surface

Figure 3

Alternative 4 Extent of Remediation Area

Wappinger Creek Superfund Site
Wappingers Falls, New York

CDM Smith

APPENDIX II

TABLES

Table 1 -Summary of Sediment Sampling Results

Method Group	Analyte	Minimum Concentration Detected	Q	Maximum Concentration Detected	Q	Units	Location of Maximum Concentration	Number of Detects	Total Samples	Sediment RISC	RI Screening Criteria Exceedances	95% Background UCL	Number of Background Exceedances
Inorganics	Arsenic	1.3		82	J	mg/kg	T-17-D-SE-B	495	495	0.68	495	3.9	350
Inorganics	Chromium	8.2		3100	J	mg/kg	T-17-D-SE-B	495	495	0.3	495	17	350
Inorganics	Barium	13	J	210		mg/kg	SED6-C-SE-A	490	495	20	479	87	66
Inorganics	Nickel	11		140		mg/kg	T14-C-SE-C	495	495	16	477	25	140
Inorganics	Iron	14000		65000		mg/kg	T8-D-SE-B	495	495	20000	465	25765	237
Inorganics	Copper	5.9		1600		mg/kg	T923-ASE-A	495	495	16	350	31	221
Inorganics	Mercury	0.0074	J	210	J-	mg/kg	T905-C-SE-D	468	537	0.17	265	0.12	290
Inorganics	Lead	5.1		3200		mg/kg	T8-D-SE-B	495	495	31	261	49	234
Inorganics	Zinc	43		4000		mg/kg	T13-C-SE-A	495	495	98	259	145	197
Inorganics	Cadmium	0.077	J	37		mg/kg	T13-C-SE-A	391	495	0.59	203	1.1	134
Inorganics	Cyanide	0.08	J	74	J	mg/kg	T-17-D-SE-B	179	495	0.0001	179	0.6	83
Inorganics	Manganese	130		3700		mg/kg	BR-T13-C-SE-A	494	494	400	169	691	48
Inorganics	Antimony	0.93	J	110		mg/kg	T7-B-SE-A	105	495	2	89	--	
Inorganics	Silver	0.18	J	2.4	J-	mg/kg	T14-D-SE-E	38	495	0.5	15	--	
Inorganics	Selenium	0.46	J	17	J	mg/kg	T14-D-SE-E	9	495	0.72	5	--	
Inorganics	Cobalt	4.5	J	28		mg/kg	T6-A-SE-E	495	495	23	1	11	249
Inorganics	Thallium	0.62	J	8	J	mg/kg	T14-D-SE-E	2	495	0.78	1	--	
Inorganics	Aluminum	4400		23000	J J	mg/kg	T16-D-SE-A T28-E-SE-C	495	495	25000	0	13873	134
Inorganics	Beryllium	0.23	J	1.1	J	mg/kg	T11-D-SE-D T28-D-SE-C	469	495	160	0	0.7	79
Inorganics	Hexavalent Chromium					mg/kg		0	22	0.3	0	--	
Inorganics	Vanadium	5.7	J	40	J	mg/kg	T22-F-SE-B	495	495	390	0	16	200
Inorganics	Calcium	690		120000		mg/kg	SED7-C-SE-A	485	495	--		8190	60
Inorganics	Magnesium	2400		56600	J	mg/kg	SED7-C-SE-A	495	495	--		5678	210
Inorganics	Methyl Mercury	0.039		5.39		ng/g	BR-T15-D-SE-A	89	106	--		0.67	44
Inorganics	Potassium	320	J	2800	J	mg/kg	T28-E-SE-B T28-E-SE-C	480	495	--		706	332
Inorganics	Sodium	39	J	1400	J	mg/kg	T13-A-SE-B	145	495	--		340	5
SVOCs	Benzo(a)anthracene	0.3	J	320000		µg/kg	T16-C-SE-D	404	496	15.7	282	18.5	273
SVOCs	Fluoranthene	1.8	J	870000		µg/kg	T16-C-SE-D	382	496	31.5	276	16.6	302
SVOCs	Phenanthrene	1	J	1100000		µg/kg	T16-C-SE-D	387	496	18.7	255	10.4	282
SVOCs	Chrysene	0.31	J	230000		µg/kg	T16-C-SE-D	391	496	26.8	248	9.5	299
SVOCs	Pyrene	1.3	J	590000		µg/kg	T16-C-SE-D	378	496	44.3	245	14.2	298
SVOCs	Anthracene	0.49	J	380000		µg/kg	T16-C-SE-D	331	496	10	241	3.4	284
SVOCs	Benzo(a)pyrene	0.24	J	250000		µg/kg	T16-C-SE-D	362	496	32.4	217	7.9	295
SVOCs	Indeno(1,2,3-cd)pyrene	0.41	J	100000		µg/kg	T16-C-SE-D	351	496	17	212	9.6	245
SVOCs	Benzo(k)fluoranthene	0.2	J	110000		µg/kg	T16-C-SE-D	351	496	27.2	201	8.6	266
SVOCs	Acenaphthylene	0.58	J	57000		µg/kg	T16-C-SE-D	274	496	5.87	199	2.3	245
SVOCs	Acenaphthene	0.31	J	470000		µg/kg	T16-C-SE-D	261	496	6.7	182	4.1	201
SVOCs	Fluorene	0.35	J	380000		µg/kg	T16-C-SE-D	272	496	10	178	4.2	213

Table 1 -Summary of Sediment Sampling Results

Method Group	Analyte	Minimum Concentration Detected	Q	Maximum Concentration Detected	Q	Units	Location of Maximum Concentration	Number of Detects	Total Samples	Sediment RISC	RI Screening Criteria Exceedances	95% Background UCL	Number of Background Exceedances
SVOCs	Benzo(b)fluoranthene	0.16	J	260000		µg/kg	T16-C-SE-D	392	496	190	160	12	305
SVOCs	Naphthalene	1	J	620000		µg/kg	T16-C-SE-D	260	496	14.65	135	9.3	161
SVOCs	Dibenzo(a,h)anthracene	0.8	J	2300		µg/kg	T11-C-SE-C	178	496	10	96	3.5	144
SVOCs	Benzo(g,h,i)perylene	0.39	J	95000		µg/kg	T16-C-SE-D	280	496	170	67	6.6	190
SVOCs	2-Methylnaphthalene	0.32	J	310000		µg/kg	T16-C-SE-D	181	496	20.2	57	2.7	147
SVOCs	Phenol	51	J	250	J	µg/kg	T26-C-SE-C	37	496	49.1	37	122	12
SVOCs	Carbazole	51	J	170000	J	µg/kg	T16-C-SE-D	36	496	69	28	--	
SVOCs	Bis(2-ethylhexyl)phthalate	55	J	22000	J	µg/kg	T10-A-SE-A	82	496	180	27	180	27
SVOCs	Dibenzofuran	74	J	300000		µg/kg	T16-C-SE-D	42	496	415	15	--	
SVOCs	4-Methylphenol	44	J	310	J	µg/kg	T20-C-SE-A	7	496	20.2	7	--	
SVOCs	Pentachlorophenol	0.96	J	4800		µg/kg	T7-A-SE-A	33	496	10	6	--	
SVOCs	1,1'-Biphenyl	81	J	69000		µg/kg	T16-C-SE-D	9	496	198	5	--	
SVOCs	Benzaldehyde	61	J	74	J	µg/kg	T13-C-SE-B	2	496	59	2	--	
SVOCs	Dimethylphthalate	86	J	900		µg/kg	T-16-E-SE-C	39	496	678	2	--	
SVOCs	4-Chloroaniline	160	J	160	J	µg/kg	T13-A-SE-D	1	496	0.9	1	--	
SVOCs	1,2,4,5-Tetrachlorobenzene					µg/kg		0	496	187	0	--	
SVOCs	1,4-Dioxane					µg/kg		0	396	119	0	--	
SVOCs	2,2'-Oxybis(1-chloropropane)					µg/kg		0	496	3100000	0	--	
SVOCs	2,3,4,6-Tetrachlorophenol					µg/kg		0	496	30	0	--	
SVOCs	2,4,5-Trichlorophenol					µg/kg		0	496	34	0	--	
SVOCs	2,4,6-Trichlorophenol					µg/kg		0	496	89	0	--	
SVOCs	2,4-Dichlorophenol					µg/kg		0	496	57	0	--	
SVOCs	2,4-Dimethylphenol					µg/kg		0	496	29	0	--	
SVOCs	2,4-Dinitrophenol					µg/kg		0	496	6.21	0	--	
SVOCs	2,4-Dinitrotoluene					µg/kg		0	496	14.4	0	--	
SVOCs	2,6-Dinitrotoluene					µg/kg		0	496	39.8	0	--	
SVOCs	2-Chloronaphthalene					µg/kg		0	496	417	0	--	
SVOCs	2-Chlorophenol					µg/kg		0	496	31.2	0	--	
SVOCs	2-Methylphenol					µg/kg		0	496	55.4	0	--	
SVOCs	2-Nitroaniline					µg/kg		0	496	630000	0	--	
SVOCs	2-Nitrophenol					µg/kg		0	496	168	0	--	
SVOCs	3,3'-Dichlorobenzidine					µg/kg		0	496	31	0	--	
SVOCs	4,6-Dinitro-2-methylphenol					µg/kg		0	496	104	0	--	
SVOCs	4-Bromophenyl-phenylether					µg/kg		0	496	47	0	--	
SVOCs	4-Chloro-3-methylphenol					µg/kg		0	496	5	0	--	
SVOCs	4-Nitroaniline	52	J	52	J	µg/kg	T8-A-SE-C	1	496	27000	0	--	
SVOCs	4-Nitrophenol					µg/kg		0	496	13.3	0	--	
SVOCs	Acetophenone	42	J	100	J	µg/kg	T13-C-SE-B	10	496	7800000	0	--	
SVOCs	Atrazine					µg/kg		0	496	0.3	0	--	
SVOCs	Bis(2-chloroethoxy)methane					µg/kg		0	496	190000	0	--	
SVOCs	Bis(2-chloroethyl)ether					µg/kg		0	496	230	0	--	

Table 1 -Summary of Sediment Sampling Results

Method Group	Analyte	Minimum Concentration Detected	Q	Maximum Concentration Detected	Q	Units	Location of Maximum Concentration	Number of Detects	Total Samples	Sediment RISC	RI Screening Criteria Exceedances	95% Background UCL	Number of Background Exceedances
SVOCs	Butylbenzylphthalate					µg/kg		0	496	100	0	--	
SVOCs	Caprolactam					µg/kg		0	496	31000000	0	--	
SVOCs	Diethylphthalate					µg/kg		0	496	295	0	--	
SVOCs	Di-n-butylphthalate					µg/kg		0	496	11	0	--	
SVOCs	Di-n-octylphthalate					µg/kg		0	496	39	0	--	
SVOCs	Hexachlorobenzene					µg/kg		0	496	20	0	--	
SVOCs	Hexachlorobutadiene					µg/kg		0	496	26.5	0	--	
SVOCs	Hexachlorocyclopentadiene					µg/kg		0	496	6.5	0	--	
SVOCs	Hexachloroethane					µg/kg		0	496	27	0	--	
SVOCs	Isophorone					µg/kg		0	496	432	0	--	
SVOCs	Nitrobenzene					µg/kg		0	496	145	0	--	
SVOCs	N-Nitroso-di-n-propylamine					µg/kg		0	496	78	0	--	
SVOCs	N-Nitrosodiphenylamine					µg/kg		0	496	110	0	--	
SVOCs	1-Methylnaphthalene	0.34	J	160000		µg/kg	T16-C-SE-D	158	496	--		--	
SVOCs	3-Nitroaniline					µg/kg		0	496	--		--	
SVOCs	4-Chlorophenyl-phenylether					µg/kg		0	496	--		--	
VOCs	Acetone	7.6	J	510		µg/kg	T21-E-SE-A	174	233	9.9	170	172	31
VOCs	Carbon Disulfide	0.79	J	15	J	µg/kg	T21-E-SE-B T30-B-SE-A	69	233	0.851	68	2.1	41
VOCs	2-Butanone	5.4	J	250		µg/kg	T21-E-SE-A	119	233	42.4	39	38	47
VOCs	Methylene Chloride	2.8	J	62		µg/kg	T29-D-SE-A	36	233	18	17	60	1
VOCs	Toluene	1.4	J J	20		µg/kg	T-16-E-SE-A	7	233	10	2	--	
VOCs	Tetrachloroethene	0.79	J	6.3	J	µg/kg	T20-D-SE-A	2	233	2	1	--	
VOCs	1,1,1-Trichloroethane					µg/kg		0	233	30.2	0	--	
VOCs	1,1,2,2-Tetrachloroethane					µg/kg		0	233	250	0	--	
VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane					µg/kg		0	233	6700000	0	--	
VOCs	1,1,2-Trichloroethane					µg/kg		0	233	518	0	--	
VOCs	1,1-Dichloroethane					µg/kg		0	233	0.575	0	--	
VOCs	1,1-Dichloroethene					µg/kg		0	233	19.4	0	--	
VOCs	1,2,3-Trichlorobenzene					µg/kg		0	233	113	0	--	
VOCs	1,2,4-Trichlorobenzene					µg/kg		0	233	11	0	--	
VOCs	1,2-Dibromo-3-chloropropane					µg/kg		0	233	5.3	0	--	
VOCs	1,2-Dibromoethane					µg/kg		0	233	36	0	--	
VOCs	1,2-Dichlorobenzene	2.6	J	3.3	J	µg/kg	T6-A-SE-B	2	233	16.5	0	--	
VOCs	1,2-Dichloroethane					µg/kg		0	233	260	0	--	
VOCs	1,2-Dichloropropane					µg/kg		0	233	333	0	--	
VOCs	1,3-Dichlorobenzene					µg/kg		0	233	89	0	--	
VOCs	1,4-Dichlorobenzene	1.5	J	2	J	µg/kg	T6-A-SE-B	2	233	30	0	--	
VOCs	2-Hexanone	8.5	J	8.6	J	µg/kg	T21-E-SE-A	2	233	45	0	--	
VOCs	4-Methyl-2-pentanone					µg/kg		0	233	25.1	0	--	

Table 1 -Summary of Sediment Sampling Results

Method Group	Analyte	Minimum Concentration Detected	Q	Maximum Concentration Detected	Q	Units	Location of Maximum Concentration	Number of Detects	Total Samples	Sediment RISC	RI Screening Criteria Exceedances	95% Background UCL	Number of Background Exceedances
VOCs	Benzene					µg/kg		0	233	10	0	--	
VOCs	Bromochloromethane					µg/kg		0	233	150000	0	--	
VOCs	Bromodichloromethane					µg/kg		0	233	210	0	--	
VOCs	Bromoform					µg/kg		0	233	142	0	--	
VOCs	Bromomethane					µg/kg		0	233	1.37	0	--	
VOCs	Carbon Tetrachloride					µg/kg		0	233	57	0	--	
VOCs	Chlorobenzene	0.76	J	2.5	J	µg/kg	T6-A-SE-B	3	233	8.42	0	--	
VOCs	Chloroethane					µg/kg		0	233	5400000	0	--	
VOCs	Chloroform					µg/kg		0	233	87	0	--	
VOCs	Chloromethane					µg/kg		0	233	110000	0	--	
VOCs	cis-1,2-Dichloroethene	4.4	J	4.4	J	µg/kg	T6-A-SE-A	1	233	432	0	--	
VOCs	cis-1,3-Dichloropropene					µg/kg		0	233	0.0509	0	--	
VOCs	Cyclohexane	0.74	J	0.74	J	µg/kg	T923-ASE-A	1	233	6500000	0	--	
VOCs	Dibromochloromethane					µg/kg		0	233	198	0	--	
VOCs	Dichlorodifluoromethane					µg/kg		0	233	87000	0	--	
VOCs	Ethylbenzene					µg/kg		0	233	175	0	--	
VOCs	Isopropylbenzene					µg/kg		0	233	35	0	4.8	0
VOCs	m,p-Xylene	1.3	J+ J	1.3	J+ J	µg/kg	T19-D-SE-A T20-A-SE-B	2	233	25.2	0	0.9	2
VOCs	Methyl acetate					µg/kg		0	233	78000000	0	860	0
VOCs	Methyl tert-Butyl Ether					µg/kg		0	233	304	0	--	
VOCs	o-Xylene	0.8	J	0.8	J	µg/kg	T20-A-SE-B	1	233	120	0	--	
VOCs	Styrene					µg/kg		0	233	126	0	--	
VOCs	trans-1,2-Dichloroethene					µg/kg		0	233	389	0	--	
VOCs	trans-1,3-Dichloropropene					µg/kg		0	233	0.0509	0	--	
VOCs	Trichloroethene					µg/kg		0	233	78	0	--	
VOCs	Trichlorofluoromethane					µg/kg		0	233	23000000	0	--	
VOCs	Vinyl Chloride	5.3	J	5.5	J	µg/kg	T6-A-SE-A	2	233	59	0	--	
VOCs	1,2,3-Trichloropropane					µg/kg		0	233	--		--	
VOCs	1,2,4-Trimethylbenzene	1.2	J	2.1	J+	µg/kg	T19-D-SE-A	2	233	--		--	
VOCs	1,3,5-Trimethylbenzene					µg/kg		0	233	--		--	
VOCs	Methylcyclohexane					µg/kg		0	233	--		--	
PCB Aroclors	Aroclor 1242	8.3	J	170		µg/kg	T26-C-SE-A	20	131	14	18	--	
PCB Aroclors	Aroclor 1254	8.8	J	360		µg/kg	T8-C-SE-A	11	131	14	6	--	
PCB Aroclors	Aroclor 1248	15	J	36	J	µg/kg	T10-A-SE-A	3	131	14	3	--	
PCB Aroclors	Aroclor 1260	4.3	J	60	J	µg/kg	T10-A-SE-A	2	131	5	1	--	
PCB Aroclors	Aroclor 1016					µg/kg		0	131	7	0	--	
PCB Aroclors	Aroclor 1221					µg/kg		0	131	14	0	--	
PCB Aroclors	Aroclor 1232					µg/kg		0	131	14	0	--	
PCB Aroclors	Aroclor 1262					µg/kg		0	131	14	0	--	
PCB Aroclors	Aroclor 1268					µg/kg		0	131	14	0	--	

Table 1 -Summary of Sediment Sampling Results

Method Group	Analyte	Minimum Concentration Detected	Q	Maximum Concentration Detected	Q	Units	Location of Maximum Concentration	Number of Detects	Total Samples	Sediment RISC	RI Screening Criteria Exceedances	95% Background UCL	Number of Background Exceedances
Pesticides	alpha-Chlordane	0.28	NJ	2.6	NJ	µg/kg	T10-A-SE-A	17	132	0.06	17	--	
Pesticides	gamma-Chlordane	0.29	J	1.3	J J	µg/kg	SED1-C-SE-A SED7-C-SE-A	17	132	0.06	17	--	
Pesticides	4,4'-DDT	0.24	J	3.7	J	µg/kg	T10-A-SE-A	32	132	1	15	--	
Pesticides	4,4'-DDE	0.3	J	3.9	J	µg/kg	T10-A-SE-A	35	132	1.4	13	--	
Pesticides	Dieldrin	0.24	J	4.9	J	µg/kg	T7-A-SE-A	23	132	1.9	9	--	
Pesticides	Endosulfan Sulfate	0.26	J	4.6	J-	µg/kg	T19-D-SE-A	9	132	0.7	7	--	
Pesticides	gamma-BHC (Lindane)	0.35	J	3.9	J	µg/kg	T10-A-SE-A	23	132	0.94	7	--	
Pesticides	Endosulfan II	0.44	NJ	1.6	J J	µg/kg	T23-E-SE-A T-900A-SE-A	5	132	0.9	4	--	
Pesticides	Heptachlor	0.34	J	1.5	J	µg/kg	T24-B-SE-A	7	132	0.6	4	--	
Pesticides	Heptachlor Epoxide	0.26	J	1.2	J	µg/kg	T14-C-SE-A	5	132	0.6	2	--	
Pesticides	Methoxychlor	0.76	J	31	J	µg/kg	T7-A-SE-A	32	132	13.6	2	--	
Pesticides	4,4'-DDD	0.23	NJ	5.8	NJ	µg/kg	T7-A-SE-A	16	132	3.5	1	--	
Pesticides	alpha-BHC	2.3	J	2.3	J	µg/kg	T10-A-SE-A	1	132	0.3	1	--	
Pesticides	beta-BHC	0.54	J	5.1	J	µg/kg	T10-A-SE-A	7	132	5	1	--	
Pesticides	Endosulfan I	0.29	J	1.9	NJ	µg/kg	T10-A-SE-A	10	132	1	1	--	
Pesticides	Aldrin	0.4	J	1.6	J	µg/kg	T26-C-SE-A	7	132	2	0	--	
Pesticides	delta-BHC	0.26	J	0.96	NJ	µg/kg	T24-A-SE-A	12	132	300	0	--	
Pesticides	Endrin	0.35	J	1.6	J	µg/kg	T12-D-SE-A	11	132	2.2	0	--	
Pesticides	Endrin aldehyde	0.76	J	2.1	J	µg/kg	T15-D-SE-A	6	132	480	0	--	
Pesticides	Endrin Ketone	0.76	NJ	6.6	J	µg/kg	T10-A-SE-A	10	132	19000	0	--	
Pesticides	Toxaphene					µg/kg		0	132	0.077	0	--	
Dioxin/Furans	TEQ (KM Method)	0.323	J	179.8		ng/kg	T10-A-SE-A	74	74	0.12	74	6.04	16
Dioxin/Furans	2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.17	J	4.9	J	ng/kg	T10-A-SE-A	27	74	0.5	14	0.004	0
Dioxin/Furans	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.36	J	3400		ng/kg	T10-A-SE-A	73	74	--		--	
Dioxin/Furans	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.82	J	3100		ng/kg	T7-A-SE-A	74	74	--		--	
Dioxin/Furans	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.24	J	130		ng/kg	T10-A-SE-A	53	74	--		--	
Dioxin/Furans	1,2,3,4,7,8-Hexachlorodibenzofuran	0.31	J	710		ng/kg	T10-A-SE-A	55	74	--		--	
Dioxin/Furans	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.18	J	11		ng/kg	T7-A-SE-A	49	74	--		--	
Dioxin/Furans	1,2,3,6,7,8-Hexachlorodibenzofuran	0.21	J	170		ng/kg	T10-A-SE-A	64	74	--		--	
Dioxin/Furans	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.19	J	42		ng/kg	T7-A-SE-A	62	74	--		--	
Dioxin/Furans	1,2,3,7,8,9-Hexachlorodibenzofuran	0.22	J	21		ng/kg	T10-A-SE-A	27	74	--		--	
Dioxin/Furans	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.22	J	20		ng/kg	T7-A-SE-A	62	74	--		--	
Dioxin/Furans	1,2,3,7,8-Pentachlorodibenzofuran	0.25	J	56		ng/kg	T10-A-SE-A	55	74	--		--	
Dioxin/Furans	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	0.2	J	11		ng/kg	T10-A-SE-A	42	74	--		--	
Dioxin/Furans	2,3,4,6,7,8-Hexachlorodibenzofuran	0.19	J	85		ng/kg	T10-A-SE-A	54	74	--		--	
Dioxin/Furans	2,3,4,7,8-Pentachlorodibenzofuran	0.23	J	68		ng/kg	T10-A-SE-A	54	74	--		--	
Dioxin/Furans	2,3,7,8-Tetrachlorodibenzofuran	0.12	J	72		ng/kg	T13-C-SE-A	65	74	--		--	
Dioxin/Furans	Octachlorodibenzofuran	1.3	J	5400		ng/kg	T7-A-SE-A	69	74	--		--	
Dioxin/Furans	Octachlorodibenzo-p-dioxin	15		56000	J	ng/kg	T7-A-SE-A	74	74	--		--	

Table 1 -Summary of Sediment Sampling Results

Method Group	Analyte	Minimum Concentration Detected	Q	Maximum Concentration Detected	Q	Units	Location of Maximum Concentration	Number of Detects	Total Samples	Sediment RISC	RI Screening Criteria Exceedances	95% Background UCL	Number of Background Exceedances
Dioxin/Furans	TEQ (Mammal)	0.013		190		ng/kg	T10-A-SE-A	74	74	--		0.004	74
Dioxin/Furans	TEQ WHO1998 Bird ND=0	0.0025		250		ng/kg	T10-A-SE-A	74	74	--		--	
Dioxin/Furans	TEQ WHO1998 Fish ND=0	0.0025		190		ng/kg	T10-A-SE-A	74	74	--		--	
Dioxin/Furans	Total HcCDF	0.36	J	2600	J	ng/kg	T7-A-SE-A	69	69	--		--	
Dioxin/Furans	Total HpCDD	1.4	J	2500	J	ng/kg	T3-A-SE-A	73	73	--		--	
Dioxin/Furans	Total HxCDD	0.32	J	160	J	ng/kg	T7-A-SE-A	65	65	--		--	
Dioxin/Furans	Total HxCDF	0.28	J	2200	J	ng/kg	T10-A-SE-A	66	66	--		--	
Dioxin/Furans	Total PeCDD	0.35	J	78	J	ng/kg	T10-A-SE-A	52	52	--		--	
Dioxin/Furans	Total PeCDF	0.29	J	950	J	ng/kg	T10-A-SE-A	65	65	--		--	
Dioxin/Furans	Total TCDD	0.17	J	50	J	ng/kg	T10-A-SE-A	50	50	--		--	
Dioxin/Furans	Total TCDF	0.38	J	300	J	ng/kg	T10-A-SE-A	68	68	--		--	
Other	Percent Moisture	8.6		75		%	T21-E-SE-A	72	72	--		--	
Other	Percent Moisture	12		69		%	T27-C-SE-A	28	28	--		--	
Other	Total Organic Carbon	1200	J	86000		mg/kg	SED3-C-SE-B	100	100	--		47535	13

Notes:

1. Analytes are grouped by type and presented in decreasing order of number of exceedances of RI sediment screening criteria.
2. The number of samples does not include QA/QC samples.
3. Highlighted analytes had at least one sample exceeding the RI Screening Criteria.

Acronyms:

CAS - chemical abstracts service
ft bgs - feet below ground surface
J - estimated
J+ - estimated high
J-EMPC - estimated maximum possible concentration
RI - Remedial Investigation
U - nondetect
UJ - nondetect, estimated
USEPA - United States Environmental Protection Agency
VOC - volatile organic compound
µg/kg - microgram per kilogram
µg/g - microgram per gram
ng/kg - nanogram per kilogram
mg/kg - milligram per kilogram
ng/g - nanogram per gram
% - percent

Table 2 - Summary of Sediment Sampling Results – Bank, Floodplain, and Wetland Samples

Method Group	Analyte	Minimum Concentration Detected	Q	Maximum Concentration Detected	Q	Units	Location of Maximum Concentration	Number of Detects	Total Samples	Sediment RISC	RI Screening Criteria Exceedances	95% Background UCL	Number of Background Exceedances
Inorganics	Arsenic	3		29		mg/kg	BKFP-27-A	27	27	0.68	27	3.9	20
Inorganics	Barium	22		1100		mg/kg	BKFP-12-A	27	27	20	27	87	5
Inorganics	Chromium	6.9		470	J	mg/kg	BKFP-17-A	27	27	0.3	27	17.2	17
Inorganics	Copper	12		600		mg/kg	BKFP-01-A	27	27	16	25	31	17
Inorganics	Lead	15		3200		mg/kg	BKFP-12-A	27	27	31	23	49	16
Inorganics	Nickel	9.7		52		mg/kg	BKFP-12-A	27	27	16	23	25	9
Inorganics	Iron	11000		190000		mg/kg	BKFP-27-A	27	27	20000	20	25765	10
Inorganics	Manganese	220		1500		mg/kg	BKFP-27-A	27	27	400	19	691	11
Inorganics	Zinc	37		2300		mg/kg	BKFP-29-A	27	27	98	19	145	10
Inorganics	Mercury	0.015	J	9.9	J	mg/kg	BKFP-17-A	27	27	0.17	14	0.12	18
Inorganics	Cadmium	0.1	J	6.8		mg/kg	BKFP-09-A	20	27	0.585	9	1.1	7
Inorganics	Antimony	0.83	J	14	J	mg/kg	BKFP-17-A	12	27	2	8	--	
Inorganics	Cyanide	0.27	J	6.2		mg/kg	BKFP-09-A	8	27	0.0001	8	0.64	5
Inorganics	Aluminum	4700		25000	J	mg/kg	BKFP-21-A	27	27	25000	1	13873	7
Inorganics	Cobalt	3.5	J	40		mg/kg	BKFP-06-A	27	27	23	1	11.0	9
Inorganics	Selenium	0.58	J	0.72	J	mg/kg	BKFP-18-A	2	27	0.72	1	--	
Inorganics	Silver	0.18	J	4.5		mg/kg	BKFP-12-A	13	27	0.5	1	--	
Inorganics	Beryllium	0.17	J	1.1	J	mg/kg	BKFP-21-A	27	27	160	0	0.70	3
Inorganics	Hexavalent Chromium					mg/kg		0	6	0.3	0	--	
Inorganics	Thallium	0.43	J	0.43	J	mg/kg	BKFP-24-A	1	27	0.78	0	--	
Inorganics	Vanadium	12		71		mg/kg	BKFP-27-A	27	27	390	0	16.4	19
Inorganics	Calcium	1300		110000		mg/kg	BKFP-22-A	27	27	--		8190	10
Inorganics	Magnesium	1100		66000		mg/kg	BKFP-22-A	27	27	--		5678	15
Inorganics	Methyl Mercury	0.06	J	4.64		ng/g	BKFP-15-A	10	12	--		0.67	4
Inorganics	Potassium	680		2200		mg/kg	BKFP-29-A	23	27	--		706	22
Inorganics	Sodium	110	J	270	J	mg/kg	BKFP-24-A	8	27	--		340	0
SVOCs	Benzo(a)anthracene	1.5	J	12000		µg/kg	BKFP-14-A	32	32	15.7	31	18.5	29
SVOCs	Fluoranthene	3.3	J	25000		µg/kg	BKFP-14-A	32	32	31.46	29	16.6	31
SVOCs	Benzo(a)pyrene	1.3	J	8900		µg/kg	BKFP-14-A	32	32	32.4	28	7.9	31
SVOCs	Chrysene	1.7	J	9000		µg/kg	BKFP-14-A	32	32	26.83	28	9.5	31
SVOCs	Indeno(1,2,3-cd)pyrene	1.2	J	4000		µg/kg	BKFP-14-A	32	32	17	27	9.6	29
SVOCs	Phenanthrene	3.7	J	20000		µg/kg	BKFP-14-A	32	32	18.73	27	10.4	29
SVOCs	Pyrene	3.6	J	19000		µg/kg	BKFP-14-A	32	32	44.27	27	14.2	31
SVOCs	Anthracene	3.4	J	7500		µg/kg	BKFP-14-A	30	32	10	23	3.4	29
SVOCs	Benzo(k)fluoranthene	8.2		4100		µg/kg	BKFP-14-A	31	32	27.2	23	8.6	30
SVOCs	Acenaphthylene	1.9	J	1400		µg/kg	BKFP-14-A	26	32	5.87	21	2.3	25
SVOCs	Benzo(b)fluoranthene	2.4	J	11000		µg/kg	BKFP-14-A	32	32	190	19	11.5	31

Table 2 - Summary of Sediment Sampling Results – Bank, Floodplain, and Wetland Samples

Method Group	Analyte	Minimum Concentration Detected	Q	Maximum Concentration Detected	Q	Units	Location of Maximum Concentration	Number of Detects	Total Samples	Sediment RISC	RI Screening Criteria Exceedances	95% Background UCL	Number of Background Exceedances
SVOCs	Fluorene	1.9	J	1500		µg/kg	BKFP-14-A	27	32	10	15	4.2	21
SVOCs	Acenaphthene	0.33	J	270		µg/kg	BKFP-14-A	20	32	6.7	13	4.1	16
SVOCs	Naphthalene	2.2	J	210		µg/kg	BKFP-14-A	22	32	14.65	13	9.3	14
SVOCs	Benzo(g,h,i)perylene	1.1	J	2600		µg/kg	BKFP-14-A	31	32	170	11	6.6	28
SVOCs	2-Methylnaphthalene	0.76	J	75		µg/kg	BKFP-14-A	16	32	20.2	7	2.7	12
SVOCs	Carbazole	120	J	480		µg/kg	BKFP-07-A	4	32	69	4	--	
SVOCs	Bis(2-ethylhexyl)phthalate	59	J	200	J	µg/kg	BKFP-18-A	6	32	180	1	180	1
SVOCs	Dibenzo(a,h)anthracene	55		55		µg/kg	BKFP-16-A	1	32	10	1	3.5	1
SVOCs	Dibenzofuran	120	J	920	J	µg/kg	BKFP-14-A	2	32	415	1	--	
SVOCs	1,1'-Biphenyl					µg/kg		0	32	198	**0**	--	
SVOCs	1,2,4,5-Tetrachlorobenzene					µg/kg		0	32	187	**0**	--	
SVOCs	1,4-Dioxane					µg/kg		0	32	119	**0**	--	
SVOCs	2,2'-Oxybis(1-chloropropane)					µg/kg		**0**	32	3100000	**0**	--	
SVOCs	2,3,4,6-Tetrachlorophenol					µg/kg		**0**	32	30	**0**	--	
SVOCs	2,4,5-Trichlorophenol					µg/kg		0	32	34	**0**	--	
SVOCs	2,4,6-Trichlorophenol					µg/kg		0	32	89	**0**	--	
SVOCs	2,4-Dichlorophenol					µg/kg		0	32	57	**0**	--	
SVOCs	2,4-Dimethylphenol					µg/kg		0	32	29	**0**	--	
SVOCs	2,4-Dinitrophenol					µg/kg		0	32	6.21	**0**	--	
SVOCs	2,4-Dinitrotoluene					µg/kg		0	32	14.4	**0**	--	
SVOCs	2,6-Dinitrotoluene					µg/kg		0	32	39.8	**0**	--	
SVOCs	2-Chloronaphthalene					µg/kg		0	32	417	**0**	--	
SVOCs	2-Chlorophenol					µg/kg		0	32	31.2	**0**	--	
SVOCs	2-Methylphenol					µg/kg		0	32	55.4	**0**	--	
SVOCs	2-Nitroaniline					µg/kg		**0**	32	630000	**0**	--	
SVOCs	2-Nitrophenol					µg/kg		0	32	168	**0**	--	
SVOCs	3,3'-Dichlorobenzidine					µg/kg		0	32	31	**0**	--	
SVOCs	4,6-Dinitro-2-methylphenol					µg/kg		0	32	104	**0**	--	
SVOCs	4-Bromophenyl-phenylether					µg/kg		0	32	47	**0**	--	
SVOCs	4-Chloro-3-methylphenol					µg/kg		**0**	32	5	**0**	--	
SVOCs	4-Chloroaniline					µg/kg		0	32	0.9	**0**	--	
SVOCs	4-Methylphenol					µg/kg		0	32	20.2	**0**	--	
SVOCs	4-Nitroaniline					µg/kg		0	32	27000	**0**	--	
SVOCs	4-Nitrophenol					µg/kg		0	32	13.3	**0**	--	
SVOCs	Acetophenone					µg/kg		0	32	7800000	**0**	--	
SVOCs	Atrazine					µg/kg		0	32	0.3	**0**	--	
SVOCs	Benzaldehyde					µg/kg		0	32	59	**0**	--	
SVOCs	Bis(2-chloroethoxy)methane					µg/kg		0	32	190000	**0**	--	
SVOCs	Bis(2-chloroethyl)ether					µg/kg		0	32	230	**0**	--	
SVOCs	Butylbenzylphthalate	61	J	83	J	µg/kg	BKFP-03-A	2	32	100	**0**	--	
SVOCs	Caprolactam					µg/kg		0	32	31000000	**0**	--	
SVOCs	Diethylphthalate					µg/kg		0	32	295	**0**	--	
SVOCs	Dimethylphthalate	86	J	240	J	µg/kg	BKFP-17-A	2	32	678	**0**	--	
SVOCs	Di-n-butylphthalate					µg/kg		0	32	11	**0**	--	
SVOCs	Di-n-octylphthalate					µg/kg		0	32	39	**0**	--	

Table 2 - Summary of Sediment Sampling Results – Bank, Floodplain, and Wetland Samples

Method Group	Analyte	Minimum Concentration Detected	Q	Maximum Concentration Detected	Q	Units	Location of Maximum Concentration	Number of Detects	Total Samples	Sediment RISC	RI Screening Criteria Exceedances	95% Background UCL	Number of Background Exceedances
SVOCs	Hexachlorobenzene					µg/kg		0	32	20	**0**	--	
SVOCs	Hexachlorobutadiene					µg/kg		0	32	26.5	**0**	--	
SVOCs	Hexachlorocyclopentadiene					µg/kg		0	32	6.5	**0**	--	
SVOCs	Hexachloroethane					µg/kg		0	32	27	**0**	--	
SVOCs	Isophorone					µg/kg		0	32	432	**0**	--	
SVOCs	Nitrobenzene					µg/kg		0	32	145	**0**	--	
SVOCs	N-Nitroso-di-n-propylamine					µg/kg		0	32	78	0	--	
SVOCs	N-Nitrosodiphenylamine					µg/kg		0	32	110	0	--	
SVOCs	Pentachlorophenol	1.2	J	3.1	J	µg/kg	BKFP-13-A	3	32	10	0	--	
SVOCs	Phenol					µg/kg		0	32	49.1	0	121.7	0
SVOCs	1-Methylnaphthalene	0.51	J	160		µg/kg	BKFP-14-A	14	32	--		--	
SVOCs	3-Nitroaniline					µg/kg		0	32	--		--	
SVOCs	4-Chlorophenyl-phenylether					µg/kg		0	32	--		--	
VOCs	Acetone	41		440	J	µg/kg	BKFP-901	10	31	9.9	10	172	5
VOCs	2-Butanone	32		160	J	µg/kg	BKFP-15-A BKFP-19-A	10	31	42.4	8	38	9
VOCs	2-Hexanone	5.7	J	68	J	µg/kg	BKFP-19-A	14	31	45	1	--	
VOCs	1,1,1-Trichloroethane					µg/kg		0	31	30.2	0	--	
VOCs	1,1,2,2-Tetrachloroethane					µg/kg		0	31	250	0	--	
VOCs	1,1,2-Trichloro-1,2,2-trifluoroethane					µg/kg		0	31	6700000	0	--	
VOCs	1,1,2-Trichloroethane					µg/kg		0	31	518	0	--	
VOCs	1,1-Dichloroethane					µg/kg		0	31	0.575	0	--	
VOCs	1,1-Dichloroethene					µg/kg		0	31	19.4	0	--	
VOCs	1,2,3-Trichlorobenzene					µg/kg		0	31	113	0	--	
VOCs	1,2,4-Trichlorobenzene					µg/kg		0	31	11	0	--	
VOCs	1,2-Dibromo-3-chloropropane					µg/kg		0	31	5.3	0	--	
VOCs	1,2-Dibromoethane					µg/kg		0	31	36	0	--	
VOCs	1,2-Dichlorobenzene					µg/kg		0	31	16.5	0	--	
VOCs	1,2-Dichloroethane					µg/kg		0	31	260	0	--	
VOCs	1,2-Dichloropropane					µg/kg		0	31	333	0	--	
VOCs	1,3-Dichlorobenzene					µg/kg		0	31	89	0	--	
VOCs	1,4-Dichlorobenzene					µg/kg		0	31	30	0	--	
VOCs	4-Methyl-2-pentanone					µg/kg		0	31	25.1	0	--	
VOCs	Benzene					µg/kg		0	31	10	0	--	
VOCs	Bromochloromethane					µg/kg		0	31	150000	0	--	
VOCs	Bromodichloromethane					µg/kg		0	31	210	0	--	
VOCs	Bromoform					µg/kg		0	31	142	0	--	
VOCs	Bromomethane					µg/kg		0	31	1.37	0	--	
VOCs	Carbon Disulfide					µg/kg		0	31	0.851	0	2.1	0
VOCs	Carbon Tetrachloride					µg/kg		0	31	57	0	--	
VOCs	Chlorobenzene					µg/kg		0	31	8.42	0	--	
VOCs	Chloroethane					µg/kg		0	31	5400000	0	--	
VOCs	Chloroform					µg/kg		0	31	87	0	--	
VOCs	Chloromethane					µg/kg		0	31	110000	0	--	
VOCs	cis-1,2-Dichloroethene					µg/kg		0	31	432	0	--	

Table 2 - Summary of Sediment Sampling Results – Bank, Floodplain, and Wetland Samples

Method Group	Analyte	Minimum Concentration Detected	Q	Maximum Concentration Detected	Q	Units	Location of Maximum Concentration	Number of Detects	Total Samples	Sediment RISC	RI Screening Criteria Exceedances	95% Background UCL	Number of Background Exceedances
VOCs	cis-1,3-Dichloropropene					µg/kg		0	31	0.0509	0	--	
VOCs	Cyclohexane					µg/kg		0	31	6500000	0	--	
VOCs	Dibromochloromethane					µg/kg		0	31	198	0	--	
VOCs	Dichlorodifluoromethane					µg/kg		0	31	87000	0	--	
VOCs	Ethylbenzene					µg/kg		0	31	175	0	--	
VOCs	Isopropylbenzene					µg/kg		0	31	35	0	4.8	0
VOCs	m,p-Xylene					µg/kg		0	31	25.2	0	0.88	0
VOCs	Methyl acetate					µg/kg		0	31	78000000	0	860	0
VOCs	Methyl tert-Butyl Ether					µg/kg		0	31	304	0	--	
VOCs	Methylene Chloride					µg/kg		0	31	18	0	60	0
VOCs	o-Xylene					µg/kg		0	31	120	0	--	
VOCs	Styrene					µg/kg		0	31	126	0	--	
VOCs	Tetrachloroethene					µg/kg		0	31	2	0	--	
VOCs	Toluene					µg/kg		0	31	10	0	--	
VOCs	trans-1,2-Dichloroethene					µg/kg		0	31	389	0	--	
VOCs	trans-1,3-Dichloropropene					µg/kg		0	31	0.0509	0	--	
VOCs	Trichloroethene					µg/kg		0	31	78	0	--	
VOCs	Trichlorofluoromethane					µg/kg		0	31	23000000	0	--	
VOCs	Vinyl Chloride					µg/kg		0	31	59	0	--	
VOCs	1,2,3-Trichloropropane					µg/kg		0	31	--		--	
VOCs	1,2,4-Trimethylbenzene					µg/kg		0	31	--		--	
VOCs	1,3,5-Trimethylbenzene					µg/kg		0	31	--		--	
VOCs	Methylcyclohexane					µg/kg		0	31	--		--	
PCB Aroclors	Aroclor 1254	6.3	NJ	41	NJ	µg/kg	BKFP-19-A	8	32	14	5	--	
PCB Aroclors	Aroclor 1260	3.1	J	30	J	µg/kg	BKFP-19-A	6	32	5	4	--	
PCB Aroclors	Aroclor 1248	9.3	J	35	J	µg/kg	BKFP-29-A	5	32	14	3	--	
PCB Aroclors	Aroclor 1268	55	J+	55	J+	µg/kg	BKFP-12-A	1	32	14	1	--	
PCB Aroclors	Aroclor 1016					µg/kg		0	32	7	0	--	
PCB Aroclors	Aroclor 1221					µg/kg		0	32	14	0	--	
PCB Aroclors	Aroclor 1232					µg/kg		0	32	14	0	--	
PCB Aroclors	Aroclor 1242					µg/kg		0	32	14	0	--	
PCB Aroclors	Aroclor 1262					µg/kg		0	32	14	0	--	
Pesticides	4,4'-DDT	0.27	J	3.3	J	µg/kg	BKFP-19-A	19	32	1	11	--	
Pesticides	gamma-Chlordane	0.28	NJ	1.3	J J	µg/kg	BKFP-13-A BKFP-28-A	9	32	0.06	9	--	
Pesticides	4,4'-DDE	0.38	J	18	J	µg/kg	BKFP-19-A	17	32	1.4	6	--	
Pesticides	alpha-Chlordane	0.44	J	1.3	J	µg/kg	BKFP-19-A	6	32	0.06	6	--	
Pesticides	4,4'-DDD	0.32	NJ	21	J	µg/kg	BKFP-19-A	11	32	3.5	2	--	
Pesticides	Dieldrin	0.3	NJ	5.5	J	µg/kg	BKFP-19-A	17	32	1.9	2	--	
Pesticides	Endrin	0.45	J	3	J+	µg/kg	BKFP-14-A	10	32	2.2	2	--	

Table 2 - Summary of Sediment Sampling Results – Bank, Floodplain, and Wetland Samples

Method Group	Analyte	Minimum Concentration Detected	Q	Maximum Concentration Detected	Q	Units	Location of Maximum Concentration	Number of Detects	Total Samples	Sediment RISC	RI Screening Criteria Exceedances	95% Background UCL	Number of Background Exceedances
Pesticides	gamma-BHC (Lindane)	0.4	J	1.6	J	µg/kg	BKFP-30-A	6	32	0.94	2	--	
Pesticides	Heptachlor	0.5	J	1.4	J+	µg/kg	BKFP-14-A	3	32	0.6	2	--	
Pesticides	Heptachlor Epoxide	0.2	NJ	0.83	J	µg/kg	BKFP-19-A	5	32	0.6	2	--	
Pesticides	Endosulfan I	0.34	NJ	1.4	J	µg/kg	BKFP-20-A	5	32	1	1	--	
Pesticides	Endosulfan II	4	J	4	J	µg/kg	BKFP-09-A	1	32	0.9	1	--	
Pesticides	Endosulfan Sulfate	0.31	NJ	0.99	J	µg/kg	BKFP-02-A	6	32	0.7	1	--	
Pesticides	Methoxychlor	1.1	NJ	38		µg/kg	BKFP-02-A	20	32	13.6	1	--	
Pesticides	Aldrin	0.4	J+	0.42	J	µg/kg	BKFP-30-A	2	32	2	0	--	
Pesticides	alpha-BHC					µg/kg		0	32	0.3	0	--	
Pesticides	beta-BHC	0.52	NJ	1.4	J+ J	µg/kg	BKFP-14-A BKFP-19-A	5	32	5	0	--	
Pesticides	delta-BHC	0.23	NJ	0.34	NJ	µg/kg	BKFP-30-A	3	32	300	0	--	
Pesticides	Endrin aldehyde	0.28	J	3.2	J+	µg/kg	BKFP-14-A	9	32	480	0	--	
Pesticides	Endrin Ketone	0.64	NJ	4.9	NJ	µg/kg	BKFP-14-A	7	32	19000	0	--	
Pesticides	Toxaphene					µg/kg		0	32	0.077	0	--	
Other	Percent Moisture	7.9		70		%	BKFP-18-A	12	12	--		--	
Other	Total Organic Carbon	5300		120000		mg/kg	BKFP-18-A	11	11	--		47535	4

Notes:

1. Analytes are grouped by type and presented in decreasing order of number of exceedances of RI sediment screening criteria.
2. The number of samples does not include QA/QC samples.
3. Highlighted analytes had at least one sample exceeding the RI Screening Criteria.

Acronyms:

% - percent
µg/g - microgram per gram
µg/kg - microgram per kilogram
CAS - chemical abstracts service
ft bgs - feet below ground surface
J - estimated
J+ - estimated high
J-EMPC - estimated maximum possible concentration
mg/kg - milligram per kilogram
ng/g - nanogram per gram
ng/kg - nanogram per kilogram
RI - Remedial Investigation
U - nondetect
UJ - nondetect, estimated
USEPA - United States Environmental Protection Agency
VOC - volatile organic compound

Table 3
Chemicals of Concern

Scenario Timeframe: Current/Future
Medium: Surface Water/Sediment
Exposure Medium: Fish Tissue - Bottom Fish Fillets

Exposure Point	Chemicals of Concern	CASRN	Units	Minimum Concentration and Qualifier (1)		Maximum Concentration and Qualifier (1)		Frequency of Detection	Concentration Used for Screening	Screening Toxicity Value	Basis for Toxicity Value (C/NC) (2)	COPC Flag (Y/N)	Rationale for Selection of Deletion (3)
Wappinger Creek	Benzo(a)pyrene	50-32-8	ug/kg	47	J	4300	J	8/20	4300	4.2	C	Y	TOX
	Aroclor 1254	11097-69-1	ug/kg	210	J	2400	J	7/20	2400	2.1	C	Y	ASL
	Aroclor 1260	11096-82-5	ug/kg	110	J	2100	J	11/20	2100	2.1	C	Y	ASL
	2,3,7,8-TCDD TEQ	1746-01-6	ug/kg	9E-07		0.0047		15/20	0.0047	3.20E-05	C	Y	ASL
	Arsenic	7440-38-2	mg/kg	0.093	J	0.44	J	4/20	0.44	0.0028	C	Y	TOX
	Cyanide	57-12-5	mg/kg	0.62	J+	11	J+	5/20	11	0.093	NC	Y	ASL
	Mercury (as methylmercury)	22967-92-6	mg/kg	0.114		2.62		20/20	2.62	0.015	NC	Y	ASL

Table 3
Chemicals of Concern

Scenario Timeframe: Current/Future
Medium: Surface Water/Sediment
Exposure Medium: Fish Tissue - Predatory Fish Fillets

Exposure Point	Chemicals of Concern	CASRN	Units	Minimum Concentration and Qualifier (1)		Maximum Concentration and Qualifier (1)		Frequency of Detection	Concentration Used for Screening	Screening Toxicity Value	Basis for Toxicity Value (C/NC) (2)	COPC Flag (Y/N)	Rationale for Selection of Deletion (3)
Wappinger Creek	Aroclor 1254	11097-69-1	µg/kg	560		560		1/2	560	2.1	C	Y	ASL
	Aroclor 1260	11096-82-5	µg/kg	300	J	300	J	1/2	300	2.1	C	Y	ASL
	2,3,7,8-TCDD TEQ	1746-01-6	µg/kg	0.000037		0.0014		1/2	0.0014	0.000032	C	Y	ASL
	Arsenic	7440-38-2	mg/kg	0.52	J	0.52	J	1/2	0.52	0.0028	C	Y	TOX
	Mercury (as methylmercury)	22967-92-6	mg/kg	0.663		1.52		2/2	1.52	0.015	NC	Y	ASL

Acronyms:
CASRN = Chemical Abstract Service Registry Number; COPC = Chemicals of Potential Concern; µg/L = micrograms per liter

Notes:
(1) Chemicals of Concern: For transparency, all COCs from the BHHRA are included in Table 2s; however, this IRA only addresses widespread mercury contamination. After the system recovers, an updated risk assessment will be performed to determine COCs present at that time as well as risk-based cleanup goals.
(2) Minimum and Maximum Qualifiers used in the Tables include: J = estimated.
(3) C = Cancer; NC = Non-Cancer.
(4) The Rationale for Selecting or not Selecting Chemicals of Potential Concern included: ASL - Above Screening Levels, TOX - Group A Carcinogen.

Table 4
Selection of Exposure Pathways

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor (Age)[4]	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Surface Water	Surface Water[1]	Wappinger Creek	Recreational User (Swimmer)	Adult	Incidental Ingestion	Quant	Nearby residents may contact contaminants in surface water during recreational use of the area. In some portions of the creek, the banks are steep; other portions are heavily vegetated or include man-made structures (retaining walls/bulkhead/riprap in the Industrial Park section of the creek) which preclude access to the creek. However, swimmers or waders may access the creek at the boat launch or jetty areas located in the Upper Shoal section of the creek as well as along the flatter portions of the banks. Creek has reported channel depths up to 30 feet. Therefore, a swimming scenario with full body contact with water was evaluated in the risk assessment. Recreational users in this area may include adults, adolescents, and children.
						Dermal Contact	Quant	
					Adolescent (6 to <18 years old)	Incidental Ingestion	Quant	
						Dermal Contact	Quant	
					Child (0 to <6 years old)	Incidental Ingestion	Quant	
						Dermal Contact	Quant	
	Sediment	Sediment[1]	Wappinger Creek	Recreational User	Adult	Incidental Ingestion	Quant	Nearby residents may contact contaminants in sediment during recreational use of the area. In some portions of the creek, the banks are steep; other portions are heavily vegetated or include man-made structures (retaining walls/bulkhead/riprap in the Industrial Park section of the creek) which preclude access to the creek. However, swimmers or waders may access the creek at the boat launch or jetty areas located in the Upper Shoal section of the creek as well as along the flatter portions of the banks. Recreational users in this area may include adults, adolescents, and children.
						Dermal Contact	Quant	
					Adolescent (6 to <18 years old)	Incidental Ingestion	Quant	
						Dermal Contact	Quant	
					Child (0 to <6 years old)	Incidental Ingestion	Quant	
						Dermal Contact	Quant	
	Surface Water/Sediment	Bottom Fish Fillets[2]	Wappinger Creek	Angler	Adult	Ingestion	Quant	Anglers have been observed fishing from boats and along the banks of Wappinger Creek. Anglers and their familiy members may catch and consume fish harvested from the creek. Anglers include adults, adolescents, and children who consume their catch.
					Adolescent (6 to <18 years old)	Ingestion	Quant	
					Child (0 to <6 years old)	Ingestion	Quant	
		Predatory Fish Fillets[3]	Wappinger Creek	Angler	Adult	Ingestion	Quant	Anglers have been observed fishing from boats and along the banks of Wappinger Creek. Anglers and their familiy members may catch and consume fish harvested from the creek. Anglers include adults, adolescents, and children who consume their catch.
					Adolescent (6 to <18 years old)	Ingestion	Quant	
					Child (0 to <6 years old)	Ingestion	Quant	

Table 5
Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations

Scenario Timeframe: Current/Future
Medium: Surface Water/Sediment
Exposure Medium: Fish Tissue - Bottom Fish Fillets

Exposure Point	Chemicals of Concern	Units	COPC Rationale	Arithmetic Mean	95% UCL (Distribution)		Maximum Concentration and Qualifier		Exposure Point Concentration	Statistical Measure
Wappinger Creek	Benzo(a)pyrene	ug/kg	95% KM (Chebyshev) UCL	613.1	1.20E+03	-	4300	J	1.20E+03	UCL-NP
	Aroclor 1254	ug/kg	95% KM (t) UCL	958.6	6.90E+02	-	2400	J	6.90E+02	UCL-N
	Aroclor 1260	ug/kg	95% GROS Adjusted Gamma UCL	735.5	1.40E+03	-	2100	J	1.40E+03	UCL-G
	Mercury (as methylmercury)	mg/kg	95% Adjusted Gamma UCL	0.8534	1.30E+00	-	2.62	-	1.30E+00	UCL-G
	Arsenic	mg/kg	95% KM (t) UCL	0.276	4.30E-01	-	0.44	J	4.30E-01	UCL-N

Table 5
Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations

Scenario Timeframe: Current/Future
Medium: Surface Water/Sediment
Exposure Medium: Fish Tissue - Predatory Fish Fillets

Exposure Point	Chemicals of Concern	Units	COPC Rationale	Arithmetic Mean	95% UCL (Distribution)		Maximum Concentration and Qualifier		Exposure Point Concentration	Statistical Measure
Wappinger Creek	Aroclor 1254	ug/kg	<5 samples	NA	NA	-	560	-	5.60E+02	Max
	Aroclor 1260	ug/kg	<5 samples	NA	NA	-	300	J	3.00E+02	Max
	Mercury (as methylmercury)	mg/kg	<5 samples	NA	NA	-	1.52	-	1.50E+00	Max
	Arsenic	mg/kg	<5 samples	NA	NA	-	0.52	J	5.20E-01	Max

Acronyms:
COPC = Chemicals of Potential Concern; µg/kg = micrograms per kilogram; mg/kg = milligrams per kilogram; UCL = upper confidence limit
(G) = Gamma; (N) = Normal; (NP) = Non-Parametric

Notes:
See BHHRA Tables B-3.3 and B-3.4 for full statistical results.

Table 6
Non-cancer Toxicity Data Summary

Pathway: Ingestion

Chemicals of Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Absorp. Efficiency (Dermal)	Adjusted RfD (Dermal)	Adj. Dermal RfD Units	Primary Target Organ	Combined Uncertainty /Modifying Factors	Sources of RfD Target Organ	Dates of RfD
Benzo(a)pyrene	Chronic	3.00E-04	mg/kg-day	N/A	N/A	mg/kg-day	DV	300	IRIS	3/21/2022
Aroclor 1254	Chronic	2.00E-05	mg/kg-day	N/A	N/A	mg/kg-day	IM, EY, NA	300	IRIS	3/21/2022
Aroclor 1260	Chronic	2.00E-05	mg/kg-day	N/A	N/A	mg/kg-day	IM, EY, NA	300	IRIS	3/21/2022
TCDD TEQ	Chronic	7.00E-10	mg/kg-day	N/A	N/A	mg/kg-day	RE, DV	30	IRIS	3/21/2022
Arsenic	Chronic	3.00E-04	mg/kg-day	N/A	N/A	mg/kg-day	SK	3	IRIS	3/21/2022
Cyanide	Chronic	6.00E-04	mg/kg-day	N/A	N/A	mg/kg-day	RE, DV	3000	IRIS	3/21/2022
Methylmercury	Chronic	1.00E-04	mg/kg-day	N/A	N/A	mg/kg-day	NV, DV	10	IRIS	3/21/2022

Notes:
mg/kg-day = milligrams per kilogram-day
mg/m^3 = milligrams per cubic meter
NA = not applicable
RfC = reference concentration
RfD = reference dose

Target Organ Systems:
DV = Developmental
EY = Eyes
IM = Immune
NA = Nails
NV = Nervous
RE = Reproductive
SK = Skin

Sources:
ATSDR: Agency for Toxic Substances and Disease Registry (ATSDR) minimal risk levels (MRLs). https://www.atsdr.cdc.gov/
IRIS: EPA Integrated Risk Information System (IRIS). https://www.epa.gov/iris
PPRTV: EPA Provisional Peer-Reviewed Toxicity Values (PPRTVs). https://www.epa.gov/pprtv

Table 7
Cancer Toxicity Data Summary

Pathway: Ingestion

Chemicals of Concern	Oral Cancer Slope Factor	Units	Adjusted Cancer Slope Factor (for Dermal)	Slope Factor Units	Weight of Evidence/ Cancer Guideline	Source	Date
Benzo(a)pyrene	1	$(mg/kg\text{-}day)^{-1}$	N/A	$(mg/kg\text{-}day)^{-1}$	A/Carcinogenic to humans	IRIS	3/21/2022
Aroclor 1254	2	$(mg/kg\text{-}day)^{-1}$	N/A	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/21/2022
Aroclor 1260	2	$(mg/kg\text{-}day)^{-1}$	N/A	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/21/2022
Arsenic	1.5	$(mg/kg\text{-}day)^{-1}$	N/A	$(mg/kg\text{-}day)^{-1}$	A	IRIS	3/21/2022

Notes:
A = carcinogenic to humans
B2 = possibly carcinogenic to humans
NA = not applicable
$(\mu g/m^3)^{-1}$ = (micrograms per cubic meter)$^{-1}$
$(mg/kg\text{-}day)^{-1}$ = (milligrams per kilogram-day)$^{-1}$

Sources:
IRIS: EPA Integrated Risk Information System (IRIS). https://www.epa.gov/iris

Table 8
Risk Characterization Summary - Non-Carcinogens

Scenario Timefram Current/Future
Exposure Medium: Bottom Fish Fillet
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Populatio Angler
Receptor Age Adult/Lifetime

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Bottom Fish	Bottom Fish Fillet	Wappinger Creek	Benzo(a)pyrene	DV	2.00E+00	NA	NA	**2.00E+00**
			Aroclor-1254	IM, EY, NA	1.00E+01	NA	NA	**1.00E+01**
			Aroclor-1260	IM, EY, NA	3.00E+01	NA	NA	**3.00E+01**
			Cyanide	RE	2.00E+00	NA	NA	**2.00E+00**
			Mercury (as Methylmercury)	NV, DV	5.00E+00	NA	NA	**5.00E+00**
See BHHRA Table A-9.4 for full results.				Chemical Total	49	0	0	**49**
				Exposure Point Total				49
				Exposure Medium Total				49
				Medium Total				49
				Receptor HI Total				**49**
				Total Developmental (DV) HI Across All Media =				7
				Total Eye (EY) HI Across All Media =				40
				Total Immune (IM) HI Across All Media =				40
				Total Nail (NA) HI Across All Media =				40
				Total Nervous (NV) HI Across All Media =				5
				Total Reproductive (RE) HI Across All Media =				2

Scenario Timefram Current/Future
Exposure Medium: Bottom Fish Fillet
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Populatio Angler
Receptor Age Adolescent [6 to <18 years]/Lifetime

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Bottom Fish	Bottom Fish Fillet	Wappinger Creek	Benzo(a)pyrene	DV	2.00E+00	NA	NA	**2.00E+00**
			Aroclor-1254	IM, EY, NA	1.00E+01	NA	NA	**1.00E+01**
			Aroclor-1260	IM, EY, NA	3.00E+01	NA	NA	**3.00E+01**
			Cyanide	RE	2.00E+00	NA	NA	**2.00E+00**
			Mercury (as Methylmercury)	NV, DV	6.00E+00	NA	NA	**6.00E+00**
See BHHRA Table B-9.5 for full results.				Chemical Total	50	0	0	**50**
				Exposure Point Total				50
				Exposure Medium Total				50
				Medium Total				50
				Receptor HI Total				**50**
				Total Developmental (DV) HI Across All Media =				8
				Total Eye (EY) HI Across All Media =				40
				Total Immune (IM) HI Across All Media =				40
				Total Nail (NA) HI Across All Media =				40
				Total Nervous (NV) HI Across All Media =				6
				Total Reproductive (RE) HI Across All Media =				2

Table 8
Risk Characterization Summary - Non-Carcinogens

Scenario Timefram Current/Future
Exposure Medium: Bottom Fish Fillet
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Populatio Child of angler
Receptor Age Child (birth to <6 years)/Lifetime

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Bottom Fish	Bottom Fish Fillet	Wappinger Creek	Benzo(a)pyrene	DV	3.00E+00	NA	NA	**3.00E+00**
			Aroclor-1254	IM, EY, NA	2.00E+01	NA	NA	**2.00E+01**
			Aroclor-1260	IM, EY, NA	5.00E+01	NA	NA	**5.00E+01**
			2,3,7,8-TCDD TEQ	RE, DV	1.00E+00	NA	NA	1.00E+00
			Arsenic	SK	1.00E+00	NA	NA	1.00E+00
			Cyanide	RE	3.00E+00	NA	NA	**3.00E+00**
			Mercury (as Methylmercury)	NV, DV	9.00E+00	NA	NA	**9.00E+00**
See BHHRA Table B-9.6 for full results.				Chemical Total	87	0	0	87
				Exposure Point Total				87
				Exposure Medium Total				87
				Medium Total				87
				Receptor HI T				**87**
				Total Developmental (DV) HI Across All Media =				13
				Total Eye (EY) HI Across All Media =				70
				Total Immune (IM) HI Across All Media =				70
				Total Nail (NA) HI Across All Media =				70
				Total Nervous (NV) HI Across All Media =				9
				Total Reproductive (RE) HI Across All Media =				4
				Total SKIN (SK) HI Across All Media =				1

Scenario Timefram Current/Future
Exposure Medium: Predatory Fish Fillet
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Populatio Angler
Receptor Age Adult/Lifetime

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Predatory Fish	Predatory Fish Fillet	Wappinger Creek	Aroclor-1254	IM, EY, NA	1.00E+01	NA	NA	**1.00E+01**
			Aroclor-1260	IM, EY, NA	6.00E+00	NA	NA	**6.00E+00**
			Mercury (as Methylmercury)	NV, DV	6.00E+00	NA	NA	**6.00E+00**
See BHHRA Table B-9.7 for full results.				Chemical Total	22	0	0	22
				Exposure Point Total				22
				Exposure Medium Total				22
				Medium Total				22
				Receptor HI T				**22**
				Total Developmental (DV) HI Across All Media =				6
				Total Eye (EY) HI Across All Media =				16
				Total Immune (IM) HI Across All Media =				16
				Total Nail (NA) HI Across All Media =				16
				Total Nervous (NV) HI Across All Media =				6

Table 8
Risk Characterization Summary - Non-Carcinogens

Scenario Timefram Current/Future
Exposure Medium: Predatory Fish Fillet
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Populatio Angler
Receptor Age Adolescent [6 to <18 years]/Lifetime

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Predatory Fish	Predatory Fish Fillet	Wappinger Creek	Aroclor-1254	IM, EY, NA	1.00E+01	NA	NA	**1.00E+01**
			Aroclor-1260	IM, EY, NA	7.00E+00	NA	NA	**7.00E+00**
			Mercury (as Methylmercury)	NV, DV	7.00E+00	NA	NA	**7.00E+00**
See BHHRA Table B-9.8 for full results.				Chemical Total	24	0	0	24
				Exposure Point Total				24
				Exposure Medium Total				24
				Medium Total				24
				Receptor HI T				**24**
				Total Developmental (DV) HI Across All Media =				7
				Total Eye (EY) HI Across All Media =				17
				Total Immune (IM) HI Across All Media =				17
				Total Nail (NA) HI Across All Media =				17
				Total Nervous (NV) HI Across All Media =				7

Scenario Timefram Current/Future
Exposure Medium: Predatory Fish Fillet
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Populatio Angler
Receptor Age Child (birth to <6 years)/Lifetime

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Predatory Fish	Predatory Fish Fillet	Wappinger Creek	Aroclor-1254	IM, EY, NA	2.00E+01	NA	NA	**2.00E+01**
			Aroclor-1260	IM, EY, NA	1.00E+01	NA	NA	**1.00E+01**
			2,3,7,8-TCDD TEQ	RE, DV	1.00E+00	NA	NA	1.00E+00
			Arsenic	SK	1.00E+00	NA	NA	1.00E+00
			Mercury (as Methylmercury)	NV, DV	1.00E+01	NA	NA	**1.00E+01**
See BHHRA Table B-9.9 for full results.				Chemical Total	42	0	0	42
				Exposure Point Total				42
				Exposure Medium Total				42
				Medium Total				42
				Receptor HI T				**42**
				Total Developmental (DV) HI Across All Media =				11
				Total Eye (EY) HI Across All Media =				30
				Total Immune (IM) HI Across All Media =				30
				Total Nail (NA) HI Across All Media =				30
				Total Nervous (NV) HI Across All Media =				10
				Total Reproductive (RE) HI Across All Media =				1
				Total Skin (SK) HI Across All Media =				1

Table 9
Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Exposure Medium: Bottom Fish Fillet
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Angler
Receptor Age Adult/Lifetime

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Bottom Fish	Bottom Fish Fillet	Wappinger Creek	Benzo(a)pyrene	7.0E-04	NA	NA	**7.0E-04**
			Aroclor-1254	2.0E-04	NA	NA	**2.0E-04**
			Aroclor-1260	5.0E-04	NA	NA	**5.0E-04**
			Arsenic	1.0E-04	NA	NA	1.0E-04
See BHHRA Table B-9.4 for full results.			Chemical Total	1.5E-03	0.0E+00	0.0E+00	1.5E-03
			Exposure Point Total				1.5E-03
			Exposure Medium Total				1.5E-03
			Medium Total				1.5E-03
			Receptor Risk Total				**2.E-03**

Scenario Timeframe: Current/Future
Exposure Medium: Bottom Fish Fillet
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Angler
Receptor Age Adolescent [6 to <18 years]/Lifetime

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Bottom Fish	Bottom Fish Fillet	Wappinger Creek	Benzo(a)pyrene	7.0E-04	NA	NA	**7.0E-04**
			Aroclor-1254	2.0E-04	NA	NA	**2.0E-04**
			Aroclor-1260	5.0E-04	NA	NA	**5.0E-04**
			Arsenic	1.0E-04	NA	NA	1.0E-04
See BHHRA Table B-9.5 for full results.			Chemical Total	1.5E-03	0.0E+00	0.0E+00	1.5E-03
			Exposure Point Total				1.5E-03
			Exposure Medium Total				1.5E-03
			Medium Total				1.5E-03
			Receptor Risk Total				**2.E-03**

Scenario Timeframe: Current/Future
Exposure Medium: Bottom Fish Fillet
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Angler
Receptor Age Child (birth to <6 years)/Lifetime

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Bottom Fish	Bottom Fish Fillet	Wappinger Creek	Benzo(a)pyrene	7.0E-04	NA	NA	**7.0E-04**
			Aroclor-1254	2.0E-04	NA	NA	**2.0E-04**
			Aroclor-1260	5.0E-04	NA	NA	**5.0E-04**
			Arsenic	1.0E-04	NA	NA	1.0E-04
See BHHRA Table B-9.6 for full results.			Chemical Total	1.5E-03	0.0E+00	0.0E+00	1.5E-03
			Exposure Point Total				1.5E-03
			Exposure Medium Total				1.5E-03
			Medium Total				1.5E-03
			Receptor Risk Total				**2.E-03**

Table 9
Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Exposure Medium: Predatory Fish Fillet
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Angler
Receptor Age Adult/Lifetime

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Predatory Fish	Predatory Fish Fillet	Wappinger Creek	Aroclor-1254	2.0E-04	NA	NA	**2.0E-04**
			Aroclor-1260	1.0E-04	NA	NA	1.0E-04
			Arsenic	1.0E-04	NA	NA	1.0E-04
See BHHRA Table B-9.7 for full results.			Chemical Total	4.0E-04	0.0E+00	0.0E+00	4.0E-04
			Exposure Point Total				4.0E-04
			Exposure Medium Total				4.0E-04
			Medium Total				4.0E-04
			Receptor Risk Total				**4.E-04**

Scenario Timeframe: Current/Future
Exposure Medium: Predatory Fish Fillet
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Angler
Receptor Age Adolescent [6 to <18 years]/Lifetime

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Predatory Fish	Predatory Fish Fillet	Wappinger Creek	Aroclor-1254	2.0E-04	NA	NA	**2.0E-04**
			Aroclor-1260	1.0E-04	NA	NA	1.0E-04
			Arsenic	1.0E-04	NA	NA	1.0E-04
See BHHRA Table B-9.8 for full results.			Chemical Total	4.0E-04	0.0E+00	0.0E+00	4.0E-04
			Exposure Point Total				4.0E-04
			Exposure Medium Total				4.0E-04
			Medium Total				4.0E-04
			Receptor Risk Total				**4.E-04**

Scenario Timeframe: Current/Future
Exposure Medium: Predatory Fish Fillet
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Angler
Receptor Age Child (birth to <6 years)/Lifetime

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Predatory Fish	Predatory Fish Fillet	Wappinger Creek	Aroclor-1254	2.0E-04	NA	NA	**2.0E-04**
			Aroclor-1260	1.0E-04	NA	NA	1.0E-04
			Arsenic	1.0E-04	NA	NA	1.0E-04
See BHHRA Table B-9.9 for full results.			Chemical Total	4.0E-04	0.0E+00	0.0E+00	4.0E-04
			Exposure Point Total				4.0E-04
			Exposure Medium Total				4.0E-04
			Medium Total				4.0E-04
			Receptor Risk Total				**4.E-04**

Table 10
Food Chain Exposure Model Summary

Chemical	Hazard Quotient									
	Spotted Sandpiper		Great Blue Heron		Little Brown Bat		Raccoon		Mink	
	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL
2-Butanone	0.00007	0.02	0.00002	0.01	0.00000	0.0001	0.000002	0.001	0.000000	0.00001
Acetone	0.013	0.1	0.005	0.02	0.000	0.001	0.0002	0.001	0.00002	0.0001
Carbon Disulfide	0.0001	0.001	0.00002	0.0002	0.00000	0.00001	0.000004	0.00004	0.000000	0.000002
Methylene Chloride	0.002	0.01	0.001	0.04	0.00001	0.0001	0.00005	0.0004	0.000001	0.00001
2-Methylnaphthalene	0.1	0.1	0.001	0.01	0.00000	0.00001	0.0002	0.002	0.001	0.01
Acenaphthene	0.008	0.1	0.00004	0.0005	0.0	0.0	0.02	0.04	0.0002	0.0005
Acenaphthylene	0.001	0.01	0.00002	0.0002	0.00	0.00	0.003	0.01	0.002	0.003
Anthracene	0.011	0.1	0.0001	0.001	0.001	0.01	0.001	0.01	0.0001	0.001
Benzo(a)anthracene	0.1	0.7	0.01	0.1	0.002	0.02	0.1	0.6	0.002	0.02
Benzo(a)pyrene	0.3	**3.4**	0.02	0.2	0.0	0.3	0.01	0.1	0.04	0.4
Benzo(b)fluoranthene	0.1	0.7	0.02	0.2	0.002	0.02	0.04	0.4	0.03	0.3
Benzo(g,h,i)perylene	0.002	0.02	0.01	0.1	0.00	0.0	0.01	0.1	0.01	0.1
Benzo(k)fluoranthene	0.020	0.2	0.01	0.1	0.01	0.1	0.02	0.2	0.02	0.2
Bis(2-ethylhexyl)phthalate	0.1	**1.2**	0.0005	0.005	0.0	0.3	0.02	0.2	0.0003	0.003
Carbazole	0.3	**2.7**	0.1	0.9	0.01	0.1	0.02	0.2	0.0001	0.001
Chrysene	0.04	0.4	0.004	0.04	0.002	0.02	0.05	0.5	0.01	0.1
Dibenzo(a,h)anthracene	0.003	0.0	0.002	0.02	0.00000	0.0000	0.001	0.01	0.01	0.1
Dibenzofuran	0.001	0.01	0.003	0.03	0.0	0.3	0.003	0.03	0.0001	0.001
Fluoranthene	0.1	1.2	0.03	0.3	0.0	0.1	0.05	0.1	0.005	0.01
Fluorene	0.004	0.0	0.00004	0.0004	0.01	0.0	0.02	0.03	0.0004	0.001
Indeno(1,2,3-cd)pyrene	0.004	0.04	0.01	0.1	0.001	0.01	0.01	0.1	0.02	0.2
Naphthalene	0.024	0.2	0.0003	0.003	0.00	0.00	0.004	0.01	0.004	0.01
Pentachlorophenol	0.1	**1.5**	0.01	0.1	0.0	0.2	0.04	0.4	0.0002	0.002
Phenanthrene	0.012	0.1	0.0001	0.001	0.0	0.0	0.03	0.1	0.004	0.01
Pyrene	0.1	0.6	0.01	0.1	0.1	0.1	0.002	0.02	0.0002	0.002

Table 10
Food Chain Exposure Model Summary

Chemical	Hazard Quotient									
	Spotted Sandpiper		Great Blue Heron		Little Brown Bat		Raccoon		Mink	
	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL
4,4'-DDD	0.2	**2.0**	0.1	**1.4**	0.001	0.000	0.0003	0.002	0.002	0.01
4,4'-DDE	0.6	**5.6**	0.3	**3.5**	0.001	0.000	0.004	0.04	0.03	0.3
4,4'-DDT	0.1	**1.0**	0.1	0.9	0.0001	0.0001	0.0002	0.001	0.001	0.01
alpha-Chlordane	0.00002	0.0001	0.004	0.02	0.00000	0.000001	0.0001	0.0001	0.0003	0.001
beta-BHC	0.004	0.02	0.000	0.002	0.0000	0.0001	0.0002	0.001	0.001	0.004
Dieldrin	0.0	0.4	0.002	0.02	0.01	0.01	0.04	0.1	0.1	0.2
Endosulfan I	0.000002	0.0003	0.0001	0.0001	0.00001	0.000	0.0002	0.001	0.001	0.01
Endosulfan Sulfate	0.00005	0.0005	0.00003	0.0003	0.000	0.001	0.000003	0.00003	0.00002	0.0002
gamma-BHC (Lindane)	0.00017	0.002	0.0001	0.001	0.00000	0.00000	0.000002	0.00002	0.00001	0.0001
gamma-Chlordane	0.00001	0.0001	0.00003	0.0003	0.00000	0.000000	0.00001	0.0001	0.0001	0.001
Heptachlor	0.001	0.011	0.001	0.01	0.00001	0.0001	0.0001	0.001	0.001	0.01
Methoxychlor	0.006	0.013	0.001	0.002	0.0000	0.0001	0.0002	0.0005	0.001	0.003
Aroclor 1242	NC	0.1	NC	0.03	0.00	0.0	0.01	0.1	0.02	0.2
Aroclor 1254	0.02	0.2	0.03	0.3	0.01	0.1	0.01	0.1	0.1	0.4
Total PCBs	0.6	0.7	0.5	0.6	0.0	0.0	0.3	0.4	**2.5**	**2.9**
2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.0	0.3	0.01	0.1	0.001	0.03	0.03	0.8	0.02	0.7
TEQ (Avian/Mammalian)	0.2	**1.5**	0.1	0.7	0.011	0.3	0.2	**4.3**	0.7	**18.6**
Aluminum	**14.2**	**142.2**	0.04	0.4	**13.5**	**134.6**	**12.4**	**124.4**	0.2	2.5
Antimony	**6.8**	**68.0**	0.03	0.3	0.1	**1.0**	0.2	**1.7**	0.1	0.9
Arsenic	0.1	0.3	0.04	0.1	0.00	0.1	0.02	0.4	0.04	0.6
Barium	**2.1**	**3.9**	0.05	0.1	0.2	0.5	0.2	0.9	0.1	0.3
Cadmium	0.4	**50.6**	0.01	**1.2**	0.03	**1.5**	0.1	**5.3**	0.02	0.9
Chromium	**1.2**	**11.7**	0.02	0.2	0.2	**2.0**	0.1	**1.4**	0.1	0.5
Copper	**3.5**	**7.1**	0.3	0.6	0.03	0.1	0.2	0.3	0.4	0.8
Cyanide	0.01	0.1	0.01	0.1	NC	0.01	0.003	0.03	0.02	0.2

Table 10
Food Chain Exposure Model Summary

Chemical	Hazard Quotient									
	Spotted Sandpiper		Great Blue Heron		Little Brown Bat		Raccoon		Mink	
	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL
Iron	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Lead	**6.2**	**61.9**	**1.1**	**10.8**	0.01	0.1	0.1	**1.4**	0.02	0.2
Manganese	0.1	**1.1**	0.01	0.1	0.1	0.2	0.03	0.3	0.01	0.1
Mercury	**18.3**	**36.5**	**4.4**	**8.9**	0.1	**2.4**	**1.6**	**27.3**	**1.9**	**32.6**
Nickel	0.2	**7.5**	0.02	**0.9**	0.01	**1.7**	0.03	**6.8**	0.004	0.9
Silver	0.4	**3.5**	0.02	**0.2**	0.0	0.2	0.03	0.3	0.03	0.3
Zinc	0.7	**7.2**	0.2	**1.5**	0.01	0.3	0.03	**1.4**	0.1	**2.3**

Notes:
Yellow shading indicates chemicals with a hazard quotient greater than or equal to 1
Bolded cells indicate hazard quotient greater than or equal to 1

Acronyms:
LOAEL - lowest observed adverse effect level
NC - no criteria
NOAEL - no observed adverse effect level

Table 11-1. Potential Federal and State Chemical-Specific Applicable or Relevant and Appropriate Requirements

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Potential Federal Chemical-Specific Applicable or Relevant and Appropriate Requirement (ARARs)			
Protection of Surface-Water Quality			
Contaminants from CERCLA releases found in/discharged to surface water	Section 303(c) of the Clean Water Act (CWA) authorizes the requirements and procedures for developing, reviewing, revising, and approving water-quality standards by the states to protect existing and attainable use or uses of the receiving waters. Section 304(a) defines the federal water quality criteria (FWQC). These are nonenforceable numerical guidelines for contaminants that can be considered by states when establishing water quality standards for protection of human health and aquatic life. Mercury chronic aquatic life criterion: 0.77 micrograms per liter (µg/L); human health criterion: 0.05 µg/L.	Concentrations of substances, pollutants, or contaminants from CERCLA releases found in/discharged to surface water exposure to mercury-contaminated sediment may affect aquatic life or human health through fish consumption–**potentially relevant and appropriate.** FWQC are not legally enforceable standards but are potentially relevant and appropriate to CERCLA actions. CERCLA §121(d)(2)(B)(i) requires consideration of four factors when determining whether FWQC are relevant and appropriate: (1) the designated or potential use of the surface or groundwater, (2) the environmental media affected, (3) the purposes for which such criteria were developed, and (4) the latest information available. Wappinger Creek is considered Class C surface water per the New York State Department of Environmental Conservation (NYSDEC). The best usage for Class C surface waters is fishing. FWQC may be relevant and appropriate to this remedial action because surface water has been identified as an impacted medium from the CERCLA releases of hazardous substances, pollutants, or contaminants. In addition, fish consumption was identified as the only contributor to unacceptable risk in the Human Health Risk Assessment. Therefore, the human health criteria for consumption of organisms and the aquatic life criteria are considered potentially relevant and appropriate.	CWA, 33 U.S.C. § 1313 and 1314 (Sections 303(c) and 304(a)), and Implementing Regulations 40 CFR § 131.11
Potential State Chemical Specific ARARs			
Protection of Surface-Water Quality			
Contaminants from CERCLA releases found in/discharged to surface water	This statute and implementing regulation establishes criteria for New York State enforceable water-quality standards for approximately 200 contaminants in surface water. It says no residue attributable to sewage, industrial wastes, or other wastes; visible oil film; nor globules of grease should be present in surface waters. Per NYSDEC, Wappinger Creek is considered Class C, where the best usage is fishing. These waters will be suitable for fish, shellfish, and wildlife propagation and survival. The water quality will be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes. Wappinger Creek is also designated as trout waters, meaning it is subject to additional standards for trout or trout waters. Mercury standard for water column: 0.70 µg/L (total recoverable, human health).	Concentrations of substances, pollutants, or contaminants from CERCLA releases found in/discharged to surface water in New York State impacted by a remedial action–**potentially applicable** Mercury may leach into water from disturbed sediment.	Surface Waters of New York State, New York State Environmental Conservation Law (ECL) Article 15, Title 3; Article 17, Titles 3 and 8 and implementing regulation 6 New York Codes, Rules, and Regulations (NYCRR) Part 703.2 (narrative water quality standards) and 703.5 (water quality standards for toxic substances).

Table 11-1. Potential Federal and State Chemical-Specific Applicable or Relevant and Appropriate Requirements

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Protection of Soil Quality			
Contamination from CERCLA releases found in/discharged to sediments	This statute and implementing regulation provides the soil cleanup objectives (SCOs) for use in remedial programs under New York State's Environmental Remediation Programs. Mercury SCO: 0.18 milligrams per kilogram (mg/kg) (protection of groundwater); 0.81 mg/kg (unrestricted use or residential use); 5.7 mg/kg (restricted residential or commercial use); 0.4 mg/kg (industrial use).	Concentrations of mercury in dredged sediment resulting from CERCLA releases need to be evaluated against applicable SCOs to ensure protection of human health and the environment during handling, staging, or disposal of excavated material— **potentially relevant and appropriate** The SCO may guide sediment clean-up levels and off-site disposal criteria.	New York State ECL Article 1, Title 1; Article 27, Titles 13 & 14; Article 52, Title 3; Article 56, Title 5; Article 71, Title 36; and Article 3, Section 0301, and Implementing Regulations 6 NYCRR Part 375-6.8 (Soil cleanup objective tables)

Table 11-2. Potential Federal and State Location-Specific Applicable or Relevant and Appropriate Requirements

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Potential Federal Location-Specific ARARs			
Floodplain			
Presence of floodplains within remediation work areas	This regulation requires that federal agencies take measures to incorporate floodplain management goals into planning, regulatory, and decision-making processes. It also requires that agencies promote the preservation and restoration of floodplains so that their natural and beneficial values can be realized. Long- and short-term impacts associated with the occupancy and modification of floodplains will be avoided wherever possible. Agencies will avoid direct and indirect support of floodplain development wherever there is a practicable alternative.	Presence of floodplains–**potentially applicable.** Much of the site is within the Federal Emergency Management Agency (FEMA) designated Special Flood Hazard Area. Wappinger Creek, itself, is a floodway per FEMA.	Floodplain Management Regulations, 44 CFR § 9 and 40 CFR § 6 Appendix A
Presence of floodplain within remediation work areas	This regulation prohibits encroachments such as capping or placement of material in the river or on riverbanks that would result in any increase in flood levels during base flood discharge.	Presence of floodplains–**potentially relevant and appropriate.** This regulation is relevant and appropriate to the site because it is applicable to communities that establish requirements to manage floodplains. Remedial actions that involve capping or other placement of material in the creek or on adjacent creek banks may increase flood levels. Much of the site is within FEMA designated Special Flood Hazard Area. Wappinger Creek, itself, is a floodway.	Floodplain Management Criteria for Flood-Prone Areas, 44 CFR § 60.3(d)(2) and (3)
Wetlands			
Presence of wetlands within remediation work areas	This regulation requires that federal agencies take measures to incorporate wetlands protection considerations into planning, regulatory, and decision-making processes. It also requires that agencies minimize the destruction, loss, or degradation of wetlands and preserve and enhance the natural and beneficial values of wetlands. Agencies will avoid direct and indirect support of wetlands development wherever there is a practicable alternative.	Presence of jurisdictional wetlands–**potentially applicable.** Wappinger Creek is listed as a Riverine wetland habitat in the National Wetlands Inventory. There are also several freshwater ponds nearby and one location of freshwater forested/shrub wetland.	Protection of Wetlands Regulations, 40 CFR § 6 Appendix A

Appendix Table 11-2. Potential Federal and State Location-Specific Applicable or Relevant and Appropriate Requirements

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Potential Federal Location Specific ARARs (Continued)			
Protection of Historic Buildings and Cultural Resources			
Presence of cultural resources within remediation work areas	This statute and implementing regulation requires federal agencies to take into account the effect of this response action upon any district, site, building, structure, or object that is included in or eligible for the National Register of Historic Places (generally, 50 years old or older). Federal agencies are required to take into account their undertakings on historic properties and must determine if there will be an adverse effect and, if so, how the effect may be minimized or mitigated in consultation with the appropriate State Historic Preservation Office (SHPO). Potential actions could impact cultural resources eligible for the National Register of Historic Places. Developing a Phase IB cultural resources survey with the remedial action is recommended so historic artifacts associated with National Register of Historic Places-listed properties or eligible properties can be preserved. Monitoring by a qualified archaeologist may be needed during remedial action.	Identification of cultural resources on or eligible for the National Register – **potentially applicable.** A cultural resources survey was completed for the project in 2021. The results indicate the site is within the boundaries of the Wappinger Falls Historic District, which is listed on the National Register of Historic Places. In addition, the Industrial Park, specifically, has been active for more than 100 years, suggesting National Register of Historic Places eligibility.	National Historic Preservation Act 54 U.S.C. § 306101 (Section 106), and 16 U.S.C. § 470 and Implementing Regulations 36 CFR §§ 60, 63, 6.301(b), 800
Presence of archaeological or historical artifacts within remediation work areas	This statute and implementing regulation establish requirements for the evaluation and preservation of historical and archaeological data that may be destroyed through alteration of terrain because of a federal construction project or a federally licensed activity or program. The unauthorized removal of archaeological resources from a federal project or federally managed lands is prohibited without a permit. Any archaeological investigations at a site must be conducted by a professional archaeologist. Potential actions could impact cultural resource features, both in water at the Industrial Park and along creek banks. Developing a Phase IB cultural resources survey with the remedial action is recommended so historic artifacts associated with National Register of Historic Places-listed properties or eligible properties can be preserved. Monitoring by a qualified archaeologist may be needed during remedial action. Note that under CERCLA 121(e), a permit is not required for on-site CERCLA response actions. CERCLA requires that only substantive aspects of the permits will be complied with. Administrative component will not be addressed.	Identification of archaeological resources by an archaeological investigation– **potentially applicable.** A cultural resources survey was completed for the project in 2021. The results of the Phase IA indicate the site has a moderate to high potential for the presence of precontact Native American sites, and the northeast portion of the site has a moderate to high sensitivity for the presence of nineteenth- and early-twentieth-century archaeological deposits associated with the Dutchess Print Works and the industrial history of Wappingers Falls. Five cultural resources were identified during the site visit. In addition, the site is within the boundaries of the National Register of Historic Places-listed Wappinger Falls Historic District. Therefore, the potential exists for archaeological resources that contribute to the significance of the Wappingers Falls Historic District in that area.	Preservation of Historical and Archeological Data 54 U.S.C. §§ 312501-312504, 312506-312508, and Implementing Regulations 43 CFR § 7, Protection of Archaeological Resources
Conservation of Protected Species and Habitats			
Presence of habitat for bald and/or golden eagles within remediation work areas	This statute makes it unlawful for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter any bald or golden eagle or the parts, nests, or eggs of such a bird. In addition to immediate impacts, this requirement also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits and causes injury, death, or nest abandonment. If bald or golden eagles are identified during remedial design and remedial action, activities must be modified and conducted to conserve the species and their habitat.	Identification of bald or golden eagles and actions that could impair the species and their habitat–**potentially applicable.** During ecological reconnaissance visits performed as part of the Screening Level Ecological Risk Assessment (SLERA), a bald eagle was observed. In addition, the United States Fish and Wildlife Service (USFWS) lists bald eagles as one of the avian species of concern that exist in the project area. There is the potential for eagle nests to exist on top of shoreline structures at the Industrial Park or in trees lining the banks of the creek that could be affected by a remedial action.	Bald and Golden Eagle Protection Act 16 U.S.C. § 668(a), and Implementing Regulations 50 CFR § 22.12

Table 11-2. Potential Federal and State Location-Specific Applicable or Relevant and Appropriate Requirements

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Presence of habitat for migratory birds in remediation work areas	This statute and implementing regulations make it unlawful for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter any migratory bird or the parts, nests, or eggs of such a bird. If migratory birds are identified during remedial design and remedial action, activities must be modified and conducted to conserve the species and their habitat.	Actions that may negatively impact the migratory birds and their habitat–**potentially applicable.** Remedial actions may impact migratory birds because they may be conducted within and near water bodies. There are numerous migratory birds species that exist in the area or have particular vulnerabilities in the area per the USFWS Birds of Conservation Concern List. During ecological reconnaissance visits performed as part of the SLERA, several migratory bird species were observed along the water.	Migratory Bird Treaty Act 16 U.S.C. § 703 and Implementing Regulations 50 CFR § 10.13 (List of Migratory Birds)
Presence of any stream or other body of water to be impounded, diverted, controlled, or modified for drainage	This statute and implementing regulations require coordination with federal and state agencies for federally funded projects to ensure that any modification of any stream or other water body affected by any action authorized or funded by the federal agency provides for adequate protection of fish and wildlife resources. Consultation with the federal agencies will be conducted to identify substantive requirements for adequate protection of fish and wildlife resources. *NOTE:* Federal agencies must comply with substantive requirements identified by UFWS and the relevant state agency with jurisdiction over wildlife resources.	Modification of any stream or water bodies that affect nongame fish and wildlife resources–**potentially applicable.** Remedial actions may involve federally funded modification of water bodies. The creek is known to be habitat for nongame fish and wildlife.	Fish and Wildlife Coordination Act 16 U.S.C. §§ 662 and 663 and Implementing Regulations 43 CFR § 24.4(i)
Potential Federal Location-Specific ARARs (Continued)			
Presence of essential fish habitat within remediation work areas	Requires federal agencies to consult with National Marine Fisheries Service (NMFS) on actions that may adversely affect Essential Fish Habitat (EFH), defined as "those waters the substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Consultation with the federal agencies will be conducted to identify substantive requirements for protection of EFH.	Actions that may adversely affect EFH–**potentially applicable.** The creek is known to be habitat for fish and wildlife, as the area is designated as EFH. Wappinger Creek is also a designated habitat area of particular concern for summer flounder per NMFS and marked on the New York State Environmental Resource Mapper as being in the vicinity of significant anadromous fish concentrations. Potential effects to EFH from the proposed remedial actions have not yet been evaluated.	Magnuson-Stevens Fishery Conservation and Management Act 16 U.S.C. §1855(b)(2) and Implementing Regulations 50 CFR § 600.920
Presence of federally listed threatened or endangered (T&E) species or their habitat within remediation work areas	This statute and implementing regulations provide that federal activities do not jeopardize the continued existence of any T&E species. 16 U.S.C. 1536(a) of the Endangered Species Act requires consultation with USFWS to identify the possible presence of protected species and mitigate potential impacts on such species. Substantive compliance with the Endangered Species Act means that the lead agency must identify whether a T&E species, or its critical habitat, will be affected by a proposed response action. If so, the agency must avoid the action or take appropriate mitigation measures so that the action does not affect the species or its critical habitat. If, at any point, the conclusion is reached that endangered species are not present or will not be affected, no further action is required. If T&E species are identified during remedial design and remedial action, activities must be modified and conducted to conserve the species and their habitat.	Presence of federally listed T&E species or their habitat within the site–**potentially applicable**. The USFWS reported the site is within areas that provide habitat for the endangered Indiana bat, threatened northern long-eared bat, and a species of concern, the monarch butterfly. In addition, several species of anadromous fish are federally listed as T&E. The New York State Environmental Resource Mapper marks the area as being in the vicinity of significant anadromous fish concentrations.	Endangered Species Act, 16 U.S.C. § 1536(a)(2), Implementing Regulations 50 CFR § 17.11 (Endangered and Threatened Wildlife) and 50 CFR § 17.12 (Endangered and Threatened Plants), or 50 CFR § 17.95 (Designation of Critical Habitat Area)

Table 11-2. Potential Federal and State Location-Specific Applicable or Relevant and Appropriate Requirements

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Coastal Zone Management			
Presence of coastal zone management area within remediation work areas	Requires activities affecting land or water uses in a coastal zone to certify non-interference with coastal zone management. It establishes that federal agencies that conduct or support activities that directly affect a coastal use or resource must undertake those activities in a manner that is consistent, to the maximum extent practicable, with State coastal management programs that have been approved by the NOAA.	Presence of coastal zone management areas within the site– **potentially applicable** Remedial actions may impact coastal zones. A portion of the site boundary of the Wappinger Creek is within the coastal zone management act boundary designated by NOAA for the State of New York.	Coastal Zone Management Act 16 U.S.C. § 1455b and 1456 and Implementing Regulations 15 CFR 930.32 through 930.34

Table 11-2. Potential Federal and State Location-Specific Applicable or Relevant and Appropriate Requirements

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Potential State Location-Specific ARARs			
Floodplain			
Actions that take place on floodplains in New York State	This regulation establishes floodplain management criteria for state projects in New York to minimize flood damage and protect public safety. It requires state agencies to identify flood hazard areas and design projects—such as structures and utilities—so they are resistant to flooding, properly elevated above base-flood levels, and constructed to prevent damage or collapse during floods.	Actions that could potentially adversely impact floodplains–**potentially applicable**. Much of the site is within the FEMA designated Special Flood Hazard Area corresponding to inundation by the 1 percent (%) annual chance flood (100-year flood). Wappinger Creek, itself, is a floodway per FEMA.	New York State ECL Article 15 Water Resources, Title 5 Flood Control and Flood Plan Management § 15-0505 (Floodplain Management Policy), and Implementing Regulations 6 NYCRR Part 502 (State Floodplain Management)
Wetland			
Presence of tidal wetlands within remediation work areas	This statute and implementing regulation establish requirements for undertaking activities in or adjacent to tidal wetlands to preserve, protect, and enhance present and potential values of tidal wetlands within New York State including development restrictions. Remedial actions will comply with substantive requirements of the permits. Alternatives should be evaluated to minimize the destruction, loss, or degradation of tidal wetlands to the extent practicable.	Presence of tidal wetlands within Wappinger Creek or surrounding area–**potentially applicable.** Though Wappinger Creek is not identified as tidal wetlands in the NYSDEC Info Locator tool mapping regulatory tidal wetlands, it does meet the definition of tidal wetland in New York State ECL, Article 25. In addition, Wappinger Creek is considered "lower Hudson River" where NYSDEC indicates tidal wetlands are found. Therefore, for purposes of this assessment, the area surrounding Wappinger Creek is considered tidal wetlands. The remedial action may include activities such as dredging and/or placement of fill, which is regulated under the Tidal Wetlands Act.	New York State ECL Article 25 Tidal Wetlands, Title 4 and Implementing Regulation 6 NYCRR Part 661.6
Presence of State-Owned Tidal Wetlands	This statute and implementing regulation prohibits the following activities within state owned tidal wetlands: (1) any use of a motor vehicle, including parking, more than one hour before sunrise or more than one hour after sunset except for specifically permitted nature appreciation, educational or research activities; (3) fires; (5) removal of naturally occurring or introduced flora, whether living or dead, except for specifically permitted research or educational activities; (6) operation of motorized, wheeled or tracked vehicles and air boats except as specifically permitted activities; (7) construction, erection or maintenance of any structure, except temporary blinds or temporary structures associated with specifically permitted research or educational activities which are permissible under section 51-0713 of the Environmental Conservation Law; or (8) disposal of any solid, liquid or toxic waste material. Note that under CERCLA 121(e), a permit is not required for on-site CERCLA response actions. CERCLA requires that only substantive aspects of the permits will be complied with. Administrative component will not be addressed.	Use of state-owned tidal wetlands within Wappinger Creek or surrounding are – **potentially applicable.** Though Wappinger Creek is not identified as tidal wetlands in the NYSDEC Info Locator tool mapping regulatory tidal wetlands, it does meet the definition of tidal wetland in New York State ECL, Article 25. In addition, Wappinger Creek is considered "lower Hudson River" where NYSDEC indicates tidal wetlands are found. Therefore, for purposes of this assessment, the area surrounding Wappinger Creek is considered tidal wetlands. The remedial action may include activities such as dredging and/or placement of fill, which is regulated under the Tidal Wetlands Act.	New York State ECL Article 3, Title 3 and implementing regulation 6 NYCRR Part 46

Table 11-2. Potential Federal and State Location-Specific Applicable or Relevant and Appropriate Requirements

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Presence of state-owned freshwater wetlands	This statute and implementing regulation preserve and protect freshwater wetlands and the benefits they provide, such as water filtration, flood control, habitat for fish and wildlife, and maintenance of natural hydrology. They regulate any activities that may impact designated freshwater wetlands or their adjacent areas, including dredging, filling, draining, or construction.	Presence of freshwater wetlands–**potentially applicable**. Wappinger Creek is listed as riverine habitat in the National Wetlands Inventory. There are also several freshwater ponds nearby and one location of freshwater forested/shrub wetland. The embayment area, located along the northern bank, of Wappinger Creek is approximately 240,000 square feet (approximately 800 by 300 feet) and is fronted by palustrine freshwater forested/shrub wetland. The remedial action, including dredging, staging, or disposal activities, occurs within or adjacent to NYSDEC regulated freshwater wetlands.	Freshwater Wetlands Protection Act, NY ECL Article 24, and Implementing Regulations 6 NYCRR Part 663 (Regulations for Freshwater Wetlands Protection)
Protection of Historic Buildings and Cultural Resources			
Presence of archaeological or historical artifacts within remediation work areas	This statue protects New York's historic and archaeological resources by requiring state-level review and consultation with the New York SHPO for projects that could impact those resources, helping to balance development and preservation. Relevant for projects involving ground disturbance, construction, or alteration that could impact archaeological sites, historic buildings, structures, or landscapes. For remediation actions like dredging or construction near historic sites, the State Historic Preservation Act (SHPA) may require surveys, documentation, or mitigation plans before work can proceed. Consultation with agencies such as SHPO will be conducted to identify substantive requirements for adequate protection of archaeological or historical artifacts.	Wappinger Creek and surrounding areas may contain historic or archaeological resources potentially affected by dredging or remediation activities. Identification of archaeological resources by an archaeological investigation–**potentially applicable.** A cultural resources survey was completed for the project in 2021. The results of the Phase IA indicate the site has a moderate to high potential for the presence of precontact Native American sites, and the northeast portion of the site has a moderate to high sensitivity for the presence of nineteenth- and early-twentieth-century archaeological deposits associated with the Dutchess Print Works and the industrial history of Wappingers Falls. Five cultural resources were identified during the site visit. In addition, the site is within the boundaries of the National Register of Historic Places-listed Wappinger Falls Historic District. Therefore, the potential exists for archaeological resources that contribute to the significance of the Wappingers Falls Historic District to be in that area.	SHPA, NY Parks, Recreation and Historic Preservation Law § 14.09 and Implementing Regulations 9 NYCRR Part 427 (SHPA Review Procedures)
Potential State Location-Specific ARARs (Continued)			
Conservation of Protected Species and Habitats			
Presence of state-listed T&E species or species of special concern and their habitats within remediation work areas	This statute and implementing regulation provide protection for T&E species and species of special concern within New York State. The taking of any T&E species is prohibited, except under a permit or license issued by NYSDEC. Note that under CERCLA 121(e), a permit is not required for on-site CERCLA response actions. CERCLA requires that only substantive aspects of the permits will be complied with. Administrative component will not be addressed. Consultation with agencies will be conducted to identify substantive requirements for adequate protection of T&E species.	Presence of state-listed T&E species or their habitat within the site–**potentially applicable.** The site may contain endangered, threatened, or species of special concern. The New York State Environmental Resource Mapper identifies the area as being within the vicinity of bats listed as T&E. In addition, New York State Environmental Resource Mapper marks the area as being in the vicinity of significant anadromous fish concentrations, and there is one anadromous fish (shortnose sturgeon) that is a state-listed endangered species.	New York Endangered Species Act New York State ECL Article 11, Title 5, Section 11-0535 (Endangered and threatened species) and Implementing Regulation 6 NYCRR Part 182

Table 11-2. Potential Federal and State Location-Specific Applicable or Relevant and Appropriate Requirements

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Presence of fish and wildlife within remediation work areas	This statute establishes fish and wildlife management practices to preserve and develop fish and wildlife resources and improve access to them for recreational purposes. The regulation prohibits the discharge of deleterious or poisonous substances into any public or private waters in quantities injurious to fish life, protected wildlife or waterfowl inhabiting those waters, or the propagation of fish, protected wildlife, or waterfowl therein.	Presence of fish and wildlife within Wappinger Creek–**potentially applicable.** Wappinger Creek is designated as a significant coastal fish and wildlife habitat. It provides essential spawning, nursery, overwintering, and foraging habitat for fish species, including striped bass, largemouth bass, smallmouth bass, catfish, and carp. The area also supports protected wildlife, such as the endangered Indiana bat, the threatened northern long-eared bat, and the monarch butterfly, a species of concern. Several migratory bird species of conservation concern—such as the bald eagle, cerulean warbler, and wood thrush—use the creek for breeding and foraging.	New York State ECL Article 11 Fish and Wildlife, Title 5, Section 11-0503 (Polluting streams prohibited)
Presence of protected fish, wildlife, shellfish, crustacea, and insects within remediation work areas	This regulation prohibits the pursuing, taking, wounding, or killing of protected fish, game, wildlife, shellfish, harbor seals, crustacea, or protected insects at any time of year, except as permitted by the Fish and Wildlife Law. Remedial activities must be conducted in a manner that avoids direct harm, disturbance, or unauthorized take of protected species. Note that under CERCLA 121(e), a permit is not required for on-site CERCLA response actions. CERCLA requires that only substantive aspects of the permits will be complied with. Administrative components will not be addressed.	Presence of protected fish, shellfish, and wildlife within Wappinger Creek – **potentially applicable.** Wappinger Creek is designated as a significant coastal fish and wildlife habitat. This area may contain New York state protected fish, wildlife, shellfish, crustacea, and insects.	New York State ECL Article 11 Fish and Wildlife, Title 5, Section 11-0107 (Application of fish and wildlife law)
Presence of protected native plants within remediation work areas	This statute and implementing regulation provide protection for endangered, threatened, rare, and exploitable vulnerable native plants within New York State. All listed species are “protected plants” and may not be removed or damaged without consent. If it is determined that response actions may destroy or degrade New York State-listed protected native plants or cause a "taking" of any protected native plants, activities must be modified and conducted to conserve the species and their habitat. Consultation with NYSDEC will be conducted during remedial design to identify substantive requirements for protection of the native plants.	Presence of endangered or threatened species or their habitat within Wappinger Creek– **potentially applicable.** The study area may contain New York State protected native plant species. Surveys for protected native plant species, that would indicate this is not an ARAR have not been conducted within the site.	New York State ECL Lands and Forests Article 9, Removal of Trees and Protected Plants Title 15 and implementing regulation Protected native plants 6 NYCRR Part 193.3
Coastal Zone Management			
Presence of coastal areas and inland waterways within remediation work areas	This statute and implementing regulation establish policies for the designation of use coastal and inland waterway resources while preventing the loss of living marine resources and wildlife, diminution of open space area or public access to the waterfront, shoreline erosion, and impairment of scenic beauty or permanent adverse changes to ecological systems.	Presence of coastal areas or inland waterways within Wappinger Creek **– potentially applicable.** The remediation work area is within a New York State coastal waterway.	New York State Waterfront Revitalization of Coastal Areas and Inland Waterways New York State ECL Article 42; Sections 910-923 and implementing regulation 19 NYCRR Parts 600-603
Presence of coastal erosion hazard areas	This statute and implementing regulation establish guidelines for coastal erosion management for natural and structural protection of erosion hazard areas. Regulated activities include dredging and/or placing of capping materials. The remedial action must be designed in accordance with substantive requirements to address coastal erosion hazard areas which include restrictions on regulated activities and standards for erosion protection structures.	Presence of coastal erosion hazard areas within Wappinger Creek – **potentially applicable.** The remediation work area is within a designated coastal erosion hazard area.	New York State ECL Article 34 and implementing regulation 6 NYCRR Part 505 (Coastal Erosion Management)

Table 11-3. Potential Federal and State Action-Specific Applicable or Relevant and Appropriate Requirements (ARARs)

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Potential Federal Action-Specific ARARs			
Discharge to Waters of the United States and Navigable Waters			
Actions with point source discharges into Waters of the U.S.	Section 402 of the CWA regulates discharges of pollutants from point sources to waters of the United States, and requires compliance with the standards, limitations, and regulations promulgated per Sections 301, 304, 306, 307, 308 of the CWA. The National Pollutant Discharge Elimination System (NPDES) authorizes permits for the discharge of treatment system effluents, stormwater or sediment dewater discharges associated with industrial/remedial activities. These permits establish water-quality standards to be met using the best available technology and best management practices. Part 122.44 establishes permit conditions, which include effluent limitations and standards for discharges. CERCLA requires that only substantive aspects of permits be complied with. Administrative components will not be addressed.	Discharge of pollutants from any point source into waters of the United States, including the Wappinger Creek or its tributaries–**potentially applicable.** Wappinger Creek is classified as a water of the U.S., supporting the determination of applicability. Remedial action could involve discharge of stormwater and/or sediment dewater to the creek, its tributaries, or other waters of the United States during implementation, construction, or operation of the remedy.	CWA 33 U.S.C. § 1342 (Section 402), et seq. and Implementing Regulations 40 CFR §122 (NPDES) Subpart C (Permit Conditions)
Actions that discharge dredged or fill material into waters of the United States	CWA §404 regulates the discharge of dredged or fill material into waters of the United States, including return flows from such activity. This program is implemented through regulations set forth in the 404(b)(1) guidelines, 40 CFR Part 230. The guidelines specify the restrictions on discharge (40 CFR 230.10); the factual determinations that need to be made on short-term and long-term effects of a proposed discharge of dredged or fill material on the physical, chemical, and biological components of the aquatic environment (40 CFR 230.11) in light of Subparts C through F of the guidelines; and the findings of compliance on the restrictions (40 CFR 230.12). Subpart J of the guidelines provides the standards and criteria for the use of all types of compensatory mitigation when the response action will result in unavoidable impacts to the aquatic environment. CERCLA requires that only substantive aspects of permits be complied with. Administrative components will not be addressed.	Discharge of dredged or fill material into waters of the United States, including return flows from such activity–**potentially applicable.** Actions to implement the remedial action that may result in discharges of dredged or fill material to waters of the United States include, but may not be limited to, dredging contaminated sediment, placement of capping material and enhanced monitored natural recovery material, and in situ treatment of sediments that will occur in implementing the remedy.	CWA, 33 U.S.C. § 1344 (Section 404(b)(1)) Guidelines, and Implementing Regulations 40 CFR § 230 (Guidelines for Specification of Disposal Sites for Dredged or Fill Material)
Actions that discharge pollutants to navigable waters of the United States	CWA 401 requires, if more stringent than state implementation regulations, that in-water response actions that result in a discharge of pollutants comply with water-quality standards through the placement of water quality-based conditions and other requirements on the discharge deemed necessary Any federally authorized activity that may result in any discharge into navigable waters requires reasonable assurances that the activity will be conducted in a manner that will not violate applicable water-quality standards by the imposition of any effluent limitations, other limitations, and monitoring requirements necessary to assure the discharge will comply with applicable provisions of the CWA. CERCLA requires that only substantive aspects of certifications be complied with. Administrative components will not be addressed.	Activity that may result in any discharge into navigable waters–**potentially applicable.** Wappinger Creek is classified as a navigable water by the U.S. Army Corps of Engineers, supporting the determination of applicability. Actions to implement the remedial action that may result in discharges to waters of the United States include, but may not be limited to, dredging, capping, placement of material for enhanced natural recovery, riverbank remediation, return flows, or dewatering sediments. Conditions and other requirements deemed necessary so that water-quality standards are not violated will be placed on any such discharge.	CWA, 33 U.S.C. § 1341 (Section 401), and Implementing Regulations 40 CFR § 121

Table 11-3. Potential Federal and State Action-Specific Applicable or Relevant and Appropriate Requirements (ARARs)

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Actions that discharge pollutants to the contiguous coastal zone	This act and regulation establishes the criteria for issuance of NPDES permits for the discharge of pollutants from a point source into the territorial seas, the contiguous zone, and the oceans. Prohibits discharges causing unreasonable degradation of the marine environment. CWA § 403 requires that an NPDES permit be issued for discharges into marine waters, including territorial seas, the contiguous zone, and the oceans, as defined in 40 CFR 122.2. A permit is not required if the point of discharge is on-site; however, substantive requirements would be complied with as described in 40 CFR 125.123(b) and (d)(1).	Discharge of pollutants from a point source into the contiguous coastal zone–**potentially applicable.** The lower segment of Wappinger Creek, from the Hudson River upstream to Wappingers Falls, lies within the coastal zone designated by National Oceanic and Atmospheric Administration (NOAA) for New York State. New York State designated Wappinger Creek as a significant coastal fish and wildlife habitat between the creek's confluence with the Hudson River and the dam in Wappingers Falls.	CWA 33 U.S.C. § 1343 Ocean Discharge Criteria, and Implementing Regulations 40 CFR §§ 125.122, 125.123(b) and 125.123(d)(1)
Actions in federal navigation channels	The creation of any obstruction not affirmatively authorized by Congress, to the navigable capacity of any of the waters of the United States is prohibited; and it will not be lawful to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States outside established harbor lines. 33 CFR 322.5(e) addresses placing aids to navigation in navigable waters under the purview of Section 10 and must meet requirements of the U.S. Coast Guard (33 CFR 330.5). 33 CFR Section 323.4(b) and (c) provide that any discharge of dredged or fill material contains any toxic pollutant listed under section 307 of the CWA will require compliance with Section 404 of the CWA. Placement of pilings or discharge of dredged material where the flow or circulation of waters of the United States may be impaired, or the reach of such waters are reduced, must comply with Section 10. 33 CFR 329.4 defines the term "navigable water of the United States" for purposes of the U.S. Army Corps of Engineers (USACE) regulations, including those addressing the discharge of dredged or fill material. CERCLA requires that only substantive aspects of certifications be complied with. Administrative components will not be addressed.	Actions taken or constructed in the navigation channel–**potentially relevant and appropriate** This regulation is considered relevant and appropriate because the portion of the Hudson River adjacent to the targeted section of Wappinger Creek is designated as a navigation channel. Potentially relevant and appropriate to the use of aids to navigation as institutional controls for maintaining the integrity of the selected remedy. The proposed remedial action involves dredging, which constitutes excavation and physical modification of the creek bed and potentially the banks.	River and Harbors Act of 1899, Section 10, 33 U.S.C. § 403, and Implementing Regulations 33 CFR §§ 322.5(e), 323.3, 323.4(b)-(c) and 329

Table 11-3. Potential Federal and State Action-Specific Applicable or Relevant and Appropriate Requirements (ARARs)

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Actions that transport material for dumping into the territorial sea or a contiguous coastal zone affecting the territorial sea	Establishes criteria for issuance of ocean dumping permits for the discharge of material into the territorial seas or the contiguous zone adjacent to the territorial sea. 40 CFR 220 requires that an NPDES permit be issued for discharges into marine waters, including territorial seas or the contiguous zone adjacent to the territorial sea. A permit is not required if point of discharge is on-site; however, substantive requirements would be complied with.	Discharge of dredged material into the contiguous coastal zone adjacent to the territorial sea–**potentially applicable.** The lower segment of Wappinger Creek, from the Hudson River upstream to Wappingers Falls, lies within the coastal zone designated by NOAA for New York State. New York State designated Wappinger Creek as a significant coastal fish and wildlife habitat between the creek's confluence with the Hudson River and the dam in Wappingers Falls.	Marine Protection, Research, and Sanctuaries Act 33 U.S.C. § 1412 and 1418, and Implementing Regulations 40 CFR §§ 220-223, 40 CFR §§ 225-228, and 40 CFR §§ 230-233
Discharge of CERCLA contaminants to publicly owned treatment works (POTW)	Establishes prohibitions on discharge of pollutants that pass through the POTW without treatment, interfere with POTW operation, contaminate POTW sludge, or endanger health/safety of POTW workers and establishes national pretreatment standards specifying quantities of pollutants or pollutant properties that may be discharged to a POTW.	Indirect discharge of treated dredge dewater to a POTW, including discharge to sewers leading to the POTW–**potentially applicable.**	CWA 33 U.S.C. § 1251 et seq., and Implementing Regulations 40 CFR §§ 403.5-403.20
Actions in federal navigation channels	The creation of any obstruction not affirmatively authorized by Congress to the navigable capacity of any of the waters of the United States is prohibited; and it will not be lawful to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States, outside established harbor lines. 33 CFR 322.5(e) addresses placing of aids to navigation in navigable waters is under the purview of Section 10 and must meet requirements of the U.S. Coast Guard (33 CFR 330.5). 33 CFR Section 323.4(b) and (c) provide if any discharge of dredged or fill material contains any toxic pollutant listed under section 307 of the CWA such discharge will require compliance with Section 404 of the CWA. Placement of pilings or discharge of dredged material where the flow or circulation of waters of the United States may be impaired, or the reach of such waters may be reduced, must comply with Section 10. 33 CFR 329.4 defines the term "navigable water of the United States" for purposes of the USACE regulations, including those addressing the discharge of dredged or fill material.	Applicable requirement for how remedial actions are taken or constructed in the navigation channel so as not to create an obstruction to the navigable capacity– **potentially applicable** Potentially applicable to the use of aids to navigation as institutional controls for maintaining the integrity of the selected remedy. The proposed remedial action involves dredging, which constitutes excavation and physical modification of the creek bed and potentially the banks. CERCLA requires that only substantive aspects of certifications be complied with. Administrative components will not be addressed.	River and Harbors Act of 1899, Section 10, 33 U.S.C. § 403, and Implementing Regulations 33 CFR §§ 322.5(e), 323.3, 323.4(b)-(c) and 329
Air Emissions and Control			
Actions that discharge particulate matter during implementation, operation, or maintenance of a response action,	This statute and regulations establish national primary and secondary ambient air quality standards (NAAQS) for PM 10 and PM 2.5 emissions to air. NAAQS are implemented through the New Source Review Program and State Implementation Plans (SIPs).	Discharges of hazardous substances, pollutants, or contaminants from CERCLA releases to air– **potentially relevant and appropriate.** While not applicable since the Federal New Source Review program addresses only major sources, NAAQS may be relevant and appropriate to this remedial action because air emissions related to PM in dust may be generated during drilling or other ground disturbing activities during the remedial action implementation.	Clean Air Act, 42 U.S.C. § 7401 et. seq. and Implementing Regulations: National Ambient Air Quality Standards: 40 CFR § 50.6; (PM 10); 40 CFR § 50.7 (PM 2.5) and 40 CFR § 50.12

Table 11-3. Potential Federal and State Action-Specific Applicable or Relevant and Appropriate Requirements (ARARs)

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Actions that discharge emissions during implementation, operation, or maintenance of a response action	Parts 64.3 and 64.7 provide substantive requirements for compliance assurance monitoring of pollutant-specific emissions units at a major source. Part 64.3 provides general criteria for the design of compliance assurance monitoring programs. Part 64.7 provides requirements for operation of the monitoring program.	Discharge of pollutants to air–**potentially relevant and appropriate.** While not applicable since the Federal New Source Review program addresses only major sources, compliance assurance monitoring for NAAQS related to PM 10 and PM 2.5 may be relevant and appropriate to this remedial action because air emissions related to PM in dust may be generated during ground disturbing activities during the remedial action implementation.	Clean Air Act, 42 U.S.C. §7409 et seq., and Implementing Regulations 40 CFR § 64 (Compliance Assurance Monitoring)
Waste Characterization and Disposal			
Actions generating solid wastes that could contain hazardous wastes for management and disposal	Wastes generated during construction, monitoring, or remediation must be characterized and managed in accordance with substantive RCRA requirements before off-site disposal. This regulation requires determination if solid waste is a hazardous waste by using the following method: First, determine if waste is excluded from regulation under 40 CFR 261.4, then determine if waste is listed as a hazardous waste under Subpart D 40 CFR Part 261 or whether the waste is (characteristic waste) identified in subpart C of 40 CFR Part 261 by either of the following: 1) Testing the waste according to the methods set forth in Subpart C of 40 CFR Part 261 or according to an equivalent method approved by the Administrator under 40 CFR §260.21 2) Applying knowledge of the hazard characteristic of the waste considering the materials or the processes used	Hazardous waste characterization and determination for management and disposal of dredged materials –**potentially applicable.** The remedial action including dredging may generate contaminated sediment that may exceed toxicity characteristic leaching procedure limits and be classified as hazardous waste.	RCRA 42 U.S.C. § 6901 et seq., and Implementing Regulations 40 CFR §§ 261.1 through 261.24
Actions generating RCRA regulated waste that will be disposed of in a disposal facility	Requires that, before an owner or operator treats, stores, or disposes of any hazardous wastes or nonhazardous wastes, they must obtain a detailed chemical and physical analysis on a representative sample of the waste(s), which at a minimum contains all the information that must be known to treat, store, or dispose of the waste in accordance with pertinent sections of 40 CFR 264 and 268.	Characterization of dredged materials for disposal–**potentially applicable.** The remedial action including dredging may generate contaminated sediment that may exceed toxicity characteristic leaching procedure limits and be classified as hazardous waste.	RCRA 42 U.S.C. § 6901 et seq., and Implementing Regulations 40 CFR § 264.13(a)(1)
Actions generating RCRA hazardous waste for disposal	This regulation requires that generators of hazardous waste determine if the hazardous waste must be treated before land disposal. This is done by determining if the waste meets the treatment standards in 40 CFR 268.40, 268.45, or 268.49 by testing in accordance with prescribed methods or use of generator knowledge of waste. This determination can be made concurrently with the hazardous waste determination required in 40 CFR 261.11. The generator must comply with the special requirements of 40 CFR § 268.9 in addition to any applicable requirements in 40 CFR § 268.7. The initial generator of solid waste must determine each EPA Hazardous Waste Number (waste code) applicable to the waste to determine the applicable treatment standards under 40 CFR 268 et seq. This determination may be made concurrently with the hazardous waste determination required in Sec. 261.11 of this chapter. The generator must determine the underlying hazardous constituents (as defined in 40 CFR 268.2(i)) in the characteristic waste.	Characterization and treatment of dredged materials slated for offsite disposal–**potentially applicable.** The remedial action including dredging may generate contaminated sediment that is classified as hazardous and would be managed and disposed of off-site at a hazardous waste facility.	RCRA 42 U.S.C. § 6901 et seq., and Implementing Regulations 40 CFR § 268.7(a)(1) and 40 CFR § 268.9(a)

Table 11-3. Potential Federal and State Action-Specific Applicable or Relevant and Appropriate Requirements (ARARs)

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Actions requiring temporary storage of hazardous waste	A generator may accumulate hazardous waste at the facility provided that (accumulation of RCRA hazardous waste on-site as defined in 40 CFR §260.10) the following criteria are met: • Waste is placed in containers that comply with 40 CFR 265.171–173 • Date upon which accumulation begins is clearly marked and visible for inspection on each container • Container is marked with the words "hazardous waste" or the container may be marked with other words that identify the contents; if accumulation of 55 gallons or less of RCRA hazardous waste or 1 quart of acutely hazardous waste listed in §261.33(e) at or near any point of generation of hazardous waste regulations further require the following: ○ In addition to the requirements of 40 CFR 262.34, a generator may accumulate hazardous waste on-site for 90 days or less without a permit provided that, if storing more than 100 containers, the waste is placed in a storage unit that meets the accumulation requirements of 40 CFR 264.175 A generator will comply with provisions found in 40 CFR, Part 262 and each applicable requirement of 40 CFR 262.34(a), (b), (c), (d), (e), and (f). CERCLA requires that only substantive aspects of permits be complied with. Administrative components will not be addressed.	Temporary storage of hazardous waste for offsite disposal –**potentially applicable.** The remedial action including dredging may generate contaminated sediment that is classified as hazardous and would be managed and disposed of off-site at a hazardous waste facility.	RCRA 42 U.S.C. § 6901 et seq., and Implementing Regulations 40 CFR § 262.34(a) 40 CFR §262.34(a)(1)(i) 40 CFR § 262.34(a)(2) and (3) 40 CFR § 262.34(c)(1)
Actions that involve storage and treatment of hazardous waste	These regulations provide standards for location, design, operation, and closure of units in which treatment of hazardous waste may occur. These regulations also provide requirements for use and management of containers, tank systems, surface impoundments, waste piles, and land treatment units one or more of which may be used for the storage and treatment of hazardous waste. Subparts AA, BB, and CC provide air emission standards for process vents, equipment leaks, and tanks, surface impoundments, and containers that may be used.	Storage (more than 90 days) and/or treatment of hazardous waste on-site prior to disposal off-site–**potentially applicable.** The remedial action including dredging may generate contaminated sediment that is classified as hazardous and would be managed and disposed of off-site at a hazardous waste facility.	RCRA 42 U.S.C. § 6901 et seq., and Implementing Regulations 40 CFR §§ 264, Subparts B, C, F, G, I, J, K, L, M, AA, BB, CC, and DD
Toxic Waste Management			
Actions handling PCB remediation wastes and PCB-containing material	TSCA Subpart D regulates storage and disposal of polychlorinated biphenyl (PCB) wastes and establishes requirements for handling, storage, and disposal of PCB-containing materials, including PCB remediation wastes, and sets performance standards for disposal technologies for materials/wastes with concentrations in excess of 50 milligrams per kilogram (mg/kg). Establishes decontamination standards for PCB- contaminated debris.	Disposal of remediation wastes with PCB contamination – **potentially applicable ARAR.** The remedial action including dredging may generate contaminated sediment that may be classified as PCB remediation waste.	Toxic Substances Control Act (TSCA), 15 U.S.C. §§ 2601 et seq., and 40 CFR §§ 761.50-761.79

Table 11-3. Potential Federal and State Action-Specific Applicable or Relevant and Appropriate Requirements (ARARs)

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Potential State Action-Specific ARARs			
Disturbance to State-Protected Waters			
Actions that disturb the bed or banks of protected waters in New York State	This statute and implementing regulations require permits to modify, change or disturb any protected stream, its bed or banks; to remove from its bed or banks sand or gravel or any other material; or to excavate or place fill in any of the navigable waters of the state. Any applicant for a federal license or permit to conduct any activity that may result in any discharge into navigable waters must obtain a State Water Quality Certification under Section 401 of the Federal Water Pollution Control Act, 33 U.S.C. §1341. In accordance with CERCLA Sections 121(d)(2) and 121(e), neither a permit nor a water quality certification is required for on-site CERCLA response actions, although such actions must comply with substantive requirements of these regulations. Preventative measures should be established to minimize suspension of sediment during dredging and/or cap placement. Additional monitoring may be required to ensure remedial activities do not exceed water-quality standards. CERCLA requires that only substantive aspects of permits be complied with. Administrative components will not be addressed.	Activities that result in any disturbance on the bed or banks of Wappinger Creek or its tributaries that are protected waters in New York State–**potentially applicable.** Wappinger Creek is classified as a protected water under 6 NYCRR Part 608 due to its water quality designation as Class C(T). The remedial action may include dredging and/or capping that would disturb and remove material from the creek bed and/or banks with the placement of material on top.	New York State ECL Article 15 Water Resources, Protection of Water Title 5; Water Pollution Control Article 17, Jurisdiction of the Department; Authority; Powers and Duties Title 3 and Implementing Regulations 6 NYCRR Part 608 (Use and Protection of Waters), Part 701 (Classifications--Surface Waters and Groundwaters) and 703 (Surface Water and Groundwater-quality standards)
Discharge to Waters of the State of New York and Navigable Waters			
Actions that take place in navigable waters in New York State	Sections 31 and 32 of the New York State Navigation Law prohibit unauthorized excavation, filling, or other physical alterations of navigable waterways—including their beds, banks, and shores—to preserve the integrity and navigability of watercourses. These sections also regulate the placement and construction of structures such as docks, piers, or barriers to prevent obstruction of navigation and interference with public use. If dredging occurs in navigable waters used by boats or public use, consultation will be conducted during remedial design to identify substantive requirements for protection of public waters. CERCLA requires that only substantive aspects of certifications be complied with. Administrative components will not be addressed.	Activities that result in any discharge into navigable waters–**potentially applicable** Wappinger Creek is a navigable waterway under New York State jurisdiction. The proposed remedial action involves dredging, which constitutes excavation and physical modification of the creek bed and potentially the banks.	New York State Navigation Law Article 3 Navigable Waters of the State; Title 31 (Excavation, Fill or Other Modification of Water Course), and Title 32 (Location of Structures in or on Navigable Waters)
Actions that discharge pollutants to waters of New York State	This statute and implementing regulations prohibit any person, directly or indirectly, from throwing, draining, running, or otherwise discharging into such waters organic or inorganic matter that will cause or contribute to a condition in contravention of applicable standards adopted by NYSDEC pursuant to ECL 17-0301.	Activities that result in any discharge into Wappinger Creek or its tributaries that are waters of New York State–**potentially applicable.** Wappinger Creek is a navigable waterway under New York State jurisdiction. The remedial action may include dredging and/or capping that would result in discharge into Wappinger Creek or its tributaries.	New York State ECL Article 17 Water Pollution Control, Title 5 Prohibitions, and Implementing Regulation 6 NYCRR Parts 701 (Classifications--Surface Waters and Groundwaters) and 703 (Surface Water and Groundwater-quality standards)
Actions that involve point source discharge pollutants to surface water in New York State	This statute and implementing regulations establish standards for point source discharges of wastewater and storm water to surface water and groundwater. In general, no person will discharge or cause a discharge to New York State waters of any pollutant without a permit under the New York State Pollutant Discharge Elimination System (SPDES) program. In accordance with CERCLA Section 121(e), a permit is not required for on-site CERCLA response actions, although the selected remedy will comply with substantive requirements of 6 NYCRR Part 750, which includes prohibited discharges and effluent limitations.	Activities that result in discharges into Wappinger Creek or its tributaries–**potentially applicable**. Wappinger Creek is a navigable waterway under New York State jurisdiction. The remedial action including dredging, may generate dewatering effluent or stormwater that may result in discharge to surface water subject to SPDES requirements.	New York State ECL Article 17 Water Pollution Control, Title 8 SPDES and Implementing Regulation 6 NYCRR Part 750 (Regulations for SPDES)

Table 11-3. Potential Federal and State Action-Specific Applicable or Relevant and Appropriate Requirements (ARARs)

Media/Location/Action	Requirements	Prerequisite	Citation(s)
Air Emissions and Control			
Actions that involve discharge of contaminants to air in New York State	This statute and implementing regulations establish New York air quality standards (AQS) for suspended particulates.	Activities that result in discharges to air–**potentially applicable.**	New York State ECL Article 19 Air Pollution Control Title 3 Powers and Duties, and Implementing Regulations 6 NYCRR Part 257-3 (Air Quality Standards – Particulates)
Actions that involve discharge of contaminants to air in New York State	This statute and implementing regulations establish that the emission of air contaminants to the outside atmosphere that jeopardize human, plant, or animal life, are injurious to property, or which unreasonably interfere with the comfortable enjoyment of life or property is prohibited (6 NYCRR 211.2).	Activities that result in discharges to air–**potentially applicable**. The remedial action, including dredged sediment, may release mercury vapors or vapors from treatment media during processing.	New York State ECL Article 19 Air Pollution Control Title 3 Powers and Duties, and Implementing Regulations 6 NYCRR Parts 211 (General Prohibitions)
Waste Characterization and Disposal			
Actions that involve the generation of solid waste for management and disposal in New York State	This statute and implementing regulation establish requirements for the management and disposal of solid waste and operation of solid waste facilities. Under 6 NYCRR Part 360.13, excavated materials can be reused as fill without being classified as solid waste if they meet predetermined beneficial use determination (BUD) criteria in Parts 360.12 and 360.13. Non-hazardous sediment removed from a site is considered solid waste unless it qualifies for a BUD; once approved and reused according to the BUD, it is no longer regulated as solid waste.	Activities that result in generation of solid waste that require management and disposal at an off-site solid waste management facility or off-site beneficial reuse in New York State–**potentially applicable**. The remedial action may include dredging and removal of material that requires off-site disposal as solid waste and/or reuse of dredged material.	New York State ECL Article 27, Title 7 Solid Waste Management and Resource Recovery Facilities, and Implementing Regulation 6 NYCRR Part 360 (Solid Waste Management Facilities General Requirements)
Actions that involve the generation of hazardous waste for management and disposal in New York State	This statute and implementing regulations establish New York State requirements for the identification, listing, and handling of hazardous wastes.	Activities that result in generation of hazardous waste that require management and off-site disposal in New York State –**potentially applicable**. The remedial action including dredging may generate contaminated sediment that may exceed toxicity characteristic leaching procedure limits and be classified as hazardous waste.	New York State ECL Article 27, Title 9 Industrial Hazardous Waste Management, and Implementing Regulation 6 NYCRR Parts 370 (Hazardous Waste Management System) and 371 (Identification and Listing of Hazardous Wastes)
Actions that involve the generation of hazardous waste for management and disposal in New York State	This statute and implementing regulation establish requirements for treatment, storage, and disposal of hazardous waste, including permit requirements (from which on-site response actions are exempt, although substantive requirements would be met) and standards for construction and operation of hazardous waste management facilities within New York State. CERCLA requires that only substantive aspects of certifications be complied with. Administrative components will not be addressed.	Activities that result in generation of hazardous waste that require management and off-site disposal in New York State –**potentially applicable.** The remedial action including dredging may generate contaminated sediment that is classified as hazardous and would be managed and disposed of off-site at a hazardous waste facility.	New York State ECL Article 3, Title 3; Article 27, Title 7 Solid Waste Management and Resource Recovery Facilities and 9 Industrial Hazardous Waste Management, and Implementing Regulation 6 NYCRR Part 373 (Hazardous Waste Management Facilities)
Actions that involve land disposal of hazardous waste in New York State	This statute and implementing regulation restrict specified hazardous wastes from land disposal and defines circumstances under which an otherwise prohibited hazardous waste may be land disposed. Land disposal restrictions (LDRs) apply to mercury-bearing waste. Specific treatment standards for various mercury wastes must be met before disposal.	Activities that result in generation of hazardous waste that require off-site disposal in New York State–**potentially applicable**. The remedial action may require dredging or generation of material that is a listed hazardous waste and subject to these requirements. If sediment contains mercury above threshold limits, it may be subject to LDRs. Stabilization or other treatment may be required before disposal.	New York State ECL Article 27, Title 9 Industrial Hazardous Waste Management, and Implementing Regulation 6 NYCRR Part 376 (LDRs)

NOTE: A STRINGENCY DETERMINATION BETWEEN FEDERAL AND STATE ARARS HAS NOT BEEN COMPLETED FOR THIS TABLE.

Table 11-4. Potential Federal and State To-Be-Considered Information

Media	Requirement	Prerequisite	Citation(s)
Federal Potential Chemical-Specific To-Be-Considered (TBC) Information			
Mercury contamination that poses potential risks to aquatic life in sediments	The document provides information and guidance for screening, classifying, and assessing contaminated sediments in New York State and determining whether a given sediment is toxic and poses a risk to aquatic life The mercury-related criteria for Class A sediments may be considered in remedial action level development for the protection of aquatic life.	Presence of mercury in creek sediment that could adversely impact aquatic life– **potentially TBC**	Table 5 within *Screening and Assessment of Contaminated Sediment,* New York State Department of Environmental Conservation, Division of Fish, Wildlife, and Marine Resources, Bureau of Habitat
Mercury contamination from CERCLA releases found in/discharged to sediment	Recommends surface-water mercury concentrations to protect aquatic life and human health (e.g., 0.77 µg/L chronic freshwater). Not enforceable but scientifically relevant.	Presence of mercury in sediment from CERCLA releases and/or because of a CERCLA action that could adversely impact human or ecological receptors– **potentially TBC**	Ambient Water Quality Criteria for Mercury, EPA 440/5-84-026 (1984), updated in 2001
Mercury contamination from CERCLA releases found in/discharged to sediment	Provides recommended bioaccumulation factors for mercury. Useful for evaluating fish tissue risks and setting cleanup goals.	Presence of mercury in sediment from CERCLA releases and/or because of a CERCLA action that could adversely impact human or ecological receptors– **potentially TBC**	Bioaccumulation Factor Guidance, EPA 822-R-03-030
Mercury contamination from CERCLA releases found in/discharged to sediment	Technical background for evaluating heavy metals like mercury in soil during site assessments.	Presence of mercury in sediment from CERCLA releases and/or because of a CERCLA action that could adversely impact human or ecological receptors– **potentially TBC**	Soil Screening Guidance for Metals, OSWER 9355.4-23

Table 11-4. Potential Federal and State To-Be-Considered Information

Media/Action	Requirement	Prerequisite	Citation(s)
State Potential Chemical-Specific TBC Information			
Contamination from CERCLA releases found in/discharged to sediments	The guidance provides protocols for screening and assessing sediment contamination to determine the need for further investigation or remediation. It includes sampling strategies, analytical methods, and sediment quality benchmarks for various contaminants, including mercury.	Presence of mercury, PCBs and other contaminants in sediment from CERCLA releases that could adversely impact human or ecological receptors– **potentially TBC**	NYSDEC Technical Guidance for Screening Contaminated Sediments
Contamination from CERCLA releases found in/discharged to sediments	This guidance provides a comprehensive manual guiding the investigation, evaluation, and remediation of contaminated sites in New York State. It outlines step-by-step processes for site characterization, risk assessment, remedial alternatives evaluation, and cleanup standards, including mercury and other hazardous substances.	Presence of mercury, PCBs and other contaminants in sediment from CERCLA releases that could adversely impact human or ecological receptors– **potentially TBC**	NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation
Contamination from CERCLA releases found in/discharged to sediments	This guidance recommends mercury concentrations in water to protect fish consumption and aquatic life (e.g., 0.7 nanograms per liter (ng/L) for human health).	Presence of mercury, PCBs and other contaminants in sediment from CERCLA releases that could adversely impact human or ecological receptors– **potentially TBC**	Technical and Operational Guidance Series (TOGS) 1.1.1–Ambient Water Quality Standards and Guidance Values
Contamination from CERCLA releases found in/discharged to sediments	This advisory issues local consumption limits for mercury-contaminated fish.	Presence of mercury, PCBs and other contaminants in sediment from CERCLA releases that could adversely impact human or ecological receptors– **potentially TBC**	Fish Consumption Advisories, New York State Health Advisories New York State Department of Health (NYS DOH)

Table 11-4. Potential Federal and State To-Be-Considered Information

Location	Requirement	Prerequisite	Citation
Federal Potential Location-Specific TBC Information			
Presence of Wetlands	Requires federal agencies to minimize the destruction, loss, or degradation of wetlands; to preserve and enhance beneficial values of wetlands; and to avoid direct or indirect support of new construction in wetlands when there are practicable alternatives.	Federal actions that involve potential impacts to, or take place within, wetlands of Wappinger Creek or its tributaries– **potentially TBC** Note: Federal agencies required to comply with Executive Order 11990 requirements.	Executive Order 11990 Section 1(a) *Protection of Wetlands*
	Agencies will avoid undertaking construction located in wetlands aside from the following conditions: (1) There is no practicable alternative to such construction. (2) The proposed action includes all practicable measure to minimize harm to wetlands which may result from such use.		Section 2(a) *Protection of Wetlands*
Presence of floodplains	Agencies will take action to reduce the risk of flood loss; to minimize the impact of floods on human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains.	Federal actions that involve potential impacts to, or take place within, floodplains of Wappinger Creek or its tributaries– **potentially TBC** As provided in 44 CFR § 9.7, Determination of proposed action's location, Paragraph (c), Floodplain determination, one generally should consult the FEMA Flood Insurance Rate Map (FIRM), the Flood Boundary Floodway Map (FBFM), and the Flood Insurance Study (FIS) to determine if the agency-proposed action is within the base floodplain. Note: Federal agencies required to comply with Executive Order 11988 requirements.	Executive Order 11988 Section 1. *Floodplain Management*
	Agencies will consider alternatives to avoid, to the extent possible, adverse effects and incompatible development in the floodplain. Each agency will design or modify its action to minimize potential harm to or within the floodplain.		Executive Order 11988 Section 2(a)(2) *Floodplain Management*
	Where possible, an agency will use natural systems, ecosystem processes, and nature-based approaches when developing alternatives for consideration.	Federal actions that involve potential impacts to, or take place within, floodplains of Wappinger Creek or its tributaries– **potentially TBC** As provided in 44 CFR § 9.7 Determination of proposed action's location, Paragraph (c), Floodplain determination, one generally should consult the FEMA FIRM, the FBFM, and the FIS to determine if the agency-proposed action is within the base floodplain). Note: Federal agencies required to comply with Executive Order 13690 requirements	Executive Order 13690 Section 2(c)
State Potential Location-Specific TBC Information			
Presence of New York State designated estuaries	Provides guidance to prevent habitat loss and degradation, toxic contamination through dredge materials management, pathogen contamination, floatable debris, and nutrient and organic enrichment.	Actions that take place in Wappinger Creek and its tributaries designated as a New York State estuary– **potentially TBC**	Comprehensive Conservation and Management Plan, New York-New Jersey Harbor Estuary Program Including the Bight Restoration Plan, Final (1996)
Presence of New York State designated estuaries or embayments connected with the Atlantic Ocean	Provides guidance for restoring, strengthening and maintaining the ecological integrity of the ocean ecosystem, promote sustainable coastal development, and increase resiliency of ocean resources to climate change related impacts.	Actions that take place in Wappinger Creek and its tributaries designated as a New York State connecting estuary or embayment– **potentially TBC**	New York Ocean Action Plan 2017–2027 (2017)
Federal Potential Action-Specific TBC Information			
Management of mercury contamination from CERCLA releases found in/discharged to sediment	Provides guidance on mercury cleanup approaches, monitoring, and long-term stewardship.	Management of mercury in sediment from CERCLA releases– **potentially TBC**	Mercury Strategy for CERCLA Sites, OSWER Directive 9285.7-03

Table 11-4. Potential Federal and State To-Be-Considered Information

Location	Requirement	Prerequisite	Citation
State Potential Action-Specific TBC Information			
Management of contaminated sediments	This guidance offers sediment management criteria, including for mercury, and guidance on testing, classification, and disposal.	Management of mercury, PCBs and other contaminants in sediment from CERCLA releases– **potentially TBC**	TOGS 5.1.9–In-Water and Riparian Management of Sediment and Dredged Material
Management of contaminated sediments	This guidance offers specific recommendations for managing sediment contamination during dredging, capping, and disposal activities. It addresses techniques to minimize sediment resuspension and contaminant release, environmental monitoring during dredging, and disposal requirements.	Management of mercury, PCBs and other contaminants in sediment from CERCLA releases– **potentially TBC**	NYSDEC Sediment Management Guidance

TABLE 12

Alternative 4
Dredge to Remove RAL Exceedance; Backfill with Residuals Control Layer in the Dredge Footprint

COST ESTIMATE SUMMARY

Site: Wappinger Creek Superfund Site
Location: Dutchess County, New York
Phase: Focused Feasibility Study
Base Year: 2025
Date: May 2026

Description: Alternative 4 would consist of dredging sediments through complete removal of contaminated sediments that exceed the RAL, and management of residual contamination in conjunction with ICs, access controls, and monitoring. Alternative 4 focuses primarily on removal of contaminated sediments.For this alternative the thickness of the residual controls layer will match the depth of dredge to ensure that the post-remediation surface does not exceed the pre-existing bathymetric surface. Excavated contaminated sediment will be loaded onto hopper barges and transported to a central processing area for dewatering/treatment before being transported for offsite disposal. Evaluation monitoring would be implemented to evaluate remedy performance. Periodic maintenance for this alternative would include physical inspections of the residual layer, periodic updates of ICs and maintenance of access controls. Institutional controls measures will be implemented and could include a fish advisory, educational programs, or notification programs such as environmental and health advisories. Access controls would consist of physical measures, such as informational signage or waterway access controls.

CAPITAL COSTS: (Assumed to be Incurred During Year 0)

DESCRIPTION	WORKSHEET	QTY	UNIT(S)	UNIT COST	TOTAL	NOTES
Institutional Controls	CW4-1	1	LS	$64,917	$64,917	Includes institutional control costs- fish advisories, signage.
General Conditions	--	1	LS	$1,663,561	$1,663,561	Assumes 10% of mobilization, demobilization, and construction costs
Mobilization and Demobilization	--	1	LS	$778,385	$778,385	Assumes 5% of construction costs
Site Surveying	CW4-2	1	LS	$290,524	$290,524	Includes costs for site bathymetric surveying.
Site Preparation	CW4-3	1	LS	$311,138	$311,138	Includes costs for clearing, laydown area, temporary road, and sheetpiling.
Erosion Control Measures	CW4-4	1	LS	$319,184	$319,184	Includes costs for various erosion controls.
Dredging for Off-Site Disposal	CW4-5	62,075	BCY	$80	$4,960,821	Includes dredging and transfer of waste to stockpile area.
Confirmation Sampling	CW4-6	82	EA	$1,910	$156,594	Includes confirmation sampling of dredged areas.
Residual Cover	CW4-7	16.28	ACR	$239,662	$3,902,311	Includes placement and materials for residual cover.
Backfill Conformance Sampling	CW4-8	134	EA	$2,957	$396,301	Includes sampling of backfill materials.
Temporary Water Treatment Set Up	CW4-9	1	LS	$138,216	$138,216	Includes setup of the water treatment system.
Temporary Water Treatment System Operation	CW4-10	13	MO	$159,089	$2,068,153	Includes costs for operation of the water treatment system.
Waste Characterization Sampling	CW4-11	77	EA	$1,679	$129,304	Includes waste characterization sampling of dredged waste.
Off-Site Transportation and Disposal	CW4-12	103,870	TON	$377	$39,147,855	Includes disposal costs for dredged waste.
Restoration of Laydown Area	CW4-13	1	LS	$289,516	$289,516	Includes removal of pavement and gravel, and restoration of disturbed areas.
SUBTOTAL					$54,616,780	
Contingency (Scope)		20%			$10,923,356	Middle of the recommended ranges in EPA 540-R-00-002 Exhibit 5-6.
Contingency (Bid)		10%			$5,461,678	Lower end of the recommended range in EPA 540-R-00-002.
SUBTOTAL					$71,001,814	
Project Management		5%			$3,550,091	Percentage from Exhibit 5-8 in EPA 540-R-00-002 was used.
Remedial Design		6%			$4,260,109	Percentage from Exhibit 5-8 in EPA 540-R-00-002 was used. This markup also accounts for any costs associated with pre-design investigation.
Construction Management		6%			$4,260,109	Percentage from Exhibit 5-8 in EPA 540-R-00-002 was used.
TOTAL					$83,072,123	
TOTAL CAPITAL COST					**$83,072,000**	Total capital cost is rounded to the nearest $1,000.

TABLE 12

Alternative 4
Dredge to Remove RAL Exceedance; Backfill with Residuals Control Layer in the Dredge Footprint

COST ESTIMATE SUMMARY

Site: Wappinger Creek Superfund Site
Location: Dutchess County, New York
Phase: Focused Feasibility Study
Base Year: 2025
Date: May 2026

Description: Alternative 4 would consist of dredging sediments through complete removal of contaminated sediments that exceed the RAL, and management of residual contamination in conjunction with ICs, access controls, and monitoring. Alternative 4 focuses primarily on removal of contaminated sediments.For this alternative the thickness of the residual controls layer will match the depth of dredge to ensure that the post-remediation surface does not exceed the pre-existing bathymetric surface. Excavated contaminated sediment will be loaded onto hopper barges and transported to a central processing area for dewatering/treatment before being transported for offsite disposal. Evaluation monitoring would be implemented to evaluate remedy performance. Periodic maintenance for this alternative would include physical inspections of the residual layer, periodic updates of ICs and maintenance of access controls. Institutional controls measures will be implemented and could include a fish advisory, educational programs, or notification programs such as environmental and health advisories. Access controls would consist of physical measures, such as informational signage or waterway access controls.

ANNUAL COSTS (Years 1 through 20)

DESCRIPTION	WORKSHEET	QTY	UNIT(S)	UNIT COST	TOTAL	NOTES
Environmental Monitoring	--	1	LS	$327,701	$327,701	Equal to 0.6% of total construction cost based on similar projects. Accounts for monitoring costs including sampling, inspections, and bathymetric surveys.
SUBTOTAL					$327,701	
Contingency (Scope)		10%			$32,770	Lower end of the recommended ranges in EPA 540-R-00-002 Exhibit 5-6.
Contingency (Bid)		10%			$32,770	Lower end of the recommended range in EPA 540-R-00-002.
SUBTOTAL					$393,241	
Project Management		8%			$31,459	Percentage from Exhibit 5-8 in EPA 540-R-00-002 was used.
Technical Support		10%			$39,324	Lower value of the recommended range in EPA 540-R-00-002 was used.
TOTAL					$464,024	
TOTAL ANNUAL COST					**$464,000**	Total annual cost is rounded to the nearest $1,000.

PERIODIC COSTS (Years 5, 10, 15, and 20)

DESCRIPTION	WORKSHEET	QTY	UNIT(S)	UNIT COST	TOTAL	NOTES
Institutional Control Maintenance	CW4-14	1	LS	$41,356	$41,356	Assumes each maintenance event will include replacement of buoys and signage.
Five-Year Reviews	NA	1	LS	$0	$0	Assumes no cost for five-year reviews in this cost estimate
SUBTOTAL					$41,356	
Contingency (Scope)		10%			$4,136	Lower end of the recommended ranges in EPA 540-R-00-002 Exhibit 5-6.
Contingency (Bid)		10%			$4,136	Lower end of the recommended range in EPA 540-R-00-002.
SUBTOTAL					$49,628	
Project Management		10%			$4,963	Percentage from Exhibit 5-8 in EPA 540-R-00-002 was used.
Technical Support		10%			$4,963	Lower value of the recommended range in EPA 540-R-00-002 was used.
TOTAL					$59,554	
TOTAL PERIODIC COST					**$60,000**	Total periodic cost is rounded to the nearest $1,000.

Notes:
1 - Additional assumptions related to Alternative 4 are detailed in the Alternative 4 cost worksheets and calculations
Percentages used for contingency and professional/technical services costs are based on guidance from Section 5.0 of "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study", EPA 2000.
Costs presented for this alternative are expected to have an accuracy between -30% to +50% of actual costs, based on the scope presented. They are prepared solely to facilitate relative comparisons between alternatives for FS evaluation purposes.

Abbreviations:

EA	Each
LS	Lump Sum
QTY	Quantity
BCY	Bank Cubic Yard
ACR	Acre
MO	Month
TON	Tons

TABLE 12

PRESENT VALUE ANALYSIS

Alternative 4

Dredge to Remove Any IPM Exceedance; Backfill with Residuals Control Layer in the dredge footprint

Site: Wappinger Creek Superfund Site
Location: Dutchess County, New York
Phase: Focused Feasibility Study
Base Year: 2025

Year[1]	Capital Costs[2]	Annual Costs	Periodic Costs	Total Annual Expenditure[3]	Discount Factor (7%)	Present Value[4]
0	$83,072,000	$0	$0	$83,072,000	1.0000	$83,072,000
1	$0	$464,000	$0	$464,000	0.9346	$433,654
2	$0	$464,000	$0	$464,000	0.8734	$405,258
3	$0	$464,000	$0	$464,000	0.8163	$378,763
4	$0	$464,000	$0	$464,000	0.7629	$353,986
5	$0	$464,000	$60,000	$524,000	0.7130	$373,612
6	$0	$464,000	$0	$464,000	0.6663	$309,163
7	$0	$464,000	$0	$464,000	0.6227	$288,933
8	$0	$464,000	$0	$464,000	0.5820	$270,048
9	$0	$464,000	$0	$464,000	0.5439	$252,370
10	$0	$464,000	$60,000	$524,000	0.5083	$266,349
11	$0	$464,000	$0	$464,000	0.4751	$220,446
12	$0	$464,000	$0	$464,000	0.4440	$206,016
13	$0	$464,000	$0	$464,000	0.4150	$192,560
14	$0	$464,000	$0	$464,000	0.3878	$179,939
15	$0	$464,000	$60,000	$524,000	0.3624	$189,898
16	$0	$464,000	$0	$464,000	0.3387	$157,157
17	$0	$464,000	$0	$464,000	0.3166	$146,902
18	$0	$464,000	$0	$464,000	0.2959	$137,298
19	$0	$464,000	$0	$464,000	0.2765	$128,296
20	$0	$464,000	$60,000	$524,000	0.2584	$135,402
TOTALS:	$83,072,000	$9,280,000	$240,000	$92,592,000		$88,098,050
TOTAL PRESENT VALUE OF ALTERNATIVE 4						**$88,098,000**

Notes:

[1] The estimated remedial timeframe is assumed to be 20 years.

[2] Capital costs, for purposes of this analysis, are assumed to be distributed as indicated on Table CS-4.

[3] Total annual expenditure is the total cost per year with no discounting.

[4] Present value is the total cost per year including a 7.0% discount factor for that year. See Table PV-ADRFT for details.

[5] Total present value is rounded to the nearest $1,000. Inflation and depreciation are excluded from the present value cost.
Costs presented for this alternative are expected to have an accuracy between -30% to +50% of actual costs, based on the scope presented.
They are prepared solely to facilitate relative comparisons between alternatives for FS evaluation purposes.

APPENDIX III

ADMINISTRATIVE RECORD INDEX

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

07/20/2026 **REGION ID: 02**

Site Name: WAPPINGER CREEK
CERCLIS ID: NYN000201758
OUID: 01
SSID: A25J
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
779413	07/20/2026	ADMINISTRATIVE RECORD INDEX FOR OU1 FOR THE WAPPINGER CREEK SITE	3	Administrative Record Index		(US ENVIRONMENTAL PROTECTION AGENCY)
615754	11/11/2019	REVISED DRAFT REMEDIAL INVESTIGATION WORK PLAN FOR THE WAPPINGER CREEK SITE	82	Work Plan	(US ENVIRONMENTAL PROTECTION AGENCY)	(CDM SMITH)
618396	02/02/2021	REMEDIAL INVESTIGATION / FEASIBILITY STUDY FINAL QUALITY ASSURANCE PROJECT PLAN (QAPP) FOR THE WAPPINGER CREEK SITE	603	Report		(CDM SMITH)
779424	06/09/2021	FIELD CHANGE NOTIFICATION NO. 1 FOR OU1 FOR THE WAPPINGER CREEK SITE	19	Letter	SACKS,VICTORIA (US ENVIRONMENTAL PROTECTION AGENCY)	(CDM SMITH)
779420	08/11/2021	FINAL QUALITY ASSURANCE PROJECT PLAN ADDENDUM NO. 1 FOR OU1 FOR THE WAPPINGER CREEK SITE	449	Work Plan		(CDM SMITH)
631000	01/07/2022	COMMUNITY INVOLVEMENT PLAN FOR THE WAPPINGER CREEK SITE	44	Work Plan		(US ENVIRONMENTAL PROTECTION AGENCY)
779418	09/09/2022	FINAL SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT FOR OU1 FOR THE WAPPINGER CREEK SITE	259	Report		(CDM SMITH)

779413

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

07/20/2026 **REGION ID: 02**

Site Name: WAPPINGER CREEK
CERCLIS ID: NYN000201758
OUID: 01
SSID: A25J
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
779422	09/21/2022	FINAL QUALITY ASSURANCE PROJECT PLAN ADDENDUM NO. 2 FOR OU1 FOR THE WAPPINGER CREEK SITE	420	Work Plan		(CDM SMITH)
779414	10/14/2022	REVISED FINAL HUMAN HEALTH RISK ASSESSMENT FOR OU1 FOR THE WAPPINGER CREEK SITE	318	Report		(CDM SMITH)
676479	04/05/2023	COMMUNITY UPDATE APRIL 2023 FOR THE WAPPINGER CREEK SITE	2	Publication		(US ENVIRONMENTAL PROTECTION AGENCY)
779416	09/19/2023	FINAL BASELINE ECOLOGICAL RISK ASSESSMENT FOR OU1 FOR THE WAPPINGER CREEK SITE	679	Report		(CDM SMITH)
758134	01/14/2025	REVISED FINAL REMEDIAL INVESTIGATION REPORT FOR THE WAPPINGER CREEK SITE	5074	Report		(CDM SMITH)
754690	04/22/2025	COMMUNITY UPDATE APRIL 2025 FOR THE WAPPINGER CREEK SITE	2	Publication		(US ENVIRONMENTAL PROTECTION AGENCY)
779425	07/10/2026	FINAL FOCUSED FEASIBILITY REPORT FOR OU1 FOR THE WAPPINGER CREEK SITE	329	Report		(CDM SMITH)

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FINAL

07/20/2026

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DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
779458	07/17/2026	NYSDEC CONCURRENCE ON THE PROPOSED PLAN FOR OU1 FOR THE WAPPINGER CREEK SITE	3	Letter	EVANGELISTA,PAT (US ENVIRONMENTAL PROTECTION AGENCY)	GUGLIELMI,ANDREW (NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION)
762726	07/17/2026	PROPOSED PLAN FOR OU1 FOR THE WAPPINGER CREEK SITE	31	Publication		(US ENVIRONMENTAL PROTECTION AGENCY)

APPENDIX IV

STATE LETTER OF CONCURRENCE

NEW YORK STATE | Department of Environmental Conservation

KATHY HOCHUL
Governor

AMANDA LEFTON
Commissioner

Transmitted via E-mail and FedEx

September 25, 2026

Pat Evangelista
Superfund Director
US Environmental Protection Agency
290 Broadway
New York, NY 10007
evangelista.pat@epa.gov

Re: Record of Decision
Wappinger Creek
DEC Site no. 314127

Dear Pat Evangelista,

The New York State Department of Environmental Conservation (DEC) and the New York State Department of Health (DOH) have reviewed the Draft-final Record of Decision, received on September 22, 2026, for an Interim Remedial Action (IRA) for the upper portion of the Wappinger Creek site (DEC site no. 314127). DEC and DOH understand the interim remedial action will include:

- Dredging of contaminated sediment and excavation of streambank soils that exceed the Environmental Protection Agency Remedial Action Level (RAL) of 1.1 mg/kg for total mercury (THg), followed by placement of clean backfill, upstream of the "Hudson River Line" (HRL) of Wappinger Creek.
- Management, treatment, and disposal of dredged material.
- Restoration of remediated areas.
- Implementation of monitoring programs, which include baseline, construction-phase, and long-term monitoring, to establish initial and long-term environmental conditions, track progress towards achieving remedial action objectives, verify remedy implementation, and assess performance of the remedy.
- Implementation of a robust Pre-Design Investigation (PDI) to fill data gaps and collect necessary information for the Remedial Design (RD).
- Institutional controls in the form of administrative and/or informational measures to limit exposure to Site contamination, including outreach programs to inform the public of the NYSDOH fish advisory for Wappinger Creek.

The remedial objective of these sediment and soil removals is the reduction of THg contaminant concentrations in sediment throughout the site, reduce the potential for mercury methylation and bioaccumulation in the food web, reduce the potential for sediment re-contamination from streambank soils, and remove other collocated, site-related contaminants, thereby reducing risks to human and ecological receptors.

As discussed in our concurrence letter, dated July 17, 2026, on the proposed plan, DEC and DOH continue to have reservations about several aspects of the remedial program at the site. These concerns have also been extensively memorialized in our letters, dated August 3, 2023, September 11, 2023, February 6, 2024, and June 6, 2024, on the Remediation Investigation (RI) and in letters dated September 3, 2025, June 4, 2026, and July 8, 2026, on the Focused Feasibility Study (FFS) and proposed plan. In brief, these issues include, but are not limited to:

- The limited amount of fish tissue sampling, in both species and total numbers, collected thus far and the need for additional sampling;
- Habitat layer restoration design and our requirement for a 2-foot habitat layer; and,
- Final removal extents of sediment and streambank soils and how those extents compare to NYS sediment guidance values and soil cleanup objectives. Those soils that exceed current use soil cleanup objectives but are below the RAL, and those located within sensitive receptors such as the Reese Audubon Sanctuary, are of particular concern to DEC and DOH.

DEC and DOH will continue to raise these issues and expect that all our concerns will be addressed as part of an extensive PDI, RD development, and post-remediation long-term monitoring. In addition, DEC and DOH understand that the IRA targets contamination upstream of the HRL and is not the final remedy for the site. Presuming our reservations are suitably addressed as the remedial process continues, DEC concurs with the IRA Record of Decision and expects the remainder of site-wide contamination within the IRA area and south of the HRL will be addressed under the final remedy.

If you have any questions, please feel free to contact Justin Starr at 518-402-9797 or justin.starr@dec.ny.gov.

Sincerely,

Andrew Guglielmi

Andrew O. Guglielmi
Division Director
Division of Environmental Remediation

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D2

APPENDIX V

RESPONSIVENESS SUMMARY

APPENDIX V

RESPONSIVENESS SUMMARY

INTRODUCTION

A responsiveness summary is required related to the selection of a remedy under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) at 40 C.F.R. 300.430(f)(3)(i)(F) and Superfund policy. It provides a summary of the significant comments and concerns received during the public comment period and the United States Environmental Protection Agency's (EPA's) responses to those comments and concerns. All comments summarized in this document have been considered in EPA's final decision for selection of a remedial alternative for Operable Unit 1 (OU1) of the Wappinger Creek Superfund Site (Site).

OVERVIEW

This Responsiveness Summary includes attachments that document public participation in the remedy selection process. They are as follows:

Attachment A: Comments Submitted During Public Comment Period
Attachment B: Proposed Plan
Attachment C: Public Notice
Attachment D: Public Meeting Transcript

SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

The remedial investigation (RI) report, focused feasibility study (FFS) report, and the Proposed Plan for OU1 of the Site were released to the public for comment on July 23, 2026. These documents and other documentation that EPA relied upon to develop the Proposed Plan were made available to the public in the Administrative Record file at the EPA Region 2 Office in New York City, as well as online: http://www.epa.gov/superfund/wappinger-creek. The notice of availability for the above-referenced documents was published in the Poughkeepsie Journal on July 23, 2026, informing the public of the comment period. The public comment period on these documents was initially established to be for thirty days, from July 23, 2026 to August 21, 2026, and it was extended to expire on September 21, 2026 because of a request from the public. The extension was announced via a press release and a mass email to the Site mailing list on August 7, 2026 and August 13, 2026, respectively.

On July 30, 2026, EPA conducted a public meeting at the Grinnell Community Library in order to inform local officials and interested members of the public about the Superfund process, to review current and planned remedial activities at the Site and to respond to any questions from

area residents and other attendees about the Proposed Plan, the remedial alternatives evaluated, and EPA's preferred alternative.

SUMMARY OF COMMENTS AND EPA RESPONSES

Correspondence received during the public comment period is provided in **Attachment A.**

A summary of the comments contained in the above-referenced letters, email messages, and the oral comments provided by the public at the public meeting, as well as EPA's response to those comments, follows.

SELECTED REMEDY

1. **Comment:** Several individuals requested additional information about the alternatives presented, including an explanation of what a cap is, how a cap works, whether organic plant matter can grow on top of a cap, and whether the alternatives were developed specifically for Wappinger Creek (Creek).

   EPA Response: A sediment "cap" or cover system is a remedial technology that is used as a means of containing contamination that is left in place. The cap is placed on the sediment surface to trap or prevent chemicals that are in sediment from being made available for exposure by potential human or ecological receptors. Caps generally consist of one or more layers of clean material. This can include an inert substrate (*i.e.,* sand) and other materials that can sequester specific contaminants. Caps can be designed to provide a suitable habitat layer at the top, allowing for restoration of the area above the cap by plant matter and benthic organisms.

   The three active alternatives presented in the Proposed Plan include dredging and/or capping, which are commonly used methods of remediation at sediment sites. However, all three alternatives were developed specifically for the Site. The development of remedial alternatives for Superfund sites requires consideration of site-specific details, which includes the targeted chemicals of concern, contaminated environmental media requiring remediation, and other relevant factors.

2. **Comment:** Several individuals requested additional information on the extent of the remedial area with respect to various geographical features, structures, and known access points.

   EPA Response: The Site and the remedial footprint of OU1 are provided as **Figures 1 and 3 in Appendix I** of this Record of Decision (ROD). The Site starts at the base of the waterfall, referred to as Wappingers Falls. Sections of the Site that are targeted as part

of this interim remedy include the Industrial Park, Upper Shoal, and Embayment sections. The publicly accessible boat launch on County Road 91 is located within the Upper Shoal section and is within the remedial area of OU1. The steel bridge is located within the Industrial Park section. Signage and markers indicating the extent of the Site and the remedial area will be installed prior to any construction activities.

3. **Comment**: Several individuals requested additional information on the implementation of the alternatives, including methods of sediment and streambank soil removal, quantities of sediment removal, disposal of contaminated materials, restoration of remediated areas, and potential risks posed to the community during the construction period.

   EPA Response: Exact details of implementing the remedial action have not yet been prepared. Ultimately, these details will be available once the pre-design investigation and the remedial design have been completed. The boat launch on County Road 91 may be considered as a potential option for mobilization of materials and equipment into and out of the Creek. A barge may be used to transport the necessary equipment to perform in-creek dredging. Other methods will also be considered with respect to site conditions, minimizing disruption to public access, and potential access constraints. Once dredged, EPA anticipates that the contaminated solid materials will be dewatered (allowed to drain/dry) near the Creek and then be transported off-site for proper off-site disposal. Any collected wastewater, resulting from the dewatering, will be treated prior to being discharged back into the Creek.

   The estimated volume of sediment to be dredged for Alternatives 2, 3 and 4 is 35,800, 44,600, and 60,200 cubic yards, respectively. Depending on the alternative, the remediated areas would either be capped or backfilled with clean material, and the surface area would be restored to its original grade. A suitable habitat layer would be placed on top of the cap to create conditions for the re-establishment of natural habitat in the Creek for Alternatives 2, 3, and 4.

   During active construction, safety measures would be taken to minimize or prevent community impacts. Best management practices would be employed during the performance of the work, and a community air monitoring program would be implemented in compliance with the Health and Safety Plan developed for the Site.

4. **Comment**: The National Oceanic and Atmospheric Administration (NOAA) expressed concern about the following issues: (1) uncertainties proceeding with an interim action, (2) the remedial schedule for the lower portion of Wappinger Creek as it relates to a potential remedy for the lower Hudson River, (3) protectiveness of EPA's preferred alternative through the use of a mercury remedial action level (RAL) derived from

Wappinger Lake, and (4) preference for a site-wide remedy with remedial goals derived from ecological and human health risk assessments to address the Creek, creekbanks and floodplains.

EPA Response: EPA determined that the data from the RI was sufficient to characterize unacceptable risks at the Site and develop remedial alternatives for addressing the greatest source of contamination, while also recognizing there are data gaps that need to be resolved before an overall site-wide remedy can be determined. EPA's preference is to take action by removing source material at the Site rather than delaying such remedial efforts for the purposes of conducting additional rounds of sampling.

This interim remedy is supportive of EPA's risk reduction goal because it targets total mercury in sediment, which is the primary risk driver at the Site. The total mercury RAL was extrapolated using background data collected from Wappinger Lake. EPA acknowledges that there is a mercury fish consumption advisory issued by the New York State Department of Health (NYSDOH) for Wappinger Lake; however, the advisory does not impact the lake's suitability for use as a background location as it is immediately upstream and unaffected by historical sources of contamination that have impacted the Site. Furthermore, during development of the RAL, EPA considered the mercury concentrations in the Lake, as well as mercury methylation rates. Mercury methylation is dependent on site-specific conditions. Data from the RI showed that methylation is greater in Wappinger Lake, and resulting predator fish concentrations may be higher in the lake than at the Site even if the sediment total mercury concentrations are similar (determined by comparison of percent methylmercury between locations). Therefore, if the Site sediment were remediated to similar total mercury concentrations as the lake, resulting sediment, and subsequently predator fish concentrations would likely end up being lower in the Site than the lake.

The mercury RAL is not a final cleanup goal; the level was derived to help identify and remediate the most significant contaminant mass from the Creek. Many other contaminants are collocated with mercury at the Site. EPA expects that the implementation of this interim remedy will coincidentally remove significant quantities of the other contaminants at the Site. Evaluation monitoring will be performed at the Site throughout the remedial action process in order to assess (1) the performance of the remedy, (2) whether the RAOs have been achieved, (3) the operation and maintenance needs, (4) the impact from ongoing sources post-implementation, and (5) the potential for natural recovery in the system. EPA will develop a final risk-based cleanup goal for mercury (and other contaminants), if necessary, based on site-specific information collected during the post-remedial sampling.

EPA does not currently have a schedule for when the selected remedy, which will also

address the lower portion of the Site, will be implemented. The Hudson River is a separately managed EPA Superfund Site; the timing of any remedy selected for the Hudson River Site is not expected to impact the schedule for the cleanup at the Site.

5. **Comment**: Site remedies should include habitat reconstruction, replanting vegetation, and placement of a habitat layer.

   EPA Response: A suitable habitat layer to create conditions for the reestablishment of natural conditions in the Creek along with habitat reconstruction of remediated areas are components of the selected remedy. The exact details will be determined in the remedial design.

6. **Comment:** The scope of the remedial design and post-construction monitoring should include invertebrates, fish, and wildlife representing a range of trophic levels and feeding strategies to support risk assessments and determinations of remedy effectiveness. Habitat delineation and a survey of freshwater mussels should also be included. If native mussels are found in the Creek, they should be relocated prior to any remediation because of their importance as ecosystem engineers, declining populations in the Lower Hudson, and their general imperiled status.

   EPA Response: EPA intends to conduct biota sampling and habitat delineation during the remedial design, with exact details to be determined during the remedial design. Applicable ecological surveys, including those to restore vegetation and habitats, will also be performed during the remedial design.

7. **Comment:** The highest methylmercury concentration in surface samples (0-6 inches) was 5.39 nanograms per gram in what appears to be a soil sample, but then **Page 10** of the Proposed Plan (**Attachment B**) states that "Concentrations of methylmercury in shallow surface sediment (0 to 2 inches bss) throughout Wappinger Creek ranged from 0.04 to 4.17 nanograms per gram…"

   EPA Response: Both samples referenced in the comment were sediment samples. Methylmercury samples were collected at two depth intervals, which were 0-2 inches and 0-6 inches below surface sediment. The methylmercury samples collected from the top 6 inches were part of the BERA sediment quality triad sampling effort. The RI Report should have stated that the highest methylmercury concentration in the 0-6 inch sampling interval was 5.39 nanograms per gram. This will be clarified in the ROD.

8. **Comment:** A request was made to include the fish tissue residue data collected for the Three Star Site Anodizing site, a New York State Department of Environmental Conservation (NYSDEC) Superfund Site, and those obtained by NOAA from NYSDEC's

statewide database and shared with EPA in the Remedial Investigation section on **Page 12** of the Proposed Plan.

EPA Response: In this section of the Proposed Plan, EPA discusses the findings of its remedial investigation. However, the additional data collected by other agencies were used to inform EPA's sampling efforts.

9. **Comment:** A reference was made to **page 13** of the Proposed Plan, where it states: "*Potential Site impacts from severe weather events have been assessed, and the performance of the remedy is not expected to be impacted as a result of these events*" and concern was expressed that contamination in the Creek could be impacted by the failure of the upstream Wappinger Lake Dam. As such, a request was made that the remedial design consider what impacts from a dam failure could have on the remediated stretch of the Creek, including erosion of backfill and cap material along with the remaining contamination in the floodplains, uplands, and Creek.

   EPA Response: From the information learned by EPA, the dam is owned by the Village of Wappinger Falls and is inspected on an annual basis. EPA will maintain contact with the Village for any updates on the dam. Since the preferred remedy includes the full removal of mercury above the RAL, any such impacts would be less of a concern.

10. **Comment:** A reference was made to **Pages 14-16** of the Proposed Plan and which stated that the human health risk assessment revealed that the Site-related cancer risks and non-cancer hazards from methylmercury, PCBs (Aroclors 1254 and 1260), and benzo[a]pyrene were associated with consumption of fillets of bottom-feeding fish. Additional fish collections should target the range of species and tissue types (including whole body, head, and viscera removed) consumed by the public.

    EPA Response: The specific details of EPA's future fish sampling program will be determined during the remedial design.

11. **Comment:** A reference was made to **Pages 16-17** of the Proposed Plan which stated that the ecological risk assessment concluded the Site posed a risk to insectivorous birds consuming aquatic prey, piscivorous birds, and piscivorous mammals, and that sediment contamination did not pose a risk to benthic invertebrates but there is uncertainty in those findings. Risk to fish was not assessed, but tissue concentrations could, in the future, be compared to the 0.2 parts per million wet weight mercury threshold effects level in whole body fish (juvenile and adults) associated with a predicted 5.5% injury and to the dose response curves they developed based on published tissue concentrations.

    EPA Response: EPA acknowledges the extent of uncertainty associated with benthic

invertebrate toxicity tests. The toxicity tests are only one line of evidence used to assess hazardous effects from exposure to contaminated sediment. Comment acknowledged regarding Hg threshold effects levels in fish. EPA will consider threshold levels in any future risk assessments performed at the Site.

12. **Comment:** A **r**eference was made to **Page 19** of the Proposed Plan and expressed concern about incorporating activated carbon into cap material if, in the ROD, EPA includes a reactive cap as a component of the selected remedy.

    EPA Response: The preferred remedy is Alternative 4: Dredge to remove any exceedances of the RAL and backfill with clean material. The alternative does not include the use of a reactive cap.

13. **Comment**: A reference was made to **Page 19** of the Proposed Plan and requested the term "habitat restoration" be revised to "habitat reconstruction" in the Comment Elements section, Restoration of Remediated Areas.

    EPA Response: The ROD will use the term "habitat reconstruction".

14. **Comment**: A reference was made to **Page 19** of the Proposed Plan and requested clarification in the description of Alternative 4 to specify that both sediment and soils exceeding the RAL will be remediated. The commenter stated that the Proposed Plan clarifies this in its assessment of how well each of the remedial alternatives provides long-term effectiveness and permanence, but it does not state it in the description of the alternative.

    EPA Response: A clarification that both sediment and soil are being addressed will be added to the description of Alternative 4 in the ROD.

15. **Comment:** A reference is made to **Page 20** of the Proposed Plan where it states: "*If reduction of wetlands is unavoidable, a third-party compensatory mitigation option would be considered to the extent necessary to meet ARARs"*, and requests clarification on what is meant by a third-party compensatory mitigation option. The commenter then states that, if EPA is referring to a mitigation bank, this option should be reconsidered because such banks do not have a good success record. The commenter suggested utilizing NOAA's expertise in reconstructing freshwater tidal wetlands to ensure that reduction in wetlands within the Creek is avoided.

    EPA Response: The third-party compensatory mitigation option does refer to a mitigation bank. EPA would appreciate any offers from NOAA to assist with wetland reconstruction after remedy implementation. EPA will coordinate with NOAA and

NYSDEC if it is determined that wetland reconstruction will be needed.

16. **Comment**: A reference is made to **Pages 21-22** of the Proposed Plan where it is stated that the names of the active remedial alternatives focus on dredging sediment rather than remediating sediments and streambank soils, which should be corrected in the ROD.

    EPA Response: The names of the remedial alternatives reflect the focus and primary contamination at the Site, which is sediment in the Creek. The term "dredge" is used in the name of the alternatives as it is the technology selected to remediate the Site. The description of each alternative and the common elements section explain that both sediment and streambank soils would be remediated if there are exceedances over the RAL.

17. **Comment:** By referencing **Page 25** of the Proposed Plan, the commenter states that NOAA concurs with EPA's selection of Alternative 4 as the preferred remedy and refers to the rationale provided on **Page 25** and **Page 28** of the Proposed Plan, as follows: "*Alternative 4 would provide the highest long-term effectiveness and permanence among the alternatives evaluated,…";* and *"Alternative 4 was selected as the preferred alternative because it is expected to achieve the greatest levels of protection, risk reduction, and long-term effectiveness with comparable short-term impacts and costs to the other active alternatives*."

    EPA Response: Comment acknowledged.

18. **Comment:** A reference is made to **Page 26** of the Proposed Plan, and the commenter states that EPA should also coordinate with NOAA's Office of Habitat Conservation in implementing the selected remedy.

    EPA response: The ROD has been updated to state that EPA will continue to work with NOAA as appropriate during remedy implementation.

COMMUNITY INVOLVEMENT

19. **Comment:** Several individuals commented that they only found out about the public meeting the day prior, through fact sheets placed at the Grinnell Library.

    EPA Response: EPA appreciates the comment and will work to ensure any future meetings or community updates will have broader outreach.

20. **Comment:** Several individuals requested additional information on the role of community involvement in remedy selection and the public comment period for the Proposed Plan.

    EPA Response: During the public comment period, community members are given the opportunity to provide feedback on the alternatives discussed in the Proposed Plan. EPA considers all significant comments received before selecting a remedy, which is formally memorialized in the issuance of the ROD.

    The comment period for the Site OU1 Proposed Plan originally was intended to end on August 21, 2026. As a result of an extension request by the public, EPA extended the comment period an additional 30 days, to close on September 21, 2026.

21. **Comment**: Numerous individuals, organizations, the Dutchess County Legislature, the Dutchess County Department of Health, the Village of Wappingers Falls, and the Towns of Wappinger and Poughkeepsie provided correspondence and resolutions stating their support for the preferred remedy.

    EPA Response: Comments acknowledged.

OTHER ISSUES

22. **Comment**: A request was made for additional information on the investigation at Wappinger Lake, its relation to the Site, and whether the Lake is impacted from the Site and/or other sources.

    EPA Response: The Lake is outside the scope of the Wappinger Creek RI. The Site addresses contamination that resulted from historical activities at the Market Street Industrial Park. Since Wappinger Lake is located upstream and above Wappingers Falls and the hydroelectric dam, the Lake is unaffected by the contamination at the Site. Wappinger Lake was sampled as part of the RI and is to be used as background data, as it represents a comparable environment to the Site. Mercury is a naturally occurring element and may have been deposited in the lake through natural processes. Total mercury concentrations within the Site are substantially higher than the total mercury concentrations in Wappinger Lake. The highest total mercury concentration at the Lake was 0.24 milligrams per kilogram (mg/kg), which is well below the remedial action level of 1.1 mg/kg. Additional data collected at Wappinger Lake is available in EPA's RI report.

23. **Comment:** A requested was made for additional information on the timeline of EPA's involvement at the Site and the findings from the RI, including (1) an overview of the

mercury levels at the Site, (2) whether there are any soil vapor concerns, (3) whether drinking water was sampled, and (4) whether the fish from the Site is safe to eat.

EPA Response: The Site was added to the National Priorities List and became a federal Superfund Site in September 2016. EPA's field investigation was completed during 2021 and 2022. Sediment sampling was conducted to eight feet below the sediment surface. Other media that were collected included soil, groundwater, surface water, porewater, air, and fish tissue.

Sediment is the primary medium of concern, and total mercury is the primary chemical of concern. Concentrations of total mercury in sediment ranged from 0.0074 to 210 mg/kg, with the highest concentration in the Embayment section of the Creek. The human health risk assessment, which can be found in the RI, also showed that there are risks associated with eating fish caught at the Site. Soil vapor intrusion was not investigated as part of the RI. [In general, vapor intrusion may be a concern if there is potential migration of vapor-forming chemicals from a subsurface source (*i.e.,* from groundwater to soil) into an overlying building. However, groundwater and soil concentrations of such chemicals were low or not detected at the Site.]

Additionally, ambient air samples were collected in order to determine whether potential elemental mercury, trapped in the Creek sediment, may be volatilizing to the air. Elevated mercury vapor readings were not detected during field screening of the breathing zone (space where a person breathes as they stand, sit, or lie), and mercury was not detected in any of the air samples collected. No private wells were sampled during the RI because groundwater is not impacted by the Site.

24. **Comment**: A request was made for additional information about what actions EPA may take to address contamination from other potential sources (*e.g.*, oil tanks, runoff).

    EPA Response: The Site addresses contamination in the Creek related to the historic activities that took place at the Market Street Industrial Park, which is being cleaned up under NYSDEC authority. If other sources of hazardous waste contamination are identified in the future, EPA will assess their impact to the Creek and make a determination on how to proceed in partnership with the State of New York.

25. **Comment:** A request was made for additional information on EPA's overall Site strategy, including plans to address contaminants and/or sections of the Site that are not targeted as part of OU1, whether there are any measures that prevent contamination from moving downstream, what the administrative requirements are for addressing the rest of the Site in the future, and whether addressing other site-related contaminants could occur concurrently with OU1.

EPA Response: This preferred remedy for OU1 is an interim action that aims to reduce risks at the Site. The remedy for OU1 will remove total mercury concentrations above 1.1 mg/kg in the upper three sections of the Site, thereby preventing contamination from moving downstream. While other contaminants are not being directly targeted in OU1 and since this interim ROD focuses on targeting the greatest risk driver, mercury, EPA expects that other contaminants, within the remedial footprint of OU1, will nevertheless be addressed because they are generally collocated with mercury. Sampling will continue throughout the remedial process to evaluate Site conditions and contaminant levels over time.

Once the targeted contaminated sediment is remediated in the upper portion of the Site and the interim performance criteria have been met, a post-remedy monitoring program would be implemented as part of this remedy. While the exact details of the monitoring program will be determined in the future, we do know that it will include sampling for biotic (*e.g.*, fish tissue) and abiotic (*e.g.*, sediment, soil, surface water, pore water) media. A subsequent sitewide remedy will be evaluated based on the data from the post-remedy monitoring. The post-remedy monitoring program would inform the evaluation of future sitewide objectives, verify whether the interim remedy is functioning as designed, and evaluate the effectiveness of the interim remedy. This monitoring program would be designed to ensure that media are monitored so that trends in concentrations of site-related contaminants can be fully evaluated. Additionally, the data would be used to identify any potential ongoing sources of contamination, evaluate changes in the system over time, and assess the natural recovery of the Creek system.

Using the results of the post-remedy monitoring, the subsequent trends and Site characterization can be evaluated to identify the nature and extent and the fate and transport of contamination remaining at the Site. EPA would use this information to determine what, if any, final site-wide remedy is appropriate. EPA anticipates that if a final remedial decision for the Site is determined to be necessary, it will be memorialized in a subsequent ROD.

26. **Comment**: Did EPA identify any responsible parties for the Site?

    EPA Response: EPA has undertaken search activities with regard to identifying legally responsible parties at the Site, but, to date, we have not identified any such viable potentially responsible parties.

27. **Comment:** A representative from an environment service company inquired about opportunities for doing business at the Site.

EPA Response: Once the final remedy has been selected, EPA expects to secure a contractor to perform the remedial design. For more information regarding the contracting process and contracting opportunities, please refer to https://www.epa.gov/contracts.

28. **Comment:** Several individuals requested additional information on the estimated timeframe for OU1 and potential disruptions to the schedule, including development of the Remedial Design Report, construction of the remedy, whether Congressional approval is required prior to implementation of the remedy, and whether cuts to EPA's budget have ever impacted progress or stopped work at sites that were in active construction.

    EPA Response: A project schedule does not currently exist, but EPA will keep the community apprised of Site activities as various milestones are reached. There are many factors that can impact the timeframe of a remedy's progress. EPA's next step after selecting a remedy is to secure a contractor to start the remedial design phase of the project. Funding for this project is expected to come out of EPA's overall Superfund budget, which is subject to Congressional approval. Once the design is complete, construction will begin based on the availability of funding in EPA's budget. Once construction begins, it is expected that funds will be allocated to support the implementation of the remedy without interruption.

29. **Comment**: Several individuals and organizations expressed concern that anglers are unaware of the risks associated with fish consumption and requested additional signage to inform the public about the existing Hudson River Fish Advisory.

    EPA Response: Fish advisories are issued and maintained by the NYSDOH. As discussed during the public meeting, NYSDOH has provided the Town of Wappinger with signs that have been placed at fishing and kayaking access points along the Creek. NYSDOH also stated during the meeting that new bilingual signs are being developed and will be provided to the Town of Wappinger when available. EPA will continue to work with NYSDOH and local municipalities as needed to ensure adequate informational measures are in place to inform the community of the existing fish advisory.

APPENDIX V

RESPONSIVENESS SUMMARY
ATTACHMENT A

COMMENTS SUBMITTED DURING PUBLIC COMMENT PERIOD

Wong, Emily

From: Lee Price [redacted]
Sent: Saturday, September 19, 2026 7:16 PM
To: Wong, Emily
Subject: Wappinger Creek Clean Up

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hi Emily,

I am a resident of Wappingers Falls. I live a block up from the creek on Marlorville Road. I support the full cleanup of the Wappinger Creek with no need for a cap.

Thank you!
Lee Price

Wong, Emily

From: David Siegel [redacted]
Sent: Saturday, September 19, 2026 8:47 AM
To: Wong, Emily
Subject: Wappingers Creek Superfund site

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hi Emily,

I support the full cleanup of the Wappinger Creek with no need for a cap.

Thank You,

Dave Siegel
[redacted]

Wong, Emily

From: Hayden Kellermeyer [redacted]
Sent: Friday, September 18, 2026 3:37 PM
To: Wong, Emily
Subject: Wappinger Creek Superfund Cleanup

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

I support Option 4, to remove contaminated soil and replace it with clean soil without the need for a cap.

Wong, Emily

From: Frits Zernike [redacted]
Sent: Saturday, September 19, 2026 8:48 PM
To: Wong, Emily
Subject: Wappinger Creek cleanup

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Dear Ms Wong,

I live on Marlorville Road in Wappingers Falls, right up a short hill from the creek, and next to Obercreek farm and the Obercreek brewery.

I support a full cleanup of the Wappinger Creek, with no need for a cap.

This is a vital resource for the area, and should be treated with all the respect and care it deserves. It can only reward the community in response.

Thank you,

Frits Zernike

[redacted]

Wong, Emily

From: Vincent Cuccia <vinnie@planetpeppernyc.com>
Sent: Friday, August 28, 2026 4:36 PM
To: Wong, Emily
Subject: Re: Wappinger Creek Superfund Cleanup

Categories: Wappinger Creek

You don't often get email from vinnie@planetpeppernyc.com. Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

I support Option 4, to remove contaminated soil and replace it with clean soil without the need for a cap.

I am a homeowner and want clean water here in the Village of Wappingers.

Vincent P. Cuccia
Pronouns he/him
Owner/President
Planet Pepper
(917)704-4807
vinnie@planetpeppernyc.com
www.planetpeppernyc.com

Wong, Emily

From: Mary McDermott [redacted]
Sent: Friday, August 21, 2026 3:13 PM
To: Wong, Emily
Subject: Soil replacement

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Option four is best choice. Why leave it to be someone else's problem later. If soil is totally replaced you can use the site for recreation purposes.If we have money for war and monuments find some for this.

Wong, Emily

From: Marion Ringquist [redacted]
Sent: Thursday, August 20, 2026 6:23 PM
To: Wong, Emily
Subject: Superfund Site at the lower 2 miles of the Wappinger Creek in Wappinger Falls, NY.

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Good evening Ms. Wong! I support completely removing contaminated soil so no cap is needed and then back-filliing with fresh soil.

Thank you!

Sincerely,

Marion Ringquist
[redacted]

Wong, Emily

From: Tim Mesler [redacted]
Sent: Thursday, August 20, 2026 10:04 PM
To: Wong, Emily
Subject: Comment on Proposal to Cleanup of the Lower 2 Miles of Wappingers Creek Superfund Site

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

I support cleanup option 4 to completely remove contaminated soil and backfill with clean soil so that no cap is needed. Thank you for the opportunity for residents to comment on the EPA proposals.

Timothy Mesler
[redacted]
Wappingers Falls NY

Wong, Emily

From: cathy relyea[redacted]
Sent: Friday, August 21, 2026 5:18 PM
To: Wong, Emily
Subject: EPA Superfund

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

I definitely support the full clean up of the Wappingers Creek with no need for a cap

Sent from Yahoo Mail for iPhone

Wong, Emily

From: cathy relyea [redacted]
Sent: Friday, August 21, 2026 5:18 PM
To: Wong, Emily
Subject: EPA Superfund

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

I definitely support the full clean up of the Wappingers Creek with no need for a cap

Sent from Yahoo Mail for iPhone

Wong, Emily

From: Alix Winsby <alixwinsbyfordutchess@gmail.com>
Sent: Monday, August 31, 2026 11:49 AM
To: Wong, Emily
Subject: Fwd: Wappingers Falls, the EPA needs to hear from us!

Categories: Wappinger Creek

You don't often get email from alixwinsbyfordutchess@gmail.com. Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hi Emily,

I received this input, so I am forwarding this as public comment from a constituent.

Thanks so much for the work that you do!

Best,

Alix Winsby. Dutchess County Legislator, District 14

---------- Forwarded message ---------
From: **Serpe Boyer** [redacted]
Date: Fri, Aug 21, 2026 at 5:57 AM
Subject: Re: Wappingers Falls, the EPA needs to hear from us!
To: <alixwinsbyfordutchess@gmail.com>

1. Completely remove contaminated soil so no cap is needed and backfill with fresh soil.

On Thu, Aug 20, 2026 at 5:01 PM Alix Winsby for Dutchess <alixwinsbyfordutchess@232561258.mailchimpapp.com> wrote:

> View this email in your browser

Hi Friends,

The Environmental Protection Agency (EPA) has extended the period for public comment on the Superfund site in the lower two miles of the Wappinger Creek to September 21. The EPA is collecting YOUR opinions about how they should conduct the cleanup. if a full clean up is approved, the EPA will be investing almost $90 million in the safety of the Creed and the Hudson River.

Why This Is Necessary

Superfund Sites are locations identified by the federal government as contaminated by hazardous substances that may pose a risk to public health or the environment.

Wappinger's long history of manufacturing before the dangers of pollution were known went on for about 180 years, starting in the early 1800s. The EPA is looking to clean up industrial waste from multiple manufacturers that used heavy metals and other dangerous substances in their processes, including textile dyeing, metal plating, ammunition, and felt hat production.

What You Can Do

The EPA is looking for comments from the public on what you would like to see happen at the site. At the July 30 meeting at Grinnell Library, EPA representatives provided four options, with the EPA itself suggesting option 4 as the best option for our site:

1. Take no action,
2. Remove one foot of soil and cap,
3. Remove two feet of soil and cap,
4. Completely remove contaminated soil so no cap is needed and backfill with fresh soil.

Please take a moment to email Emily Wong, the Remedial Project Manager at this email address: Wong.Emily@epa.gov with your choice of action or any questions. For example, I wrote, “I support the full cleanup of the Wappinger Creek with no need for a cap.”

For more information on the Wappinger Creek Superfund Site and the proposed work by the EPA, check out this link:

https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0201758

I’m proud of what we’ve accomplished together, but there’s more work to do. If you’re able, please consider contributing to a campaign that is committed to meeting the needs of every resident of Dutchess County.

DONATE TODAY

Thank you for your support!

Best,

Alix

Alix Winsby, Dutchess County Legislator, District 14

AlixWinsbyforDutchess@gmail.com

Copyright (C) 2026 Alix Winsby for Dutchess. All rights reserved.
Paid for by Friends of Alix Winsby
You are receiving this email because you opted in.
Our mailing address is:
Alix Winsby for Dutchess PO Box 242 Wappingers Falls, NY 12590 USA

Want to change how you receive these emails?
You can update your preferences or unsubscribe

Wong, Emily

From: Esther Mateo [redacted]
Sent: Sunday, August 23, 2026 9:29 PM
To: Wong, Emily
Subject: My opinion is...

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

I support to completely removing contaminated soil so no cap is needed and backfill with fresh soil.

Esther Mateo

Wong, Emily

From: brett.biro@nvesenvironmental.com
Sent: Thursday, September 10, 2026 10:16 AM
To: Wong, Emily
Subject: NVES Subcontracting Interest – Wappinger Creek Superfund Cleanup

Categories: Wappinger Creek

[You don't often get email from brett.biro@nvesenvironmental.com. Learn why this is important at https://aka.ms/LearnAboutSenderIdentification]

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Dear Ms. Wong,

My name is Brett Biro, Owner and President of Niagara Veteran Environmental Services LLC. I am contacting you regarding EPA's proposed interim remedy for the Wappinger Creek Superfund site in Dutchess County.

NVES is a veteran-owned environmental field-services and workforce-deployment company based in Western New York. We are interested in supporting the eventual remedial contractor with deployable HAZWOPER environmental personnel; contaminated-sediment, soil and water-sampling assistance; chain-of-custody documentation; GPS/GIS, photographic and location-based field documentation; site control, PPE and decontamination support; environmental monitoring and instrument-support activities; marine and shoreline field support; and daily project documentation.

The proposed dredging, streambank-soil removal, off-site disposal, restoration and long-term monitoring program aligns closely with NVES's field-support model. Our technical bench includes approximately 30 years of environmental and radiological cleanup, training and field-support experience.

Could you please advise whether EPA has identified the anticipated contracting path or schedule for remedial design and field implementation? Please also add NVES to any contractor-outreach, procurement-update or interested-vendor distribution associated with the site. If permitted, we would appreciate having our information shared with the environmental, engineering or dredging primes expected to pursue the work.

Our capability statement is available for the project file. I would welcome a brief introductory call regarding upcoming field and subcontracting needs.

Respectfully,

Brett Biro
Owner/President
Niagara Veteran Environmental Services LLC
716-344-0351
bbiro@nvesenvironmental.com

Wong, Emily

From: Rob Grunkemeyer [redacted]
Sent: Thursday, August 13, 2026 2:40 PM
To: Wong, Emily
Subject: WAPPINGER creek super fund site. Public comment.

Categories: Wappinger Creek

You don't often get email from [redacted]. Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

please go with option 4 to completely cleanup the Wappinger creek super fund site

Thanks!
Robert Grunkemeyer
[redacted]
Wappingers Falls NY 12590

Sent from my iPhone

Wong, Emily

From: Justin Taylor [redacted]
Sent: Friday, August 28, 2026 4:50 PM
To: Wong, Emily
Subject: Wappinger Creek Superfund Cleanup

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

I support Option 4, to remove contaminated soil and replace it with clean soil without the need for a cap.

Justin Taylor
see work or book consultations

Wong, Emily

From: EDWARD WALKER [redacted]
Sent: Friday, August 21, 2026 8:22 PM
To: Wong, Emily
Subject: Wappinger Creek superfund site

Categories: Wappinger Creek

[You don't often get email from [redacted] Learn why this is important at https://aka.ms/LearnAboutSenderIdentification]

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I support full clean up of the Wappinger Creek with no need for a cap. -option #4

Lisa Walker
[redacted]

Sent from my iPhone

Wong, Emily

From: Jessica Edmiston [redacted]
Sent: Monday, August 24, 2026 7:44 AM
To: Wong, Emily
Subject: Wappinger Creek Superfund Site

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hi Emily,

I'm a resident of Wappingers Falls and I support the full cleanup of Wappinger Creek with no need for a cap.

Thank you,
Jessica Edmiston

Wong, Emily

From: Magdalene Brandeis [redacted]
Sent: Friday, August 21, 2026 2:28 AM
To: Wong, Emily
Subject: Wappinger creek superfund site

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

I support the full clean up of Wappingers Creek, no cap. Opt 4.

Thanks for your good work.

Magdalene Brandeis
[redacted]

Sent from Gmail Mobile

Wong, Emily

From: Dylan Piccorelli [redacted]
Sent: Tuesday, September 8, 2026 8:52 PM
To: Wong, Emily
Subject: Wappinger Creek Superfund site

Categories: Wappinger Creek

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hello Emily Wong,

I'm a resident of Wappingers Falls and I'd like to leave a comment about the Wappinger Creek Superfund. I support the full cleanup of the Wappinger Creek with no need for a cap.

Thank you,
-Dylan Piccorelli

Wong, Emily

From: Rick Sanford [redacted]
Sent: Sunday, August 30, 2026 10:38 AM
To: Wong, Emily
Subject: Wappinger Falls super fund site

Categories: Wappinger Creek

[You don't often get email from [redacted]. Learn why this is important at https://aka.ms/LearnAboutSenderIdentification]

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hello, I am a resident of Wappinger Falls, New York. I support option 4 to remove and replace contaminated soil from the site.

Thank you,

Richard Sanford
[redacted]
Wappinger Falls, New York
12590

Wong, Emily

From: Amy Parks [redacted]
Sent: Thursday, August 20, 2026 7:35 PM
To: Wong, Emily
Subject: Wappingers creek clean up

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

I support #4
Thank you!
Amy Parks

Wong, Emily

From: Rishi Gupta [redacted]
Sent: Thursday, August 20, 2026 7:10 PM
To: Wong, Emily
Subject: Wappingers Creek

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Dear Emily,

I support the full cleanup of the Wappinger Creek with no need for a cap.

Thanks in advance,
Rishi Gupta

[redacted], New Hamburg, NY 12590

Wong, Emily

From: Erik Fyfe [redacted]
Sent: Thursday, August 20, 2026 5:10 PM
To: Wong, Emily
Subject: Wappingers Creek Superfund Remediation

Categories: Wappinger Creek

You don't often get email from erikfyfe@gmail.com. Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hello Emily,

I am a Wappingers Falls village resident and wanted to let you know that I support the full cleanup of the contaminated soil from Wappinger Creek with no need for a cap afterwards. I regularly spend time kayaking and canoeing in the creek with my two children and would love to see the creek fully remediated.

Thank you,
Erik Fyfe
[redacted]
Wappingers Falls, NY 12590
[redacted]

Wong, Emily

From: Ashley Sinha [redacted]
Sent: Saturday, August 22, 2026 10:44 AM
To: Wong, Emily
Subject: Wappinger Creek Cleanup

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hi Emily,

I am a Wappingers Falls resident in district 14. I am writing you to state my support for the full cleanup of the Wappinger Creek with no need for a cap.

Thank you,

Ashley Sinha

Wong, Emily

From: Franca P [redacted]
Sent: Thursday, August 20, 2026 6:31 PM
To: Wong, Emily
Subject: Wappinger Creek cleanup.

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

This email is regarding the lower 2 miles of the Wappinger Creek. This is my input on how the clean up should be conducted.

1. **Completely remove contaminated soil so no cap is needed and backfill with fresh soil.**

   This is an important issue affecting the Wappinger Creek and the Hudson River. The majority of people in that area have wells. It is crucial to the residents that this be corrected properly.

   Thank you.
   Sincerely,
   Franca Petrillo
   Hughsonville (Town of Wappinger)

Wong, Emily

From: Rachelle Reeder [redacted]
Sent: Wednesday, August 26, 2026 1:26 PM
To: Wong, Emily
Subject: Wappinger Creek in Superfund

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hello Emily,

My name is Rachelle Reeder and I'm a resident of Wappingers Falls village and am writing regarding the Superfund site in the lower two miles of the Wappinger Creek. As public comment, I support the full cleanup of the Wappinger Creek with no need for a cap.

Thank you,
Rachelle Reeder

Wong, Emily

From: Magdalene A Brandeis [redacted]
Sent: Friday, August 21, 2026 8:08 AM
To: Wong, Emily
Subject: Wappingers Creek Superfund site

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hi -
I attended the July 30 meeting and fully support option 4: the full cleanup of the Wappinger Creek with no need for a cap.
Thank you!
Magdalene Brandeis

Wong, Emily

From: Ellen Korz [redacted]
Sent: Friday, August 14, 2026 1:37 PM
To: Wong, Emily
Subject: Wappingers Creek

Categories: Wappinger Creek

You don't often get email from [redacted] Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

I live on Wappingers Creek, north of where the dredging shoukd occur. For the safety of our residents, I belive it must be done. Mercury is a dangerous metal and needs to be removed.
Ellen Korz
[redacted]
Wappingers Falls

Wong, Emily

From: Curtis DeVito <CDeVito@StanfordNY.gov>
Sent: Monday, September 21, 2026 9:05 AM
To: Wong, Emily
Cc: Julia Descoteaux; dshapley@riverkeeper.org
Subject: Proposed Cleanup Plan at the Wappinger Creek Superfund Site in Dutchess County, New York

Categories: Wappinger Creek

You don't often get email from cdevito@stanfordny.gov. Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

To: Emily Wong, Remedial Project Manager, U.S. EPA Region 2
From: Town of Stanford (New York) Conservation Advisory Commission
Subject: Proposed Cleanup Plan at the Wappinger Creek Superfund Site in Dutchess County, New York

Dear Ms. Wong:

The Town of Stanford Conservation Advisory Commission respectfully urges the EPA to commit to the proposed cleanup plan, Alternative 4, for the tidal Wappinger Creek Superfund Site and to implement it in a manner that protects this important stretch of the Hudson River Estuary.

Stanford is located near the headwaters of Wappinger Creek, and the creek's watershed is the town's largest. It supports an abundance of wildlife, and our residents use the creek for recreation and rely on private wells drawing from the unconfined aquifer that generally underlies it. Our community strives to protect the creek and the other waters that flow above and belowground through the town. We recognize that the creek is part of a larger, vital, interconnected system that does not begin and end at the town's borders and that protecting it requires a shared commitment by those who live within its watershed and by all levels of government—federal, state, county, and municipal.

To this end, we urge the EPA to take action to clean up the mercury, PCBs, and other industrial pollutants that continue to place communities and wildlife at risk. We support Alternative 4 of the proposed cleanup plan and encourage the EPA to consider the following points in the project design:

- Schedule dredging to minimize harm to migratory fish and other aquatic life.
- Develop a habitat restoration plan that restores and protects spawning and nursery habitat for river herring and striped bass.
- Maintain and restore public access during and after the cleanup for paddling, angling, and walking along the creek.
- Take prompt and decisive action on the lower portion of the Superfund Site, and coordinate with the Hudson River Superfund team to ensure that ongoing PCB deposition from the Hudson does not undermine cleanup efforts.

We ask the EPA to move forward with Alternative 4 and to implement the cleanup in a manner that provides lasting protection for Wappinger Creek and the communities and natural resources within its watershed.

Sincerely,
Curtis DeVito
Chairperson
Conservation Advisory Commission
Town of Stanford (New York)
917-359-3944

cc: Julia Descoteaux, Supervisor, Town of Stanford (New York)
Dan Shapley, Senior Director of Advocacy, Policy and Planning, Riverkeeper, Inc.

Wong, Emily

From: Linda Ibrahim [redacted]
Sent: Monday, September 21, 2026 10:22 AM
To: Wong, Emily
Subject: Wappinger Creek Superfund

Categories: Wappinger Creek

[You don't often get email from [redacted]. Learn why this is important at https://aka.ms/LearnAboutSenderIdentification]

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To whom it may concern,

We are in full agreement with the EPA Proposal No. 4 that states the removal of ALL contaminated soil from the designated area of the Wappinger Creek.
We question adding new soil to the area where the contaminated soil is removed. The area is going to be a few feet deeper and will not interrupt the natural flow of the creek.
The new exposed bottom is naturally compacted.

Thank you for addressing and resolving this long standing contamination issue of the WappingerbCreek.

Sincerely,
Khalid and Linda Ibrahim
Sent from my iPad

Wong, Emily

From: Santiago-Rosado, Livia <lsantiago@dutchessny.gov>
Sent: Tuesday, September 22, 2026 8:27 AM
To: Wong, Emily
Subject: Wappinger Creek clean up

Categories: Wappinger Creek

You don't often get email from lsantiago@dutchessny.gov. Learn why this is important

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

To Whom It May Concern:

This letter is regarding the U.S. Environmental Protection Agency (EPA) proposing an interim cleanup plan to address the Wappinger Creek Superfund site in Dutchess County. While the plan does not address the full removal of mercury-contaminated sediment along the creek, it represents a jump start to this work and prevents further contamination from flowing downstream to the Hudson River in the interim. Clean, contaminant-free water is a clear objective of local health departments like ours, and we are in full support of this proposal in that its goals appear to be aligned with the important public health work we do.

Thank you for your attention.

Livia Santiago-Rosado, MD MPH FACEP (she/her/hers)
Commissioner, Dutchess County Department of Health
85 Civic Center Plaza, Suite 106
Poughkeepsie, New York 12601
Phone: (845) 486-3432 Fax: (845) 486-3448
lsantiago@dutchessny.gov

Mission: The mission of the Dutchess County Department of Health is to protect, promote, and prioritize the health of all Dutchess County residents, families, and communities.

Vision: Our vision for the Dutchess County Department of Health is to work with communities to design and disseminate best practices that support health, and to foster a culture of service, compassion, and excellence.

If you are receiving this email outside of normal business hours, please feel no obligation to respond urgently.

August 3, 2026

Emily Wong
U.S. Environmental Protection Agency
290 Broadway New York, New York 10007-1866
Via Email: wong.emily@epa.gov

RE: Public Comment Extension Request, Proposed Plan for the Wappinger Creek Superfund Site Operable Unit 1 (OU1)

Dear Ms. Wong,

On behalf of Riverkeeper, Inc., and Toxic Free Future, we are writing to respectfully request a 45-day extension of the public comment period for the Wappinger Creek Superfund site.

We appreciate the Environmental Protection Agency's (EPA) work to advance the cleanup of this site with this milestone, and the agency's July 30 public meeting on the subject. Even though there was very limited notice for the meeting and it was held in the middle of summer, strong attendance indicates the public's strong interest in the site and its remediation.

The extension would allow for the public to more meaningfully engage with EPA's proposed remedy. It would also allow our organizations sufficient time to understand certain technical details.

Riverkeeper is a 60-year-old non-profit organization that protects and restores the Hudson River from source to sea and safeguards drinking water supplies, through advocacy rooted in community partnerships, science and law. Toxic-Free Future is a national environmental health organization, with an office in Newburgh, creating a healthier tomorrow by advocating for the use of safer products, chemicals, and practices through advanced research, grassroots organizing, and consumer engagement.

Thank you for your consideration. Please reach us at dshapley@riverkeeper.org and mschade@toxicfreefuture.org.

Sincerely,

Dan Shapley
Senior Director of Advocacy, Policy and Planning
Riverkeeper

Mike Schade
Senior Director of Programs and Strategy
Toxic-Free Future

August 3, 2026

Emily Wong
U.S. Environmental Protection Agency
290 Broadway New York, New York 10007-1866
Via Email: wong.emily@epa.gov

RE: Public Comment Extension Request, Proposed Plan for the Wappinger Creek Superfund Site Operable Unit 1 (OU1)

Dear Ms. Wong,

On behalf of Riverkeeper, Inc., and Toxic Free Future, we are writing to respectfully request a 45-day extension of the public comment period for the Wappinger Creek Superfund site.

We appreciate the Environmental Protection Agency's (EPA) work to advance the cleanup of this site with this milestone, and the agency's July 30 public meeting on the subject. Even though there was very limited notice for the meeting and it was held in the middle of summer, strong attendance indicates the public's strong interest in the site and its remediation.

The extension would allow for the public to more meaningfully engage with EPA's proposed remedy. It would also allow our organizations sufficient time to understand certain technical details.

Riverkeeper is a 60-year-old non-profit organization that protects and restores the Hudson River from source to sea and safeguards drinking water supplies, through advocacy rooted in community partnerships, science and law. Toxic-Free Future is a national environmental health organization, with an office in Newburgh, creating a healthier tomorrow by advocating for the use of safer products, chemicals, and practices through advanced research, grassroots organizing, and consumer engagement.

Thank you for your consideration. Please reach us at dshapley@riverkeeper.org and mschade@toxicfreefuture.org.

Sincerely,

Dan Shapley
Senior Director of Advocacy, Policy and Planning
Riverkeeper

Mike Schade
Senior Director of Programs and Strategy
Toxic-Free Future

Hudson River Drinking Water Intermunicipal Council

Town of Esopus, Town of Hyde Park, Town of Lloyd, City of Poughkeepsie, Town of Poughkeepsie, Town of Rhinebeck, Village of Rhinebeck, Dutchess County, Ulster County

September 2, 2026

Emily Wong, Remedial Project Manager
U.S. Environmental Protection Agency, Region 2
290 Broadway
New York, NY 10007
Via Email: wong.emily@epa.gov

RE: Support for Proposed Interim Remedial Plan (Alternative 4) for the Wappinger Creek Superfund Site

Dear Ms. Wong,

On behalf of the Hudson River Drinking Water Intermunicipal Council ("HRDWIC"), representing communities reliant on the Hudson River for municipal drinking water, I am writing to express our support for the U.S. Environmental Protection Agency's ("EPA") proposed $88 million interim cleanup plan (Alternative 4) for the Wappinger Creek Superfund Site.

The Hudson River serves as the drinking water source for 107,000 people in the communities represented by the Council: The City and Town of Poughkeepsie, Village and Town of Rhinebeck, the towns of Esopus, Hyde Park and Lloyd, and both Dutchess and Ulster counties. The Council's mission is to protect the Hudson River as a drinking water source. Our Drinking Water Source Protection Program Plan ("DWSP2 Plan"), currently being approved by New York State, identifies Federal Superfund sites among our priority concerns, and the Wappinger Creek is part of the Extended Source Water Area in our DWSP2 Plan.

The portion of Wappinger Creek designated as a federal Superfund site is a tidal arm of the Hudson River Estuary. Nearly two centuries of industrial operations—spanning textile dyeing, manufactured gas plants, metal plating, chemical and ammunition production, and felt hat manufacturing—contaminated creek sediments with hazardous wastes. These contaminants include heavy metals (mercury, lead and arsenic), cyanide, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), pesticides, and dioxins/furans. The HRDWIC strongly supports the full remediation of these hazardous wastes. The Council specifically endorses Alternative 4 because it represents the most aggressive cleanup option evaluated, removing any sediment above defined contamination thresholds over a three-year dredging timeline without relying on a permanent reactive cap.

Based on site data and EPA risk assessments, we understand that these contaminants are predominantly bound to sediments and particulate matter rather than dissolved in the ambient water column. Consequently, there are no likely impacts from these site contaminants on public drinking water quality via the HRDWIC's intakes. Nevertheless, our council maintains that robust source water protection

requires addressing hazardous waste sites within the broader watershed to reduce overall environmental pollutant loading into the Hudson River.

Furthermore, we urge the EPA to ensure that the lower portion of the creek—currently excluded from this phase due to ongoing sediment exchange and PCB deposition from the Hudson River—is addressed as expeditiously as possible. We encourage close collaboration between the EPA's Wappinger Creek and Hudson River Superfund teams so that Hudson River PCB deposition does not indefinitely delay the complete remediation of Wappinger Creek. The HRDWIC maintains a seat on the Hudson River Superfund site Community Advisory Group (CAG) and we look forward to discussing this issue.

Thank you for your ongoing efforts to eliminate legacy industrial hazardous wastes and protect the regional water environment.

Sincerely,



Gary Bassett
Chair, Hudson River Drinking Water Intermunicipal Council

cc:
US Senators Chuck Schumer and Kirsten Gillibrand
US Representative Pat Ryan

Dutchess County Environmental Management Council (EMC)

Wappinger Creek Superfund Site Cleanup Statement to the EPA

September 7, 2026

The Dutchess County Environmental Management Council supports the EPA's proposed Option 4 for cleanup of the Wappinger Creek Superfund Site. Of the four options presented, Option 4 provides the most comprehensive cleanup with the least ongoing maintenance required. We believe it offers the strongest opportunity to improve the ecology of the site, reduce risks to anglers and the surrounding community, and lessen the impact of contamination on migratory species, including American eel and black bass.

The EMC emphasizes, however, that remediation of the upper portion of the Superfund site must not be regarded as the completion of the cleanup. Option 4 addresses the area where there is significant contamination of the sediments, primarily with mercury, while the lower portion of the site will remain contaminated with PCBs. A plan for cleanup of the lower portion has not yet been formulated, in part because it requires interagency cooperation and because this portion of Wappinger Creek continues to be affected by PCB contamination from the Hudson River through tidal exchange.

The EMC, therefore, urges the EPA to work with the New York State Department of Environmental Conservation (NYSDEC) and other appropriate agencies to develop a comprehensive restoration strategy for the entire affected Wappinger Creek system. This should include a coordinated, funded, and time-bound process for addressing the PCB contamination of the lower reach. The cleanup of one portion of the creek should be the first phase of restoring the affected waterway, not the end of the process.

The EMC further requests continuing monitoring and public reporting of sediment contamination, fish tissue, water quality, and ecological recovery throughout and following the remediation. This will allow the public and responsible agencies to determine whether the cleanup is achieving its intended environmental and public health outcomes and whether additional action is required.

The cleanup should ultimately improve the safety of fish consumption by anglers at the site, but this will take time. During the anticipated three-year cleanup process, we urge the EPA to work with appropriate state and local agencies to improve signage throughout the affected area, informing anglers of the risks associated with consuming contaminated fish. Clear and accessible signage should remain in place for as long as fish contamination presents a risk.

The Wappinger Creek Superfund Site has been affected by industrial contamination for approximately 200 years. Significant contamination by extremely harmful industrial chemicals has been known for at least 40 years. The length of time that people, wildlife, and the creek itself have been exposed to these contaminants makes timely and comprehensive action particularly important. While we recognize the complexity of the interagency process required to address this legacy contamination, the passage of time cannot become a reason for further delay.

The EMC welcomes the EPA's initiative to finally remediate this portion of the Wappinger Creek Superfund Site and supports Option 4 as the strongest of the alternatives presented. We also believe that cleanup should mean

ecological restoration, not simply contaminant management. The long-term objective should be a Wappinger Creek ecosystem that is healthier, safer, and increasingly capable of supporting the people and wildlife that depend upon it.

To support that objective, the EMC requests continued engagement with the EPA, NYSDEC, affected municipalities, watershed organizations, and other stakeholders as remediation proceeds. We welcome regular updates on the progress and results of the cleanup and on the development of a strategy for the remaining contaminated portions of the site.

After generations of contamination and decades of knowledge about its consequences, this cleanup represents an important opportunity not simply to manage the legacy of industrial pollution, but to begin restoring the health of Wappinger Creek for future generations.

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Assessment and Restoration Division
26 Federal Plaza, Suite 2-130
New York, New York 10278

September 8, 2026

Emily Wong, Project Manager
Superfund and Emergency Management Division
U.S. Environmental Protection Agency
290 Broadway, 19h Floor
New York, NY 10007

Dear Emily:

Thank you for providing the National Oceanic and Atmospheric Administration (NOAA) the opportunity to review the July 2026 Superfund Proposed Plan, Wappinger Creek Superfund Site, Operable Unit 1, Wappingers Falls, Dutchess County, New York. The Proposed Plan evaluates various interim remedial action alternatives to address elevated mercury concentrations in sediments and creekbank soils within the upper portion of the Site including the Industrial Park (T1-T11), Upper Shoal (T12-T14), Embayment Area (T15-T17) sections.

NOAA, one of the natural resource trustees for the Wappinger Creek Superfund Site ("Site"), previously provided comments on the July 2025 draft and May 2026 revised Focused Feasibility Study and the June 2023 Remedial Investigation. Many of our prior comments continue to be relevant to our review of the Proposed Plan. In our capacity as stewards acting on behalf of the public to protect and restore natural resources harmed by the release of hazardous waste, NOAA offers the following comments on the Proposed Plan for the Environmental Protection Agency's (EPA) consideration.

Background

The Wappinger Creek Superfund Site (Site) was placed on the National Priorities List (NPL) in 2016. Industrial activities occurred at the site for almost two centuries including but not limited to textile dyeing (Dutchess Print Works aka Dutchess Bleachery), metal plating (Three Star aka Watson Metals Products Corporation, Olah Associates), plastic mold injecting, chemical production (Axton-Cross), printing (Page Print Systems, Hanover PrintWorks), ammunition production, manufacturing of felt hats and the operation of a manufactured gas plant (Wappinger Water, Gas, and Electric Company). Mercury and benzo[a]pyrene are the primary contaminants of concern (COCs) but metals, polyaromatic hydrocarbons (PAHs), pesticides, polychlorinated biphenyls (PCBs), and dioxins/furans (PCDDs/PCDFs) are also elevated. An unnamed tributary and Hunters Creek flow into Wappinger Creek, which is a tributary to the Hudson River.

The Site is divided into five sections, three sections are addressed under the Interim Remedial Action (IRA) while two sections, the Lower Shoal (T18-T25) and the Confluence (T26-T30) may be addressed when a final remedy is selected. The Hudson River's tidal influence on Wappinger Creek was determined to fall between T15 and T16 based on sediment Aroclor 1242 concentrations (Hudson River Line (HRL)) but the boundary was moved to between T17 and T18 to encompass the entirety of the contaminated embayment for early risk reduction. The upstream reference is Wappingers Lake (B1, B2).

The proposed IRA focuses on near-term risk reduction with a 1.1 mg/kg total mercury (THg) remedial action level (RAL). Three remedial action objectives (RAOs) were identified.

- RAO 1: Control contaminated sediment that is a source of unacceptable human health risks from ingestion of contaminated fish by remediating THg above the RAL in sediment and streambank soils located upstream or above the HRL.
- RAO 2: Control contaminated sediment that is a source of unacceptable ecological risks (via direct contact, ingestion, or uptake into the food chain) by remediating THg above the RAL in sediment and streambank soils located upstream or above the HRL.
- RAO 3: Control contaminated sediment that is a source to Wappinger Creek and could migrate to downstream environmental media by remediating THg above the RAL in sediment and streambank soils located upstream or above the HRL.

Four remedial alternatives were evaluated with EPA preferring Alternative 4.

- Alternative 1 – No action
- Alternative 2 – Dredge sediment to depth of 1 foot; excavate creekbank soils to depth of 0.5 feet[1], capping of underlying contamination, includes reactive cap (e.g., sand and activated carbon) overlain by habitat layer, off-site disposal, institutional controls (ICs), habitat restoration access controls, and monitoring.
- Alternative 3 – Dredge to depth of 2 feet maximum; excavate creekbank soils to depth of 0.5 feet[2], capping of underlying contamination, includes reactive cap overlain by habitat layer, habitat restoration, off-site disposal, ICs, access controls, and monitoring.
- Alternative 4 – Dredge to remove sediment and soil RAL exceedances; backfill to grade including suitable habitat layer in the dredge footprint, habitat restoration off-site disposal, ICs, access controls, and monitoring.

General Comments

NOAA prefers a comprehensive site-wide remedy that addresses the creek, its creekbanks and floodplains, with protective cleanup triggers derived from ecological and human health risk assessments based on appropriate background conditions. The schedule for remediation of Wappinger Creek downstream of the HRL is uncertain if it is timed to a remedy for the Lower Hudson River. EPA is in the early stages of its Lower Hudson investigation (Operable Units 5, 6 and 7) but the highest PCB concentration reported from Wappinger Creek was 0.36 ppm (0-6 inches), well below the cleanup trigger in the Upper Hudson. While we remained concerned

[1] Removal depth to be refined during the Preliminary Design Investigation (PDI).
[2] Ibid

about the uncertainties with proceeding with an interim action and the site-wide remedial schedule, we offer comments on the alternatives proposed for the IRA.

Interim remedial alternative #4 is the most protective and supported by NOAA of the options presented, but we continue to raise questions about the protectiveness of this alternative. The mercury RAL is derived from the upstream background Wappinger Lake where a mercury fish consumption advisory exists for yellow perch. The RAL also exceeds the NYSDEC mercury soil cleanup objective for unrestricted use. The exclusion of RALs for other COCs could result in ongoing exposure from non-targeted COCs if their footprint extends outside the horizontal and vertical boundaries targeted to remove THg. The lack of a floodplain investigation between T1 and T17 could overlook source conditions to the creek. Use of human health rather than ecologically protective groundwater standards could underestimate the exposure pathway of groundwater discharging to surface water. These factors contribute to the recontamination potential of T1-T17 following implementation of the IRA.

Interim and final remedies should include sufficient habitat reconstruction to mitigate for habitat harmed by the remedial action including replanting of emergent plants, aquatic floating and submerged vegetation (SAV), shoreline vegetation and placement of a habitat layer of sufficient thickness and quality to support rooted vegetation and burrowing organisms. Remedial design and post-construction monitoring should target invertebrates, fish and wildlife representing a range of trophic levels and feeding strategies for a suite of COCs to support risk assessments and determinations of remedy effectiveness. Floodplain, shoreline and in-river habitats should also be delineated and assessed.

Information on freshwater mussel (Unionidae) species composition and abundance in Wappinger Creek is limited. The historic records confirm the presence of the Common Elliptio (*Elliptio complanatIa*), Triangle Floater (*Alasmidonta undulata*), Creeper *(Strophitus undulatus*), and Eastern Floater (*Pyganodon cataracta*) (Strayer 1987) but no documentation was found suggesting a quantitative mussel survey of the creek has been conducted. Five high priority species of Greatest Conservation Need, the Alewife Floater (*Utterbackiana* (*Anondata*) *implicata*)**, Yellow Lampmussel (*Lampsilis cariosa*), Tidewater Mucket (*Leptodea ochracea)***, Eastern Pondmussel (*Ligumia nasuta*)** and the Pink Heelsplitter (*Potamilus alatus*) have been recorded from the mainstem Lower Hudson** and/or Upper Hudson (Strayer et al. 1987, Strayer et al. 1994, HRNRT 2020, NYSDEC 2025, Rosman pers. comm.), indicating they might be found in this large creek. Wappinger Creek could potentially serve as a refugia for freshwater mussels either because populations were less decimated by zebra mussels than in the mainstem Hudson or recovering juveniles successfully reached adulthood possibly due to lower predation pressure (Strayer and Malcom 2018). A quantitative survey of freshwater mussels should be built into the remedial design and native mussels should be relocated prior to remediation if found in the creek due to their importance as ecosystem engineer, declining populations in the Lower Hudson and their general imperiled status.

NOAA appreciates EPA's coordination about the Site to date and requests EPA continue to coordinate on the IRA pre-design and remedial design activities, future contaminant sampling, biological and habitat assessments, plans for habitat reconstruction, and selection of a final

remedy. Our goal is to maximize remedy protectiveness, minimize impacts to natural resources from remedial actions, and allow for impacted resources to recover in a timely fashion.

Specific Comments

Page 10, "*Concentrations of MeHg in shallow surface sediment (0 to 2 inches bss) throughout Wappinger Creek ranged from 0.04 to 4.17 nanograms per gram (ng/g)…*": The highest surface (0-6 inches) concentration of MeHg recorded was 5.39 ng/g (DIVER 2026) but this appears to be a soil sample.

Page 12, "*Bottom feeder (common carp and channel catfish) and predatory fish (largemouth and smallmouth bass) species were collected from eight locations: four in the Industrial Park section, two from the Upper Shoal section, and two from the Embayment section*. ": This section should be updated in the ROD to include the fish tissue residue data collected for the Three Star Site Anodizing Site (not available in database format) and those obtained by NOAA from NYSDEC's statewide database and shared with EPA.

Page 13, "*Potential Site impacts from severe weather events have been assessed, and the performance of the remedy is not expected to be impacted as a result of these events.":* Contamination in the creek could be impacted by the failure of the upstream high hazard unsound Wappinger Lake Dam so removal of the highest concentrations of THg and co-located contaminants during the IRA is a positive step forward. The design should consider what impacts dam failure could have on the remediated stretch of the creek, including erosion of backfill and cap material, and remaining contamination in the floodplains, uplands, and creek.

Pages 14-16, Human Health Risk Assessment: The human health risk assessment found the Site posed cancer risks and non-cancer hazards. Cancer risks and non-cancer hazards from methyl mercury, PCBs (Aroclors 1254 and 1260) and benzo[a]pyrene were associated with consumption of fillets of bottom-feeding fish. Additional fish collections should target the range of species and tissue types (including whole body, head and viscera removed) consumed by the public.

Page 16-17, Ecological Risk Assessment: The ecological risk assessment concluded the Site posed a risk to insectivorous birds consuming aquatic prey (aluminum, barium, chromium, copper, lead, mercury), piscivorous birds (lead, mercury), insectivorous mammals (aluminum, mercury), and piscivorous mammals (polychlorinated biphenyls (PCBs), mercury). EPA concluded sediment contamination did not pose a risk to benthic invertebrates but there is uncertainty in those findings. Chironomid bioassays were run for 10 days rather than for a longer duration. The findings, limited to toxic effects of sediments at T7 to the midge, *Chironomus dilutus*, may underestimate toxicity because information is not available on life cycle endpoints such as emergence, reproduction, adult survival or growth (larvae (end), pupae, adult). Overlying water was replaced twice daily during the amphipod, *Hyalella azteca* bioassays, which has the potential to remove or lower exposure concentrations of toxic chemicals in the water column. Risk to fish was not assessed but tissue concentrations could, in the future, be compared to the 0.2 ppm wet weight mercury threshold effects level in whole body fish (juvenile and adults) (Beckvar et al. 2005) associated with a predicted 5.5% injury (Dillion et al. 2010) and to the dose response curves they developed based on published tissue concentrations.

Page 19, Capping, "*Alternative 4 includes the placement of backfill materials without the use of a reactive cap …however, the need for reactive caps or soil cover for the streambank soils will be evaluated during PDI and RD*": NOAA previously raised potential concerns about incorporating activated carbon into cap material and could raise these again if, in the Record of Decision (ROD), EPA includes a reactive cap as a component of the selected IRA.

Page 19, Restoration of Remediated Areas*:* Replace references to "habitat restoration" with "habitat reconstruction".

Page 19, Excavation of Streambank Soils, "*Based on currently available data, excavation depths are specified to a maximum depth of 0.5 feet, with an estimate of 10% of the streambank length and a width of 50 feet for each alternative.";* and Page 21-Page 22, Alternatives 2, 3 and 4: The description of remedial alternative #4 in the ROD should specify that both sediment and soils exceeding the RAL will be remediated. The Proposed Plan clarifies this in its assessment of how well each of the remedial alternatives provides long-term effectiveness and permanence (pg 25, paragraph 2) but does not state it in the description of the alternative.

Page 20, Top, "*If reduction of wetlands is unavoidable, a third-party compensatory mitigation option would be considered to the extent necessary to meet ARARs."*: EPA should clarify what it means by a third-party compensatory mitigation option. If EPA is referring to a mitigation bank, we recommend reconsideration because they do not have a good success record. We are happy to provide expertise in reconstructing freshwater tidal wetlands to ensure that reduction in wetlands within the creek is avoided.

Page 21-Page 22: The names of the active remedial alternatives focus on dredging sediment rather than remediating sediments and streambank soils. This should be corrected in the ROD.

Page 25, "*Alternative 4 would provide the highest long-term effectiveness and permanence among the alternatives evaluated,…"; and Page 28, "Alternative 4 was selected as the preferred alternative because it is expected to achieve the greatest levels of protection, risk reduction, and long-term effectiveness with comparable short-term impacts and costs to the other active alternatives*.": NOAA concurs.

Page 26, Last Para: EPA should also coordinate with NOAA's Office of Habitat Conservation about the selected remedy.

Please feel free to contact me at 206-619-7965 (lisa.rosman@noaa.gov) if you want to further discuss these comments.

Sincerely



Lisa Rosman

NOAA Regional Resource Coordinator

Cc: Anne Witherup, NOAA

VILLAGE OF WAPPINGER FALLS
VILLAGE BOARD

RESOLUTION NO. 4926/2026

RE: SUPPORTING THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S PROPOSED CLEANUP PLAN FOR THE WAPPINGER CREEK SUPERFUND SITE AND URGING COMPREHENSIVE ECOLOGICAL AND PUBLIC ACCESS RESTORATION, FISHING ADVISORY WARNING SIGNAGE, AND ADDRESSING HUDSON RIVER PCB IMPACTS

WHEREAS, the Wappinger Creek has significant value to our community for recreational, environmental, historical and economic value, including numerous public access sites for paddling, Greenway trails and paddling; and

WHEREAS, the tidal portion of the Wappinger Creek downstream of the falls is a designated Significant Coastal Fish and Wildlife Habitat, important for species including striped bass, river herring, American eel, largemouth bass and smallmouth bass; and

WHEREAS, nearly two centuries of industrial operations along the tidal portion of Wappinger Creek downstream of the falls left a persistent toxic legacy of contaminants in creek sediments, including heavy metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), cyanide, pesticides, and dioxin/furans; and

WHEREAS, testing by the U.S. Environmental Protection Agency (EPA) has concluded that these contaminants do not pose a risk to people who paddle or wade in this portion of the creek, but do pose a significant health risk to those who catch and eat fish from this area; and

WHEREAS, there is a need to post additional New York State Department of Health (NYSDOH) signage to adequately warn anglers that fish caught in the tidal portion of Wappinger Creek pose a health risk and should not be consumed; and

WHEREAS, New York State Department of Environmental Conservation (NYSDEC) completed a portion of the remediation of contamination bordering the creek from 2013 to 2015 and thereafter referred the remaining remediation of contaminated creek sediments to EPA for further action under the federal Superfund program; and

WHEREAS, EPA has proposed an $88 million interim cleanup plan to excavate and remediate approximately half the tidal creek to dredge heavily contaminated creek sediments and remove streambank soils; and

WHEREAS, the EPA is not currently proposing to remediate contaminated sediments near the mouth of Wappinger Creek due to concerns that they could be re-contaminated by PCBs from the Hudson River; and

WHEREAS, the remediation is not designed or expected to affect Wappinger Lake or other upstream portions of Wappinger Creek; and

WHEREAS, Riverkeeper supports the remediation plan by EPA, and is urging EPA to thoroughly restore aquatic habitats and public access following the remediation, to ensure fishing health advisory signage is improved, and to expeditiously address the portion of the creek affected by Hudson River PCBs; and

WHEREAS, the Village of Wappingers Falls shares the core environmental priorities articulated by Riverkeeper.

NOW, THEREFORE, BE IT RESOLVED, as follows:

1. The recitations set forth above are incorporated in this Resolution as if fully set forth and adopted herein.

2. The Board of Trustees of the Village of Wappingers Falls hereby formally declares its full support for the EPA's proposed Superfund cleanup plan for Wappinger Creek.

3. The Village urges the EPA and NYSDOH to work with local landowners at public access points to ensure that fish consumption advisory signage is posted.

4. The Village urges the EPA, NYSDOH and NYSDEC to incorporate the following priorities into the design and implementation of the remedial plan:

- **Habitat Restoration:** Ensure dredging operations are timed, to the extent possible, to avoid disruption to aquatic species, and implement a comprehensive habitat restoration plan to restore the ecology of the creek following the remediation;
- **Public Access:** Preserve, to the extent possible, existing public access during the remedial project, and restore public access following the project; and
- **Addressing Hudson River PCBs:** Ensure the Wappinger Creek remedy accounts for cumulative contamination impacts tied to the broader Hudson River, and address contaminants found in creek sediments near the Hudson River expeditiously.

5. The Village encourages residents to support the cleanup by sending written comments to EPA by September 21, 2026, by writing to Emily Wong, the site's Remedial

Project Manager, at wong.emily@epa.gov or by U.S. mail to Emily Wong, 290 Broadway, New York, New York 10007; or by sending a letter via Riverkeeper's website at https://engage.riverkeeper.org/clean-up-wappinger-creek.

6. The Village Clerk is directed to forward certified copies of this resolution to Ms. Wong, the Regional Administrator of the NYSDEC for Region 3, NYSDOH's Center for Environmental Health, New York State Assembly Member Didi Barrett, New York State Senator Anil Beephan Jr., U.S. Representative Pat Ryan and U.S. Senators Charles Schumer and Kirsten Gillibrand.

Motioned By: Trustee Tyliszczak
Seconded By: Trustee Chiumento

The foregoing was put to a vote which resulted as follows:

	Yea	**Nay**
Kevin Huber – Mayor	___X____	_____
Rick Cerino – Trustee	___X_____	_____
Don McCormick – Trustee	___X____	_____
Rose Vanca – Trustee	___X_____	_____
Jen Niznik– Trustee	_____	Absent
Ryan Chiumento – Trustee	___X_____	_____
John Tyliszczak – Trustee	___X_____	_____

Dated: September 09, 2026
Wappingers Falls, NY

STATE OF NEW YORK)
) SS:
COUNTY OF DUTCHESS)

I, John Karge, Clerk of the Village of Wappingers Falls, New York, do hereby certify that I have compared the foregoing copy of this Resolution with the original on file in my office, and that the same is a true and correct transcript of said original Resolution and of the whole thereof, as duly adopted by said Village Board of Trustees at a meeting duly called and held at the Village Hall on September 09, 2026, by the required and necessary vote of the members to approve the Resolution.

WITNESS My Hand and the Official Seal of the Village of Wappingers Falls, New York, this 09th day of September 2026.

John M. Karge

_____

John M. Karge, Village Clerk

2026-184

Resolution In Support Of The United States Environmental Protection Agency's Proposed Remediation Of The Wappinger Creek Superfund Site

At a Regular Meeting of the Town Board of the Town of Wappinger, Dutchess County, New York, held at Town Hall, 20 Middlebush Road, Wappingers Falls, New York, on September 14, 2026.

The meeting was called to order by Joseph D. Cavaccini, Town Supervisor, and upon roll being called, the following was recorded:

✓ Vote Record - Resolution RES-2026-184						
☑ Adopted ☐ Adopted as Amended ☐ Defeated ☐ Tabled ☐ Withdrawn			Yes/Aye	No/Nay	Abstain	Absent
	Joseph D. Cavaccini	Voter	☑	☐	☐	☐
	William H. Beale	Voter	☑	☐	☐	☐
	Heather O'Dell	Voter	☑	☐	☐	☐
	Christopher Phillips	Seconder	☑	☐	☐	☐
	Al Casella	Mover	☑	☐	☐	☐

The following Resolution was introduced by Casella and seconded by Councilman Phillips.

WHEREAS, the Wappinger Creek is one of the Town of Wappinger's most significant natural resources and serves as an important ecological, recreational, scenic and historic waterway for the residents of the Town, the Village of Wappingers Falls and the greater Hudson Valley; and

WHEREAS, the tidal portion of the Wappinger Creek extends from the base of Wappingers Falls downstream approximately two miles to its confluence with the Hudson River and provides important aquatic and wildlife habitat while also supporting fishing, paddling, walking and other recreational activities enjoyed by the public; and

WHEREAS, more than a century of industrial activity along portions of the Wappinger Creek contributed to the discharge and accumulation of contaminants within creek sediments and streambank soils; and

WHEREAS, in September 2016, the United States Environmental Protection Agency ("EPA") added the Wappinger Creek site to the federal Superfund National Priorities List in order to facilitate the investigation and eventual remediation of environmental contamination within the tidal creek; and

WHEREAS, investigations undertaken by the EPA and the New York State Department of Environmental Conservation ("NYSDEC") have identified significant contamination within sediments of the tidal Wappinger Creek, including elevated concentrations of mercury and other contaminants; and

WHEREAS, the EPA has identified mercury as the primary contaminant of concern for the proposed interim remedial action and has determined that contaminated sediment within the upstream portion of the Superfund site represents a significant source of contamination capable of migrating farther downstream; and

WHEREAS, EPA's investigation has identified human-health risks associated with the consumption of fish caught within the Superfund site and ecological risks to wildlife exposed to contaminated sediment and contaminated food sources; and

WHEREAS, the Town Board recognizes that the findings concerning contaminated fish should not be confused with the general recreational use of the waterway and supports clear, accurate and continuing public communication concerning the nature and extent of environmental and health risks associated with the site; and

WHEREAS, in July 2026, the EPA released a Proposed Plan for Operable Unit 1 ("OU1") of the Wappinger Creek Superfund Site setting forth several alternatives for an interim remedial action focused upon the most significantly contaminated upstream portion of the site; and

WHEREAS, following its evaluation of the available alternatives, the EPA, in consultation with NYSDEC, identified Alternative 4 - "Dredge to Remove Any Remedial Action Level Exceedance; Backfill to Grade in the Dredge Footprint" as its preferred interim remedy; and

WHEREAS, Alternative 4 proposes the removal of contaminated sediment and streambank soils exceeding the established mercury remedial action level, management and off-site disposal of removed materials, placement of clean backfill, restoration of remediated areas, implementation of monitoring programs and continued public outreach concerning environmental and health conditions within the creek; and

WHEREAS, Alternative 4 would remove a greater amount of contaminated sediment than the other active alternatives evaluated by the EPA and has been identified by EPA as offering the highest level of long-term effectiveness and permanence among the alternatives considered; and

WHEREAS, the EPA estimates the present-worth cost of Alternative 4 at approximately $88.1 million, representing a substantial federal commitment toward addressing the environmental legacy of historic industrial activity along the Wappinger Creek; and

WHEREAS, NYSDEC concurs with the EPA's preferred alternative; and

WHEREAS, the Town Board strongly believes that contamination resulting from historical industrial activity should not remain an environmental burden upon future generations of Wappinger residents and that meaningful remediation of the Wappinger Creek is long overdue; and

WHEREAS, the Town Board further recognizes that the Wappinger Creek is not simply a contaminated site to be remediated, but a living waterway, important fish and wildlife habitat, recreational resource and integral part of the identity and history of the Wappinger community; and

WHEREAS, the Town Board therefore believes that the implementation and design of the remediation project must include careful measures to protect aquatic life, wetlands, streambanks and other natural resources during construction and to restore disturbed habitat following completion of remediation activities; and

WHEREAS, EPA acknowledges that dredging and excavation will result in temporary impacts, including disruption of aquatic habitat, increased turbidity, construction activity, truck traffic, noise and temporary restrictions upon portions of the Wappinger Creek; and

WHEREAS, the Town Board therefore urges EPA to work closely with the Town of Wappinger, Village of Wappingers Falls, NYSDEC and other appropriate governmental and environmental agencies throughout project design and implementation to minimize those impacts upon neighboring residents, businesses, public facilities and the natural environment; and

WHEREAS, the Town Board further believes that public access to the Wappinger Creek for fishing, paddling, walking and other lawful recreational activities should be preserved to the greatest extent practicable during remediation and fully restored following completion of construction; and

WHEREAS, the Town Board supports the establishment of a comprehensive habitat-restoration plan to restore disturbed portions of the creek and streambanks and to protect the Wappinger Creek's important role as aquatic habitat and as part of the greater Hudson River Estuary ecosystem; and

WHEREAS, the Town Board also supports continued and clearly visible public education regarding existing fish-consumption advisories so that residents and visitors, particularly those who fish for subsistence or recreation, are properly informed of potential risks; and

WHEREAS, the Town Board recognizes that the presently proposed action constitutes an interim remedy addressing the upstream portion of the Superfund site and does not constitute the final remediation of the entire Wappinger Creek Superfund Site; and

WHEREAS, EPA has indicated that additional investigations will be conducted following implementation of the interim remedy to inform the selection of a future final remedy for the remainder of the site; and

WHEREAS, the Town Board considers remediation of the upstream contamination to be an essential first step, but strongly supports continued federal action toward a comprehensive and permanent cleanup of the remaining downstream portions of the Wappinger Creek; and

WHEREAS, the Town Board further urges the EPA to coordinate its future investigation and remediation of the lower Wappinger Creek with the ongoing federal management of contamination within the Hudson River so that contamination associated with tidal exchange or the Hudson River does not prevent or undermine the ultimate remediation and restoration of the lower creek; and

WHEREAS, the EPA has extended the public-comment period for the Proposed Plan through September 21, 2026, providing the Town of Wappinger with an opportunity to formally express its support and priorities concerning the proposed remediation;

NOW, THEREFORE, BE IT RESOLVED, that the Town Board of the Town of Wappinger hereby strongly supports the United States Environmental Protection Agency's proposed remediation of the Wappinger Creek Superfund Site and the selection of Alternative 4 as the preferred interim remedy for Operable Unit 1; and

BE IT FURTHER RESOLVED, that the Town Board supports the removal and proper off-site disposal of contaminated sediment and streambank soils exceeding the applicable remedial action level, followed by the placement of clean material, restoration of affected areas and appropriate environmental monitoring; and

BE IT FURTHER RESOLVED, that the Town Board urges the EPA, as the project proceeds through remedial design and implementation, to:

1. Protect aquatic and wildlife habitat by appropriately timing and managing dredging, excavation and related construction activities to minimize impacts upon migratory fish, spawning activity and other aquatic species;
2. Develop and implement a comprehensive habitat-restoration plan for all portions of the creek, wetlands and streambanks disturbed through remediation;
3. Preserve public access to the Wappinger Creek to the greatest extent practicable during construction and fully restore fishing, paddling, pedestrian and other lawful recreational access following completion of the project;
4. Maintain clear public communication and signage concerning applicable fish-consumption advisories and other environmental or health information;

5. Minimize impacts upon surrounding neighborhoods and businesses, including through appropriate construction hours, haul routes, dust and noise controls, traffic-management measures and coordination with local officials;
6. Coordinate closely with the Town of Wappinger and Village of Wappingers Falls throughout remedial design and construction, particularly regarding staging areas, transportation routes, road impacts, public access, emergency services and other matters affecting the local community;
7. Ensure comprehensive post-remediation monitoring sufficient to confirm the effectiveness and permanence of the remedy and detect any continuing or renewed movement of contamination;
8. Proceed expeditiously with investigation and development of a final remedy for the downstream portion of the Superfund site following implementation of the interim remedy; and
9. Coordinate the ultimate remediation of the lower Wappinger Creek with the Hudson River Superfund program and other appropriate federal and State initiatives so that contamination originating from or influenced by the Hudson River does not frustrate the long-term restoration of the Wappinger Creek; and

BE IT FURTHER RESOLVED, that the Town Board recognizes the Wappinger Creek as an invaluable environmental and recreational asset and affirms that the ultimate goal of this effort must be not merely the management of contamination, but the long-term cleanup, restoration and protection of the Wappinger Creek for generations to come; and

BE IT FURTHER RESOLVED, that the Town Board thanks the United States Environmental Protection Agency, New York State Department of Environmental Conservation and all governmental, environmental and community partners whose work has brought this long-awaited remediation effort forward; and

BE IT FURTHER RESOLVED, that the Town Supervisor is hereby authorized to submit this Resolution, together with such cover correspondence or additional municipal comments as may be appropriate, to the United States Environmental Protection Agency as the formal comments of the Town of Wappinger concerning the Proposed Plan for the Wappinger Creek Superfund Site; and

BE IT FURTHER RESOLVED, that the Town Clerk is hereby directed to transmit certified copies of this Resolution to:

- Emily Wong, Remedial Project Manager, United States Environmental Protection Agency, Region 2;
- Michael Martucci, Regional Administrator, United States Environmental Protection Agency, Region 2;
- the New York State Department of Environmental Conservation;
- the New York State Department of Health;
- the Dutchess County Executive;
- the Dutchess County Legislature;
- the Village of Wappingers Falls;
- the Town of Poughkeepsie;
- the Town's federal and State legislative representatives; and

such other governmental agencies and interested organizations as the Town Supervisor may deem appropriate.

The foregoing was put to a vote which resulted as follows:

RESULT:	**ADOPTED [UNANIMOUS]**
MOVER:	Al Casella, Councilman
SECONDER:	Christopher Phillips, Councilman
AYES:	Cavaccini, Beale, O'Dell, Phillips, Casella

Dated: Wappingers Falls, New York
9/14/2026

The Resolution is hereby duly declared Adopted.

JOSEPH P. PAOLONI, TOWN CLERK

STATE OF NEW YORK }
} SS:
COUNTY OF DUTCHESS }

I, Felicia Salvatore, Town Clerk of the Town of Poughkeepsie, New York, do hereby certify that attached Resolution 9:16 # 7 of 2026, in regard to supporting the US Environmental Protection Agency's proposed cleanup for the Wappingers Creek Superfund Site is in fact a true and correct copy of the original on file with my office located at 1 Overocker Road, Poughkeepsie, NY 12603 and that the same are a true and correct transcript of said original and of the whole thereof,

I DO WITNESS My Hand and the Official Seal of the Town of Poughkeepsie, New York, this 17th day of September 2026

Felicia Salvatore

Felicia Salvatore, Town Clerk
Town of Poughkeepsie



RESOLUTION 9:16 - # 7 of 2026

RESOLUTION SUPPORTING THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S PROPOSED CLEANUP PLAN FOR THE WAPPINGER CREEK SUPERFUND SITE AND URGING COMPREHENSIVE ECOLOGICAL AND PUBLIC ACCESS RESTORATION, FISHING ADVISORY WARNING SIGNAGE, AND ADDRESSING HUDSON RIVER PCB IMPACTS

WHEREAS, the Wappingers Creek has significant value to our community for recreational, environmental, historical and economic value, including numerous public access sites for paddling, Greenway trails and paddling; and

WHEREAS, the Town has acquired the Reese Preserve, a protected woodland and wildlife sanctuary which borders Wappingers Creek, and

WHEREAS, the tidal portion of the Wappinger Creek downstream of the falls is a designated Significant Coastal Fish and Wildlife Habitat, important for species including striped bass, river herring, American eel, largemouth bass and smallmouth bass; and

WHEREAS, nearly two centuries of industrial operations along the tidal portion of Wappinger Creek downstream of the falls left a persistent toxic legacy of contaminants in creek sediments, including heavy metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), cyanide, pesticides, and dioxin/furans; and

WHEREAS, testing by the U.S. Environmental Protection Agency (EPA) has concluded that these contaminants do not pose a risk to people who paddle or wade in this portion of the creek, but do pose a significant health risk to those who catch and eat fish from this area; and

WHEREAS, there is a need to post additional New York State Department of Health (NYSDOH) signage to adequately warn anglers that fish caught in the tidal portion of Wappinger Creek pose a health risk and should not be consumed; and

WHEREAS, New York State Department of Environmental Conservation (NYSDEC) completed a portion of the remediation of contamination bordering the creek from 2013 to 2015 and thereafter referred the remaining remediation of contaminated creek sediments to EPA for further action under the federal Superfund program; and

WHEREAS, EPA has proposed an $88 million interim cleanup plan to excavate and remediate approximately half the tidal creek to dredge heavily contaminated creek sediments and remove streambank soils; and

WHEREAS, the EPA is not currently proposing to remediate contaminated sediments near the mouth of Wappinger Creek due to concerns that they could be recontaminated by PCBs from the Hudson River; and

WHEREAS, the remediation is not designed or expected to affect Wappinger Lake or other upstream portions of Wappinger Creek; and

WHEREAS, Riverkeeper supports the remediation plan by EPA, and is urging EPA to thoroughly restore aquatic habitats and public access following the remediation, to ensure fishing health advisory signage is improved, and to expeditiously address the portion of the creek affected by Hudson River PCBs; and

WHEREAS, the Town of Poughkeepsie shares the core environmental priorities articulated by Riverkeeper, now therefore.

BE IT RESOLVED, that the Town Board of Poughkeepsie hereby formally declares its full support for the EPA's proposed Superfund cleanup plan for Wappinger Creek; and

BE IT FURTHER RESOLVED, that the Town urges the EPA and NYSDOH to work with local land owners at public access points to ensure that fish consumption advisory signage is posted; and

BE IT FURTHER RESOLVED, that the Town urges the EPA, NYSDOH and NYSDEC to incorporate the following priorities into the design and implementation of the remedial plan:

- **Habitat Restoration:** Ensure dredging operations are timed, to the extent possible, to avoid disruption to aquatic species, and implement a comprehensive habitat restoration plan to restore the ecology of the creek following the remediation.
- **Public Access:** Preserve, to the extent possible, existing public access during the remedial project, and restore public access following the project.
- **Addressing Hudson River PCBs:** Ensure the Wappinger Creek remedy accounts for cumulative contamination impacts tied to the broader Hudson River, and address contaminants found in creek sediments near the Hudson River expeditiously.

BE IT FURTHER RESOLVED, that the Town encourages residents to support the cleanup by sending written comments to EPA by September 21, 2026, by writing to Emily Wong, the site's Remedial Project Manager, at wong.emily@epa.gov or by U.S. mail to Emily Wong, 290 Broadway, New York, New York 10007; or by sending a letter via Riverkeeper's website at https://engage.riverkeeper.org/clean-up-wappinger-creek.

BE IT FURTHER RESOLVED, that the Town Clerk is directed to forward certified copies of this resolution to Ms. Wong, the Regional Administrator of the NYSDEC for Region 3, NYSDOH's Center for Environmental Health, New York State Assembly Member Didi Barrett, New York State Senator Anil Beephan Jr., U.S. Representative Pat Ryan and U.S. Senators Charles Schumer and Kirsten Gillibrand.

Dated: September 16, 2026

Moved: Ryan Sharpe

Seconded: Ann Shershin

Motion passes/ fails: Ayes 7 Nays 0

ES/mem
t-9/10/2026
m-9/16/2026

		AYE	NAY	ABSTAIN
PRESENT/ABSENT	Councilman Freeman	✓		
PRESENT/ABSENT	Councilwoman Laird	✓		
PRESENT/ABSENT	Councilman Thangiah	✓		
PRESENT/ABSENT	Councilwoman Watson	✓		
PRESENT/ABSENT	Councilman Sharpe	✓		
PRESENT/ABSENT	Councilwoman Shershin	✓		
PRESENT/ABSENT	Supervisor Edwards	✓		

RIVERKEEPER

September 21, 2026

Emily Wong, Remedial Project Manager
U.S. Environmental Protection Agency, Region 2
290 Broadway, 18th Floor
New York, NY 10007
Via Email: wong.emily@epa.gov

RE: Comments on the Proposed Interim Remedial Plan (Operable Unit 1 / Alternative 4) for the Wappinger Creek Superfund Site

Dear Ms. Wong,

On behalf of Riverkeeper, Inc., I respectfully submit the following public comments regarding the U.S. Environmental Protection Agency's (EPA) Proposed Interim Remedial Plan for Operable Unit 1 (OU1) of the Wappinger Creek Superfund Site.

Riverkeeper is a 60-year-old membership-supported non-profit organization that protects and restores the Hudson River from source to sea and safeguards drinking water supplies, through advocacy rooted in community partnerships, science and law.

The Wappinger Creek Superfund site is the tidal portion of the creek, an arm of the Hudson River Estuary. The creek is critical habitat for marine, estuarine and freshwater species, and extensively used by the public for fishing, paddling and other recreation. NYS Department of Environmental Conservation (NYSDEC) first identified concerns about toxicity of discharges from then-active industry at the site in 1971 and designated the site as a hazardous waste site in need of remediation in 1983. NYSDEC began its investigation of the site, known as Three Star Anodizing, in 2001, and completed its remedial activities there in 2015. At that time, it referred the creek sediment portion of the remediation to EPA for attention under the federal Superfund program.

The EPA's plan is an important milestone in the long remedial history of the site. Remediation of the creek is important for the community that enjoys it, and essential to the overall restoration of the Hudson River Estuary. EPA should ensure that future activities proceed expeditiously, especially given the slow pace of progress over nearly half a century.

Riverkeeper supports EPA's selection of **Alternative 4** ($88 million interim cleanup) as the preferred remedy for OU1. As the most comprehensive and protective option evaluated in the Feasibility Study, Alternative 4 removes all contaminated sediment

above defined cleanup thresholds over a 3-year dredging timeline without relying on permanent capped structures or long-term engineering maintenance. However, to ensure that the cleanup fully achieves ecological restoration, protects human health, and addresses community needs, EPA must address key conditions and technical concerns in the final Record of Decision (ROD).

1. EPA's Remedial Design Must Protect and Restore Aquatic Habitat

The tidal Wappinger Creek, including the entire Superfund site, is officially designated as a Significant Coastal Fish and Wildlife Habitat (Significant Habitat) by the New York State Department of State (NYSDOS). Evaluated and mapped under Article 42 of the Waterfront Revitalization and Coastal Resources Act—and federally incorporated through consistency provisions of the Coastal Zone Management Act (CZMA)—this legal status designates the tidal estuary, mudflats, and submerged aquatic vegetation as a statewide ecological priority. The primary regulatory purpose of this Significant Habitat designation is to safeguard essential spawning grounds, shallow nursery habitats, and migratory pathways for anadromous species such as alewife, blueback herring, and striped bass, while protecting vital foraging grounds for waterfowl and resident fish, such as small mouth and large mouth bass.

Dredging operations will result in significant damage to this Significant Habitat that is unavoidable to achieve the goal of removing hazardous contaminants. The remedial design must ensure that dredging is implemented and timed to prevent all avoidable impacts, and EPA must develop and implement a robust habitat restoration plan. New York State Hudson River Fisheries Unit should be consulted throughout the design and implementation process for both the project and the restoration.

2. EPA's Remedial Design Must Protect and Restore Public Access

There is extensive public access to the Superfund site from both publicly and privately managed properties, including for fishing, paddling and walking or picnicking on the shoreline. These access points include the Market Street Industrial Park, the Wappinger Greenway Trail, Town of Wappinger's Reese Park and boat launch, and the Reese Audubon Sanctuary in Town of Poughkeepsie.

Construction activities should minimize disruption to recreational water access to the extent possible. Post-construction restoration must return all public access points and boat launches to equal or better condition.

3. EPA Must Develop a Remediation Plan for the Lower Portion of Wappinger Creek

While Riverkeeper supports EPA's interim plan for OU1 to address mercury and other contamination in sediment and streambank soils within the upstream portions of the Site, we are concerned that only three upstream sections (Industrial Park, Upper Shoal, and Embayment sections) are targeted for remediation. The plan excludes the Lower Shoal and Confluence sections of the Creek due to EPA concerns that these areas could be recontaminated by polychlorinated biphenyls (PCBs) from the Hudson River. However, impacts from the Hudson River cannot be ignored indefinitely if we hope to clean up and restore Wappinger Creek. To that end, EPA Region 2 must establish a formal, time-bound, coordinated cleanup between the Wappinger Creek and Hudson River Superfund project teams, alongside NYSDEC, to deliver a complete, phased restoration strategy for the entire Wappinger Creek Superfund site. The Wappinger Creek remedy must account for cumulative contamination impacts tied to the broader Hudson River and expeditiously address all contaminants within the Superfund Site.

4. Public Fishing Advisories Must be Improved

On site visits, Riverkeeper observed extensive use by anglers of the Superfund site at Market Street Industrial Park, yet no EPA or New York State Department of Health (NYSDOH) signage warning against fish consumption was present. Wappingers Falls and the portions of the Towns of Poughkeepsie and Wappinger bordering the Superfund site are designated as Disadvantaged Communities by New York State.Furthermore, EPA's EJScreen tool shows that English is not the primary language for more than half of the surrounding residents. NYSDOH has issued specific fish consumption advisories for Wappinger Creek, but such warnings are useless if they are not clearly communicated. To protect public health, prominent, multilingual signage must be installed immediately across the Site.

Given that environmental and health agencies have known about contamination of creek sediments for years or decades, it is unacceptable that the public has been subjected to unnecessary risks that effective signage could have mitigated. EPA must work with state agencies and local authorities, including private landowners, to ensure effective signage is posted immediately.

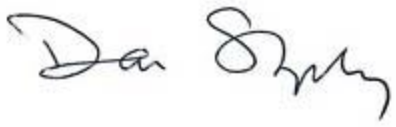
Conclusion

After nearly two centuries of industrial contamination, and nearly a half century of remedial activities, the community and wildlife of Wappinger Creek deserve a clean, fully restored waterway. EPA's selection of Alternative 4 is a critical step, provided the anglers are warned in the meantime of the risks of eating fish, that the cleanup is executed with rigorous safeguards, that habitat and access are fully restored, and that a cleanup plan for the remainder of the creek is developed on an expedited timeline that is

communicated transparently.

Thank you for your consideration of these comments.

Sincerely,



Dan Shapley
Senior Director, Advocacy, Policy & Planning

Dutchess County Legislature
CountyLegislature@dutchessny.gov
845-486-2100
September 21, 2026

Emily Wong
Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway
New York, NY 10007
Wong.Emily@epa.gov

Re: Public comment in support of EPA's Proposed Cleanup Plan (Alternative 4) — Wappinger Creek Superfund Site, Dutchess County, New York

Dear Ms. Wong,

We the undersigned members of the Dutchess County Legislature write to express our strong support for the EPA's proposed cleanup plan (Alternative 4) for the tidal Wappinger Creek Superfund Site. This plan would excavate and remove mercury-contaminated sediment and streambank soil in the upper portion of the site wherever total mercury exceeds 1.1 mg/kg, transport the material to permitted off-site disposal, and backfill and restore the excavated area. It gets cleanup crews into the creek sooner, removes a major source of contamination that could otherwise continue migrating downstream, and lays the groundwork for a sound final remedy decision. We urge the EPA to adopt and implement it.

Wappinger Creek matters deeply to this community. It carries significant recreational, environmental, historical, and economic value, with numerous public access points for paddling and Greenway trail connections. The tidal portion downstream of the falls is a designated Significant Coastal Fish and Wildlife Habitat and supports striped bass, river herring, American eel, and both largemouth and smallmouth bass. Nearly two centuries of industrial operations left a persistent toxic legacy in the creek's sediments — heavy metals, PAHs, PCBs, cyanide, pesticides, and dioxins/furans. EPA's own testing has concluded that while these contaminants do not pose a risk to people who paddle or wade in the creek, they do pose a significant health risk to those who catch and eat fish

from this stretch. That is precisely the kind of harm this remedy should, and can, address.

While we strongly support the proposed plan, we urge EPA to work with NYSDOH and NYSDEC to incorporate the following priorities into the design and implementation of the remedy:

- **Fishing advisory signage.** Anglers need clear warning that fish caught in the tidal portion of Wappinger Creek pose a health risk and should not be consumed. We urge EPA and NYSDOH to work with local landowners at public access points to ensure adequate NYSDOH fish-consumption advisory signage is posted and maintained.

- **Habitat restoration.** Dredging operations should be timed, to the extent possible, to minimize disruption to aquatic life and migratory fish. The creek is an important spawning and nursery habitat for river herring and striped bass and the project should include a comprehensive plan to thoughtfully restore the habitat of the creek following remediation.

- **Public access.** Existing public access should be preserved during the project to the extent possible and fully restored once the work is complete, so the community can continue to enjoy the creek.

- **Addressing Hudson River PCBs.** We understand EPA is currently not proposing to remediate the contaminated sediments near the mouth of the creek because of the risk of recontamination by PCBs from the Hudson River. We urge the EPA to move expeditiously on a plan to address the contaminants found in creek sediments near the Hudson rather than deferring them indefinitely.

Thank you for your work on this cleanup and for the opportunity to comment. The removal of this contamination is long overdue, and we appreciate EPA's commitment to getting it done. We respectfully urge EPA to move forward with the proposed plan and to build these priorities into its implementation.

Respectfully,

The Dutchess County Legislature

Yvette Valdés Smith, Chair & District 16	Barrington Atkins, Majority Leader & District 9	Kris Munn, Assistant Majority Leader & District 20
Lisa R. Kaul, Chair Environment Committee & District 6	Alix Winsby, Vice-Chair, Environment Committee & District 14	Brendan Lawler, District 4
Trevor Redl, District 1	Emma Arnoff, District 2	Brennan Kearney, District 11
Anna Shah, District 5	Molly Rhodes, District 18	Chris Drago, District 19
Randy Johnson, District 10	Craig Brendli, District 8	Doug McHoul, District 17
Lew Darrow, District 7	Andrew House, District 24	Kevin Giles, District 13
Joseph Tresca, District 22	Stephen Caswell, District 21	Michael Polasek, Minority Leader, District 3
John Metzger, Assistant Minority Leader, District 12	Chris Rolison, District 23	Robert Faust, District 15

APPENDIX V

RESPONSIVENESS
SUMMARY ATTACHMENT B

PROPOSED PLAN

EPA United States Environmental Protection Agency

Wappinger Creek Superfund Site
Operable Unit 1
Wappingers Falls, Dutchess County, New York

July 2026

MARK YOUR CALENDAR

PUBLIC COMMENT PERIOD:

July 23, 2026 to August 21, 2026

EPA will accept written comments on this Proposed Plan during the public comment period. Written comments must be postmarked no later than August 21, 2026. To request an extension to comment, send a request in writing by 5:00 PM on August 21, 2026 via the contact information on Page 2.

IN PERSON PUBLIC MEETING:

July 30, 2026 at 6 pm

EPA will hold a public meeting to explain the alternatives presented in the Focused Feasibility Study and this Proposed Plan and the preferred alternative. Oral and written comments will also be accepted at the meeting. The meeting will be held at:

Grinnell Community Library
2642 East Main Street, Wappingers Falls, NY 12590

In addition, documents from the administrative record are available online at:

http://www.epa.gov/superfund/wappinger-creek

EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan for the Wappinger Creek Superfund Site (Site) describes the remedial alternatives considered for Operable Unit 1 (OU1) to address mercury contamination in sediment and streambank soils within the upstream portions of the Site and identifies the preferred interim remedy with the rationale for this preference. An interim remedial action (IRA) in the upper portion of the Site is proposed to accelerate a sitewide remedy by reducing risk and removing contaminant mass that could be a source for migration of contaminants further downstream. This OU is the first of two anticipated OUs for the Site. EPA anticipates that an eventual, final remedy for the Site will be selected as part of OU2. The Site consists of the tidally influenced portion of Wappinger Creek (Creek), beginning at the base of Wappingers Falls and extending two miles downstream to where the Creek meets the Hudson River (**Figure 1**).

This Proposed Plan was developed by the U.S. Environmental Protection Agency (EPA), the lead agency for the Site, in consultation with the New York State Department of Environmental Conservation (NYSDEC), the support agency. EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA, also known as Superfund) and Sections 300.430(f) and 300.435(c) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The nature and extent of contamination of OU1 of the Site and the remedial alternatives summarized in this Proposed Plan are more fully described in the Remedial Investigation (RI) Report, dated January 2025, and the Focused Feasibility Study (FFS) Report, dated July 2026, as well as other documents in the Administrative Record file for this decision. EPA encourages the public to review these documents to gain a more comprehensive understanding of the Site, the Superfund activities that have been conducted, and the remedial alternative that is being proposed.

The purpose of this Proposed Plan is to inform the public of EPA's preferred remedial alternative and to solicit public comments pertaining to all of the remedial alternatives that are evaluated, including the preferred alternative.

The preferred alternative for OU1, referred to as Alternative 4, includes dredging and offsite disposal of contaminated sediment and streambank soils in the upper portions of the Site, followed by the placement of clean backfill over disturbed areas, monitoring, institutional controls (ICs), and access controls.

The preferred remedy for OU1 of the Site is described in this Proposed Plan. Changes to the preferred alternative, or a change from the preferred remedy to another remedial alternative described in this Proposed Plan, may be made by EPA, in consultation with NYSDEC, if public comments or additional data indicate that such a change will result in a more

appropriate remedial action. EPA will make the final decision regarding the selected remedy after EPA has taken into consideration all public comments. For this reason, EPA is soliciting public comments on all of the alternatives considered in this Proposed Plan and on the detailed analysis section of the FFS Report because EPA may select an alternative other than the preferred alternative.

COMMUNITY ROLE IN SELECTION PROCESS

EPA provides an opportunity for the public to participate in the selection of remedies for each Superfund site. To this end, this Proposed Plan and other Site documents are made available to the public for a public comment period which begins on July 23, 2026 and concludes on August 21, 2026.

A public meeting will be held on July 30, 2026 at the Grinnell Community Library to present the conclusions of the Remedial Investigation and Feasibility Study (RI/FS), to elaborate further on the reasons for recommending the preferred alternative, and to receive public comments.

Comments received at the public meeting, as well as written comments received during the public comment period, together with EPA's responses, will be documented in a Responsiveness Summary Section of the Record of Decision (ROD), the document that memorializes the selection of the remedy.

Written comments on this Proposed Plan should be addressed to:

Emily Wong
U.S. Environmental Protection Agency
290 Broadway
New York, New York 10007-1866
Telephone: 212-637-4303
Email: wong.emily@epa.gov

SCOPE AND ROLE OF ACTION

This Proposed Plan addresses sediment and streambank soil contamination at the Site as part of an IRA. This OU is one of two anticipated OUs for the Site. At Superfund sites, site remediation activities are sometimes separated into different phases, or OUs, so that remediation of different geographic areas of a site can proceed separately, resulting in a more efficient and expeditious cleanup of the entire site.

This Proposed Plan discusses the remedial alternatives considered for OU1 to address risks posed by total mercury (THg) and prevent source migration of THg in sediment found within the upper portion of the Site. Three upstream sections (Industrial Park, Upper Shoal, and Embayment sections) are targeted as part of this IRA (**Figure 1**). These locations contain high concentrations of THg in sediment, which is considered to be source material most likely to be redistributed across the Site, while also exhibiting a lower potential for recontamination from sediment deposition related to tidal impacts from the Hudson River. The extent of influence from the Hudson River, which also serves as the boundary of OU1, is marked by the Hudson River Line (HRL) and discussed further below. EPA anticipates that remediating THg-contaminated sediment in the upper portion of the Site will reduce THg contaminant concentrations in sediment throughout the Site, reduce the potential for mercury methylation and bioaccumulation in the food web and remove other collocated, site-related contaminants, thereby reducing risks to human and ecological receptors. Streambank soils are also targeted in this IRA due to their potential to erode and re-contaminate the sediment bed after the remedial action is complete.

While this IRA would only address sediment and streambank soil in the upper portion of the Site, it will form a part of the overall Site remedial strategy. Once targeted contaminated sediment is remediated in the upper portion of the Site and the interim performance criteria have been met, a post-IRA monitoring program would be implemented. Exact details of the monitoring program will be determined in the future and will include sampling for biotic (*e.g.*, fish tissue) and abiotic (*e.g.*, sediment, soil, surface water, pore water) media. A subsequent sitewide remedy would be developed based on the data from the post-IRA monitoring. The post-IRA monitoring program would inform the development of future sitewide objectives, verify that the interim remedy is functioning as designed, and evaluate the effectiveness of the IRA. This monitoring program would be designed to ensure that media are monitored such that trends in concentrations of site-related contaminants can be evaluated. Additionally, the data would be used to identify any potential ongoing sources of contamination, evaluate changes in the system over time, and assess the natural recovery of the Creek system.

Using the results of the post-IRA monitoring, the subsequent trends and site characterization can be evaluated to identify the nature and extent and the fate and transport of contamination remaining at the Site. EPA would use this information to develop a final site-wide remedy. EPA anticipates that a final remedial decision for the Site will be memorialized in a subsequent ROD.

SITE BACKGROUND

Site Description

The Site, located in Wappingers Falls, Dutchess County, New York, is defined as the tidally influenced portion of Wappinger Creek. The Site consists of a zone of sediment contamination that begins at the base of Wappingers Falls by the Market Street Industrial Park (Industrial Park) and extends approximately two miles downstream to where the Creek meets with the Hudson River. The Site is primarily oriented in a northeast-southwest fashion. A map of the Site is provided in **Figure 1**.

For the purposes of EPA's RI and in order the make the Site easier to investigate, the Site was divided into the following five sections, which were further broken up into transects T1-T30 (described in further detail below).

- Industrial Park section (T1-T11): This is the uppermost section of the Site and is located adjacent to the Industrial Park, which was the historical source of contamination.
- Upper Shoal section (T12-T14): This area is downstream of the Industrial Park section and upstream of the embayment.
- Embayment section (T15-T17): This section of the Creek is part of, and adjacent to, the embayment. The embayment is the primary depositional area of the Site and is largely protected from the Creek flow by the embayment peninsula. The Embayment section is the lowermost section of the Site to be addressed by the IRA and is bounded by the HRL. The HRL, located between transects T17 and T18, is also used to demarcate the approximate extent of potential sediment exchange between the Hudson River and Wappinger Creek.
- Lower Shoal section (T18-T25): This section of the Creek is downstream of the embayment but upstream of the confluence of the Creek with the Hudson River.
- Confluence section (T26-T30): This section of the Creek is downstream of the Lower Shoal section, extending to the confluence of Wappinger Creek with the Hudson River.

Upon review of the data collected throughout the Site, EPA concluded that there was a need to address significant levels of contamination acting as source material. The three upstream sections, identified by Transects T1-T17, are the focus of this IRA.

The Site and its surrounding areas are used for residential, recreational, and commercial purposes. A hydroelectric dam that controls the water levels in Wappinger Lake is located upstream of Wappingers Falls and discharges directly into the Site. The Industrial Park is located along the banks of the Site, approximately 0.2 miles downstream of Wappingers Falls. The Industrial Park has been active for more than 180 years and is currently home to several commercial facilities, operating within the existing historical industrial buildings. No additional structures have been added to the Industrial Park since industrial operations ceased. The Reese Audubon Sanctuary borders the Creek along the northwestern (northern) bank. Open space, Reese Park, residential properties, and a Department of Public Works facility are located along the southeastern (southern) bank of the Creek.

Wappinger Creek is currently designated as a Class C(T) Fresh Surface Water under New York State Codes, Rules, and Regulations (6 CRR-NY, Article 10, Part 857), meaning that the Creek is an active recreational fishery that may support a trout population and is suitable for contact recreation. The Creek is used by recreational users for activities including swimming, kayaking, and fishing. There is at least one boat launch and several fishing access points along the Site.

Site Geology & Hydrogeology

Wappinger Creek is a 41-mile long freshwater creek that originates in extensive headwater wetlands and lakes in northern Dutchess County. The Wappinger Creek watershed drains over 130,000 acres and is fed by approximately 320 miles of tributaries. Upstream of the Site, Wappinger Creek flows through Wappinger Lake and over Wappingers Falls. Surface water drainage in the Site area is toward Wappinger Creek and its associated wetlands and tributaries, and the overall drainage at the Site is towards the Hudson River. Two tributaries flow directly into the Site: an unnamed tributary, which meets the Creek from the northern bank within the Industrial Park section, and Hunter Creek, which confluences from the southern bank within the Upper Shoal section.

Wappinger Creek is tidally influenced between Wappingers Falls and the confluence with the Hudson River. The tidal cycles observed include a daily cycle, with every second high and low tide having a greater amplitude or a semidiurnal tide. The tide also follows a lunar cycle with the amplitude of tides swelling each month or during a spring tide. During the tidal cycle of the Hudson River, surface water levels at the Site can fluctuate as much as 3.5 feet at the upstream end of the tidal portion adjacent to the Industrial Park and up to 4 feet in the lower sections.

A shallow, unconsolidated aquifer of glacial/alluvial origin is the primary aquifer that interacts with Wappinger Creek. The groundwater elevation observed was close to the surface water elevation at the Site. Locally, shallow groundwater adjacent to the Creek flows toward and discharges to Wappinger Creek. The interaction between groundwater and surface water at the Site is also tidally influenced. Groundwater elevations in site monitoring wells were observed to vary up to three feet through a daily tidal cycle, indicating a substantial connection to the Creek. Deep groundwater may discharge to the Creek in areas where the bedrock surface is shallow after traveling through the fractured bedrock beneath the Creek.

Wappinger Creek sits above glacial and fluvial deposits bound on either side by bedrock outcrops. The Site is located within a stream valley that has incised a bedrock canyon in the uplifted bedrock to the east of the Hudson River. In the Industrial Park and Upper Shoal sections, the overburden was deposited above shale/graywacke bedrock which ranges from 0 to 66 feet below ground surface (bgs). In upland areas of the Industrial Park, non-native fill consisting of sandy

gravel containing cinders, concrete, and brick was encountered and extends to approximately 4 feet bgs. The fill is underlain by approximately 16 feet of alluvium, consisting of coarse-to-fine-grained sand with gravel and silt. Portions of the Lower Shoal and Confluence sections overlie limestone and dolostone bedrock. Unconsolidated material encountered near the Site consisted of fill material, naturally deposited alluvium, and glacial till. These materials were present at depths ranging from 6 to 12 feet bgs.

Topography varies in the vicinity of the Site, with steep slopes bounding the west side of the Creek and developed land to the east. Most of the upland areas, including the Industrial Park, lie within the 100-year floodplain.

Industrial Park Section: The Creek at the Industrial Park section (Transects T1-T11) is approximately 2,300 feet long and 90 feet wide and is narrow relative to downstream sections. It is bounded on each shore by retaining walls bordering both sides of the Creek. Very little surface sediment is present in the areas closest to the hydroelectric dam (Transects T1-T5) where water velocity is greatest. The bottom of the Creek channel within these transects primarily consists of gravel, cobbles, and weathered bedrock. An unnamed tributary is located downstream of the retaining walls and flows intermittently into Wappinger Creek during and after precipitation events. Generally, the Creek profile is shallowest on the south side, with water depths ranging from approximately 7.5 feet during high tide to approximately 3.5 feet during low tide. The water depth increases to approximately 8 to 12 feet towards the northern shore, indicating the main channel beginning downstream of Transect T5 where gravelly sediment and sandy streambanks were observed. The Creek channel is subject to higher stream velocities, which is consistent with the coarser-grained sediment found within this section of the Site. The Industrial Park section is subject to flooding and aggravates flood hazards by increasing the volume and speed of storm runoff through a narrow channel of the Creek with a low-lying floodplain.

Upper Shoal Section: The Upper Shoal section (Transects T12-14) is approximately 700 feet long, bending towards the south before widening to approximately 250 feet and curving back to the southwest. Water flow velocity decreases as the Creek becomes wider, creating sediment accumulation in low-velocity areas. The sediment deposit primarily comprises silt and organic material rather than sand and gravel. Moving downstream, increasing thicknesses of surface sediment are present outside of the main Creek channel along the shoal areas. Coarse-grained fluvial sediment is also present outside of the channel in the Upper Shoal section. Below or within the fluvial and alluvial sands and gravels, clay and/or silt is also present within the Creek. Generally, the Creek profile is shallowest on the south side of the Creek, with water depths ranging from approximately 3 to 4 feet during high tide to less than 1 foot during low tide. The water depth increases to approximately 8 to 12 feet towards the northern shore, indicating the main channel.

Embayment Section: The Embayment section (Transects T15-T17) is approximately 780 feet long. A shallow embayment, which is defined as a recess or indentation of the Creek shoreline, is located along the northwest shore following a bend directing the Creek to the southwest. This approximately 400- by 600-foot feature is bounded by steep slopes with exposed bedrock to the northwest and the embayment peninsula to the southeast. The embayment peninsula contains established trees and vegetation. The ground surface at the midpoint of the embayment peninsula is low enough that it is sometimes submerged during high tide, allowing for additional hydraulic connection to Wappinger Creek. The main flow of the Creek bypasses the embayment, which experiences minimal water velocity and can be described as quiescent. The sediment within the embayment comprises silt and organic matter, and the area also supports aquatic plant growth throughout. As a result of these conditions, the embayment is considered to be the primary depositional area of the Site.

In the portion of the Creek adjacent to the embayment, clay and glacial till were encountered at the base of the channel, indicating an erosional setting, whereas the silty sediment thickness in the embayment has been likely deposited by low-energy flow. Generally, the Creek profile is shallowest on the northwest side of the Creek, within the embayment with

water depths ranging from approximately 3 feet during high tide to less than 1 foot during low tide. The water depth increases to approximately 8 to 12 feet towards the southern shore, indicating proximity to the main channel.

The Embayment section marks the extent of this IRA, using the HRL located between Transect T17 and T18 as the boundary of sediment exchange with the Hudson River. Additional data will be collected in the future to refine the HRL and the extent of impacts from the Hudson River for site-related contaminants.

Lower Shoal Section: The Lower Shoal section (Transects T18-T25) is approximately 2,600 feet long and is located downstream of the Embayment section. This section of the Site varies in width, ranging from approximately 400 feet to approximately 900 feet. The bottom sediment materials in this section of the Creek primarily comprise sand with silty organic matter and some gravel underlain by silt in the shallower area alongside the Creek channel. Generally, the main flow in this section of the Creek occurs along the Creek channel with water depths up to 14 feet. Shallow intertidal areas occur along both the northern and the southern shores throughout this section; approximately half of the area in this section of the tidal Creek occurs at depths of less than 3 feet. Proceeding downstream, the main Creek channel shifts from the south side of the Creek to the north side of the Creek.

Confluence Section: The Confluence section (Transects T26-T30) of Wappinger Creek is approximately 2,600 feet long and narrows to approximately 140 feet before widening to approximately 800 feet where it meets the Hudson River. The bottom sediment materials in this section of the Creek primarily comprise silt and sand, with rock and cobble content increasing with sediment depth. Generally, the main flow in this section of the Creek occurs along its southern shore. Channel depths range from 12 feet to approximately 26 feet. Generally, the Creek profile is shallowest on the northern side, with water depths ranging from approximately 5 feet during high tide to less than 3 feet during low tide. As the Creek cross section progresses to the southern shore, water depth increases to approximately 15 to 26 feet in the main channel.

Site History

The primary source of historical contamination at the Site is attributed to the operations that took place at the Industrial Park over its 180-year history, beginning in the early 1800s through the late 1900s. Historical activities conducted by tenants of the Industrial Park include textile dyeing operations, a manufactured gas plant, metal plating, plastic mold injecting, chemical and ammunition production, and felt hat production. Wappinger Creek has served as a stormwater drainage and direct discharge structure, historically receiving manufacturing waste and by-products from these industrial activities. Channels and lagoons were constructed within the footprints of the historical facilities directly adjacent to the Site, which served as manufacturing waste basins which flowed into the Creek. The most significant historical operations of the Industrial Park are discussed below.

Dutchess Bleachery operated at the Industrial Park along both sides of the Creek. The bleachery was primarily associated with cloth dyeing operations. Wastewater from the bleachery was reportedly discharged into a channel that emptied into a lagoon (later named the Three Star Lagoon) and subsequently into Wappinger Creek. Mercuric chloride, a form of inorganic mercury, may have been used to dye cloth at the bleachery. Adjacent to Dutchess Bleachery was a facility that manufactured felt hats, which historically used another form of inorganic mercury called mercuric nitrate. A manufactured gas plant facility also operated on the southern bank of the Creek. Coal is also known to naturally contain mercury, which is emitted during this process. The Creek served as a transport route for coal delivery to the plant. During plant operations, coal was barged up the Creek from the Hudson River and stored in large coal sheds located on the northern and southern banks of the Creek. Coal cinders were used as fill behind the retaining wall built on the southern bank near the industrial facilities.

Following the closure of Dutchess Bleachery in 1955, a metal plating facility known as Three Star Anodizing moved into its former location along the southern bank of Wappinger Creek and operated from 1958 to approximately 1995. From 1958 to 1980, wastewater was discharged to the Three Star Lagoon and emptied into Wappinger Creek at a rate of 20,000 to 60,000 gallons per day. Initial investigations at the Site began during this time.

Previous NYSDEC Investigations

The first state regulatory action at the Site began when the sanitary facilities in the Three Star Anodizing buildings failed a dye test in 1971. Wastewater that did not meet the applicable water quality standards was found to be discharging directly into the Three Star Lagoon and Creek. As a result, the facility was required to obtain a State Pollutant Discharge Elimination System (SPDES) permit in 1975 to continue discharging wastewater to the Creek. Between 1977 and 1979, NYSDEC documented that the Three Star Anodizing facility operations occasionally exceeded SPDES effluent limitations for nickel and copper. An investigation conducted in the mid-1980s revealed that wastewater from the Three Star Anodizing operations contained caustic dyes, acids, and various trace metals including copper, nickel, chromium, aluminum, and zinc. In 1983, NYSDEC listed the Three Star Anodizing Site as a Class 2 site, which indicated that the site posed a significant threat to public health or the environment and remedial action was required. The Three Star Anodizing Site is comprised of upland areas on the southern side of Wappinger Creek and a portion of the Creek adjacent to the former facility.

The first RI for the Three Star Anodizing Site was conducted by NYSDEC between 2001-2002 and investigated sediment within the tidal portion of Wappinger Creek, surface water and sediment in the Three Star Lagoon, and soil and groundwater within the former facility footprint. A supplemental RI was conducted from 2005 to 2007, in which NYSDEC concluded that Wappinger Creek sediment was impacted by nearby activities at the Three Star Anodizing Site. Sediment sampling results identified two hotspot areas at the Site, the shoal and embayment areas. The highest concentrations were detected at deeper depths, suggesting that historical contamination in surface sediment may have been buried over time. The 2007 RI also revealed that surface soil, subsurface soil, and groundwater beneath the Three Star Site facility was contaminated with VOCs, polycyclic aromatic hydrocarbons (PAHs), and inorganic contaminants, including mercury, lead, and chromium. Surface water sample results were generally within the then-current NYSDEC water quality screening values. However, elevated levels of contaminants, primarily PAHs and inorganic contaminants, exceeded the then-current NYSDEC ecological screening values.

In 2007, NYSDEC performed a Fish and Wildlife Impact Analysis using RI data to identify contaminants of potential ecological concern (COPECs) for Wappinger Creek and the Three Star Anodizing Site. Mercury and antimony constituted the inorganic COPECs with the highest calculated hazard quotient (HQ) values, an indicator of potential risk to human health. Other COPECs identified included cadmium, chromium, and zinc as well as semi-volatile organic compounds (SVOCs).

NYSDEC signed a ROD in March 2009 for the Three Star Anodizing Site. The NYSDEC ROD designated the Three Star Anodizing Site as OU1. The main components of the OU1 remedy included the removal and disposal of contaminated soil, debris, asbestos-containing materials and waste containers, installation of soil and asphalt covers, dredging of sediment from the Three Star Lagoon, groundwater treatment via chemical injections, installation of a sub-slab depressurization system at an onsite building, and restoration of remediated areas. No remedy was selected for Wappinger Creek, which was designated as OU2. In October 2009, a third RI focusing on the tidal portion of Wappinger Creek was conducted by NYSDEC. Samples were collected near the Three Star Anodizing site as well as along the tidal Creek and analyzed for metals, including mercury and methylmercury (MeHg). The 2010 RI report concluded that results were generally consistent with the findings from the 2007 RI report. Identified contaminants of concern (COCs) were

antimony, arsenic, cadmium, chromium, lead, mercury, zinc, and cyanide. Concentrations of COCs in sediment appeared to pose risk to aquatic biota and human users of the Creek.

Initial EPA Involvement

In 2004, EPA conducted a removal action at the request of NYSDEC to clear debris and remove containers with known and unknown waste from buildings at the Three Star Anodizing Site. Onsite structures that were deemed unstable or prevented access to the waste containers were demolished to complete this removal action. Approximately 12,000 gallons of liquid and 20 compressed gas cylinders were removed and disposed offsite.

In 2015, as part of EPA's Hazard Ranking System evaluation, EPA's Region 2 Site Assessment Team collected soil, surface water, and sediment samples near the Industrial Park along Wappinger Creek. Samples were also collected from Wappinger Lake and upstream of the Industrial Park in order to evaluate background conditions. All soil, surface water, and sediment samples were analyzed for VOCs, SVOCs, and metals. A subset of sediment samples was also analyzed for dioxins, furans, and MeHg. While the 2015 investigation identified mercury and benzo(a)pyrene (BAP), a type of PAH, as the main contaminants of concern in Site sediment, a review of historical documents identified several other contaminants at the Site, including VOCs, other PAHs and metals, and manufactured gas plant cinders.

EPA placed the Site on the National Priorities List on September 9, 2016.

Results of EPA's Remedial Investigation

During 2021 and 2022, EPA conducted an RI and collected soil, sediment, surface water, porewater, groundwater, air and fish samples to define the nature and extent of contamination at the Site. A hydrogeological assessment was also performed at the Site, which included a thermal infrared imaging survey and the installation of monitoring wells, staff gauges, stilling wells, piezometers; porewater and groundwater screening; long-term water level monitoring; and synoptic water level measuring. A bathymetric survey was conducted to measure Creek depth and map the underwater features at the Site.

Based on the results of the RI, EPA determined that THg is the principal COC in sediment at this Site. Mercury is a metal that exists in several forms: elemental, inorganic, and organic. It is released to the environment through a variety of processes, including metals processing, coal burning, industrial effluent discharge, burning of municipal and medical waste, and atmospheric deposition.

Elemental mercury is a shiny, silver-white metal that is liquid at room temperature. Unlike inorganic and organic forms of mercury, elemental mercury is an element that has not reacted with another substance. At room temperature, exposed elemental mercury can evaporate to become an invisible, odorless toxic vapor. If heated, it is a colorless, odorless gas. Inorganic mercury is commonly found in the form of mercury salts, which are formed when elemental mercury is combined with another substance. Once mercury is released to the environment, it can also be converted to a highly toxic form called methylmercury, through a process called methylation. Methylation occurs when inorganic mercury is processed by bacteria in water and soils and converted into methylmercury. Methylmercury is the most common form of organic mercury found in the environment, especially in anoxic sediment (sediment with little to no oxygen), and it can bioaccumulate in fish tissue. The forms of mercury that comprise THg at the Site are inorganic mercury and methylmercury.

Other site-related contaminants include inorganic compounds (lead, chromium, cyanide, and arsenic) and organic compounds (PAHs, PCBs, pesticides, and dioxin/furans), which were found throughout the Site at high concentrations. The discussion below summarizes the RI findings of the site-related contaminants within the media sampled at the Site.

Sediment and Streambank Soils

Sediment is the primary media contaminated with THg and other site-related contaminants and is the focus of the IRA. Contamination is primarily present in the particulate phase, sorbed to particulates. The highest concentrations of site-related contaminants are generally observed between 0.5 to 2.0 feet below sediment surface (bss), indicating depositional burial of historically contaminated sediment at the Site. Concentrations begin to decrease below the 2-foot bss depth interval for most contaminants and at most sample locations.

Sitewide contamination among inorganic and organic compounds is highest along the outer margins of the channel where the sediment bed contains softer, fine-grained material. These areas exhibit thicker sediment beds because of slower water velocities that flow along the inside of the Creek bends, allowing for deposition of particulates to occur more readily. This depositional tendency is evidenced by the consistently high concentrations of inorganic and organic contaminants in the riverbank soils along the embayment peninsula, within the embayment area itself, and in the floodplain material within the wetlands bordering the northern bank of the embayment area.

The embayment is notably one of the most contaminated areas of the Site, mainly because of its semi-protected, shallow environment away from the main channel that allows contaminants to settle out of the water column. Some of the highest concentrations of inorganic contaminants in the Creek were also detected in areas near the former business operations in the Industrial Park, particularly along the southern bank. This area is directly next to the historical Industrial Park footprint, where depositional features of the Creek are present.

Inorganic Contamination

Total Mercury**:** THg concentrations increase moving downstream past the historical source areas within the Industrial Park section, where they remain elevated at many sample locations along Transects T11 through T22. Detected concentrations of THg in this area ranged from 0.0074 to 210 milligrams per kilogram (mg/kg), with an average detected concentration of 4.73 mg/kg. Elevated concentrations of THg are observed primarily within the top 2 feet of sediment, with the highest concentrations observed vertically within the 0.5 to 2-foot bss depth interval. The highest concentration of THg was found in the Embayment section of the Site, with significantly elevated concentration levels also detected along the outer margins of the Upper and Lower Shoal sections. Streambank soils are most impacted with THg along the banks of the Embayment section. Downstream of the embayment area, concentrations drop to below background levels.

Lead, Chromium, Cyanide, Arsenic**:** Lead, chromium, and cyanide follow a similar contaminant distribution to that of THg. Higher concentrations of these contaminants were also more frequently detected in the shallow sediment from 0.5 to 2.0 feet bss within the embayment and shoal areas, with concentrations increasing immediately downstream of the Industrial Park section. Lead is detected at its highest concentration of 3,200 mg/kg within the Industrial Park section; total chromium is detected at its highest concentration of 3,100 mg/kg near the embayment area; and cyanide is detected at its highest concentration of 74 mg/kg near the embayment area. In contrast to other inorganic contaminants at the Site, arsenic levels did not reveal a notable difference in concentrations throughout the top two feet. However, the lateral distribution of arsenic is similarly concentrated in the embayment and shoal areas and

downstream of the Industrial Park section. The maximum concentration of arsenic was detected in the Embayment section at 82 mg/kg.

Streambank soil contamination for lead, chromium, cyanide, and arsenic is most severe along the embayment area wetlands, where sediment exchange likely occurs, and immediately downstream of the Industrial Park section, where the historical source of contamination originates. Arsenic concentrations increase noticeably from the southern bank toward the northern bank, where the embayment area is located. Locations exhibiting the highest impacts are next to the point of the embayment peninsula and the southern bank of the embayment area, which form the boundary between the main channel and the embayment area along the northern bank of the Creek. Chromium and arsenic reach peak concentrations in this area. Lead and cyanide impacts are also observed along the length of the embayment's bank; however, the highest streambank soil concentrations for lead and cyanide were detected in the Upper Shoal section.

Organic Contamination

Methylmercury**:** MeHg concentrations are highest within the Embayment section where the water is the shallowest and in areas where vegetation is dominated by water lilies. Concentrations of MeHg in shallow surface sediment (0 to 2 inches bss) throughout Wappinger Creek ranged from 0.04 to 4.17 nanograms per gram (ng/g), which were higher than the range in the 0 to 0.5-foot bss interval of 0.04 to 1.54 ng/g, and well above concentrations observed in deeper intervals.

Although MeHg concentration levels are highest in the Embayment section, mercury methylation is enhanced in the shoal areas, which are dominated by water chestnut plants, and in sediment that is regularly exposed to the atmosphere during low tide. The shoal areas represent the largest footprint of increased MeHg (e.g., ratio of MeHg to inorganic mercury) within Wappinger Creek. This is because mercury methylation in a freshwater system like Wappinger Creek is most active in the top 2 inches of surface sediment where anaerobic microorganisms can function with a fresh supply of oxidized substrate to enhance their activity. However, MeHg concentrations are highest in the Embayment section where there are approximately three to five times higher THg concentrations relative to the shoal areas. This indicates that the availability of THg, rather than methylating conditions, is driving MeHg concentrations at the Site.

Benzo(a)pyrene**:** PAHs, particularly BAP, are the most prevalent organic contaminant group in Site sediment. BAP follows a similar distribution pattern to the inorganic contaminants, with its highest concentrations observed within the 0.5- to 2-foot bss interval, with concentrations decreasing below 2 feet bss. The most significant BAP impacts are present between Transects T10 and T17. BAP impacts in streambank soils are observed primarily along the southern bank throughout the Industrial Park section and Upper Shoal section. Heavier impacted streambank soils are present along the northern bank that extends from the area between Transects T11 and T14, and throughout the northern bank of the embayment area.

Pesticides and dioxins/furans**:** Pesticides and dioxins/furans were found to be most elevated in Site sediment within the Industrial Park section, along Transects T7 and T10-T17, adjacent to areas of historical operations and downstream of the Industrial Park section. The northern bank of the Embayment section has the most significantly impacted streambank soils at the Site. Dioxin/furan concentrations throughout the remainder of the Creek are primarily elevated in the shoal areas.

Polychlorinated biphenyls**:** PCB Aroclors were detected within all sections of the Site. However, the distribution of PCB Aroclors does not follow the same trend observed for the other site-related contaminants, particularly in the lower portions of the Site. The highest PCB concentration detected was 0.36 mg/kg at Transect T8, where Aroclor 1254 was

found to be more than double the concentration of any other PCB detection at the Site. However, both the number of detections and the median concentration levels of PCBs are higher in the Lower Shoal and Confluence sections than the upper portions of the Site. Additionally, no PCB Aroclors are present between Transects T17 and T20, which have many detections for the other site-related contaminants. Furthermore, there is a distinct transition point in the distribution and composition of Aroclors at approximately Transect T15. Samples within the Industrial Park, Upper Shoal, and Embayment sections have a different Aroclor signature (Aroclors 1248, 1254, and 1260) than the samples collected from the transects closest to the Hudson River (Aroclors 1242 and 1254), specifically downstream of Transect T15. Aroclors 1260 and 1248 were not detected in the Lower Shoal or Confluence sections.

This distribution of Aroclor fingerprints likely corresponds to a discrete release in the Industrial Park that has contributed to Aroclor 1248, 1254, and 1260 concentrations in the upper sections of the Site, upstream of T15. The presence of Aroclor 1254 downstream of T15 likely relates to the discrete release at Transect T8 and the subsequent migration of contamination across the Site over time. Aroclor detections closest to the Hudson River confluence, or downstream of T15, also have a prevalence of Aroclor 1242, which is the most commonly detected Aroclor in Hudson River sediment. The change in Aroclor signatures could partially explain the role of the Hudson River's influence through the deposition of impacted sediment into the Creek during periods of tidal fluctuation, storm events, and shifts in seasonal flow, where historically buried contaminated sediment have been potentially resuspended and transported into the Creek.

Based on the Aroclor signature change at Transect T15, the HRL was established to estimate the boundary of influence from the Hudson River within the Site. This line divides the Site into an area below the HRL (where there is a higher potential for recontamination) and an area above the HRL (where there is a lower potential for recontamination). Because the embayment is not prone to the most significant channel flows and is the most heavily impacted section at the Site, it was deemed, in its entirety, to be a priority area for early risk reduction through implementation of an IRA. Consequently, the HRL boundary was moved just south of the embayment, between Transects T17 and T18, and may be refined in the future as additional data is collected.

Groundwater and Porewater

Groundwater and porewater are not considered impacted media at the Site. Groundwater discharges into the Creek along its length; however, impacts to the Creek from groundwater discharge are not expected at the Site given the low contaminant concentrations.

VOCs are present in groundwater upland of the Industrial Park section, primarily in areas adjacent to and within areas of known historical operations. The presence of VOCs is likely related to direct waste discharges, and the infiltration and seepage of waste storage into the water table over extended periods of time. PAH-impacted groundwater and porewater are primarily confined to the Industrial Park section. Two porewater screening samples had elevated PAH concentrations downstream in the Lower Shoal and Confluence section. These samples were collected in areas with heavily impacted deep sediment, and the PAHs present in porewater in the lower sections are not indicative of impacted groundwater discharge into the Creek and porewater.

Site-related inorganic contaminants including lead, mercury, and chromium were detected at slightly elevated concentrations at one porewater sample location. However, their presence is likely a result of elevated turbidity levels as they were not detected in the corresponding filtered sample.

Surface Water

Contamination in surface water is present at low concentrations. SVOC-impacted surface water is very limited at the Site, with most surface water detections within the Embayment section. Pesticides were only detected in the Lower shoal and Confluence sections when Creek flows were elevated, suggesting that resuspension of pesticides from the sediment bed to the water column is likely during high-flow events.

Lead was the only site-related inorganic contaminant detected at slightly elevated concentrations in surface water samples. Differences in the inorganic contaminants present in sediment and surface water indicate that inorganic contaminant mass within the sediment is not readily migrating into the surface water. Concentrations and the number of detections are generally higher in unfiltered samples, indicating inorganic material is primarily present in the particulate phase.

Air

Ambient air samples were collected to determine whether potential elemental mercury trapped in Wappinger Creek sediment may be volatilizing to the air. Elevated mercury vapor readings were not detected during field screening of the breathing zone (space where a person breathes as they stand, sit, or lie) using a Jerome mercury vapor analyzer during sample collection. Additionally, mercury was not detected in any of the seven air samples collected.

Fish Tissue

A limited number of fish samples were collected to determine concentrations of Site contaminants in fish species in Wappinger Creek. Bottom feeder (common carp and channel catfish) and predatory fish (largemouth and smallmouth bass) species were collected from eight locations: four in the Industrial Park section, two from the Upper Shoal section, and two from the Embayment section. Only two predator species were collected during the fish sampling program, one from the Upper shoal section and one from the Embayment section. THg and MeHg were detected in all collected fish. Lead, chromium, arsenic, cyanide, BAP, Aroclors 1254 and 1260, select pesticides, and dioxin/furans were also detected; however, these compounds were not detected in every fish.

Interim Remedial Action Remediation Strategy

The RI data conclusions support the premise for taking an IRA for the upper portion of the Site to address risks and prevent source migration of THg in sediment even while some uncertainties remain.

THg Concentrations in Sediment: Owing to the complex behavior, distribution, and toxicity of THg, it has been identified as the primary risk driver at the Site. THg-impacted sediment is particularly extensive in the Upper Shoal and Embayment sections, and areas where shallow sediment are exposed during low tides can potentially provide conditions suitable for mercury methylation. If left untreated, these areas can lead to biotic exposure to the mercury. Streambank soils are also targeted in this IRA due to their potential to erode and re-contaminate the sediment bed after the remedial action is complete.

Impacts from the Hudson River**:** Evidence indicates that flood tides transport contaminated suspended solids from the Hudson River to the Wappinger Creek surface water and sediment bed. One line of evidence evaluated the distribution of Aroclor 1242 as a proxy to estimate the potential areal extent of Hudson River sediment depositing within the Creek. The evaluation indicates that this solids deposition is less pronounced, and recontamination from depositing solids is

less likely to occur in the upper portion of the Site. The extent of this area, and the boundary of this IRA, is marked by the HRL.

Depositional and Erosional Areas of the System**:** While some uncertainties exist in the depositional and erosional nature of all portions of the Site, the embayment and multiple shoals are present above the HRL. These areas are composed of deposits of finer-grained and potentially mobile sediment. Fine-grained particulates are more likely to have sorbed contaminants and to be redistributed within the system, if disturbed within the Site by anthropogenic activities or a high energy episodic flow event. As a result, the embayment and shoals are considered to be depositional areas that may act as source material of THg to other areas of the Site if left untreated.

Current and Potential Future Land and Resource Uses

The current and reasonably anticipated future land uses for this Site are an important consideration for the development of remedial action objectives (RAOs) and remedial criteria. The current land use within the identified Site boundary is predominantly characterized as recreational. The Creek is used by recreational users for activities, including swimming, kayaking, and fishing. Properties adjacent to the Site are zoned for a mix of residential and commercial use. The future land use of the Site is likely to remain similar to current conditions because the nature of the associated activities is not expected to change.

NYSDEC classified Wappinger Creek as a Class C(T) stream, meaning the Creek is an active recreational fishery that may support a trout population and is suitable for contact recreation. The Creek is also stocked with trout annually for recreational fishing. Wappinger Creek is also home to many species of fish, including largemouth bass, bluegill, pumpkinseed, red breasted sunfish, and brown bullhead.

Beyond recreation, the entirety of the Site represents a section of Wappinger Creek that is designated as a Significant Coastal Fish and Wildlife Habitat. This section of the Creek supports protected species, provides habitat for migratory and resident warmwater fisheries and wildlife species, and serves as a fish spawning, nursery, and wintering habitat. According to the United States Fish and Wildlife Service (USFWS), the Site is located within areas that provide habitat for the endangered Indiana bat, threatened northern long-eared bat, and the monarch butterfly. Any in-creek construction will require coordination with EPA, NYSDEC, other federal partners and stakeholders around fish and habitat protection windows.

Potential Site impacts from severe weather events have been assessed, and the performance of the remedy is not expected to be impacted as a result of these events. The locations most prone to flooding are in the low-lying areas by the Industrial Park section and the wetlands adjacent to the Embayment section. While increased flooding may be experienced in these portions of the Site during high tides and from increased severe rain events, the removal of source material would prevent the spread of contaminated sediment across the Site or to inland/upland areas. Flooding events are also not expected to impact future operations and monitoring activities for the Site.

PRINCIPAL THREAT WASTE

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site wherever practicable (NCP Section 300.430(a)(1)(iii)(A)). The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to groundwater, surface water, or air, or acts as a source for direct exposure. Principal threat wastes (PTW) are those source materials considered to be highly

WHAT IS HUMAN HEALTH RISK AND HOW IS IT CALCULATED?

Human Health Risk Assessment: A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these releases under current- and anticipated future-land uses. A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure (RME) scenarios.

Hazard Identification: In this step, the chemicals of potential concern (COPCs) at the site in various media (i.e., soil, fish, surface water, and air) are identified based on such factors as toxicity, frequency of occurrence, and fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation.

Exposure Assessment: In this step, the different exposure pathways through which people might be exposed to the contaminants in air, water, soil, etc. that were identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil and ingestion of and dermal contact with contaminated fish. Factors relating to the exposure assessment include, but are not limited to, the concentrations in specific media that people might be exposed to and the frequency and duration of that exposure. Using these factors, a "reasonable maximum exposure" RME scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated.

Toxicity Assessment: In this step, the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure and severity of adverse effects are determined. Potential health effects are chemical-specific and may include the risk of developing cancer over a lifetime or other noncancer health hazards, such as changes in the normal functions of organs within the body (e.g., changes in the effectiveness of the immune system). Some chemicals are capable of causing both cancer risks and noncancer health hazards.

Risk Characterization: This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks for all COPCs. Exposures are evaluated based on the potential risk of developing cancer and the potential for noncancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a 10^{-4} cancer risk means a "one in ten thousand excess cancer risk;" or one additional cancer may be seen in a population of 10,000 people as a result of exposure to Site contaminants under the conditions identified in the Exposure Assessment. Current Superfund regulations for exposures identify the range for determining whether remedial action is necessary as an individual excess lifetime cancer risk of 10^{-4} to 10^{-6}, corresponding to a one in ten thousand to a one in a million excess cancer risk. For noncancer health effects, a "hazard index" (HI) is calculated. The key concept for a noncancer HI is that a "threshold" (measured as an HI of less than or equal to 1) exists below which noncancer health hazards are not expected to occur. The goal of protection is 10^{-6} for cancer risk and an HI of 1 for a noncancer health hazard. Chemicals that exceed a 10^{-4} cancer risk or an HI of 1 are typically those that will require remedial action at a site and are referred to as chemicals of concern, or COCs, in the final remedial decision document or the Record of Decision.

toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of the alternatives using the nine remedy selection criteria set forth in the NCP. This analysis provides a basis for making a statutory finding that the remedy employs treatment as a principal element.

Site records indicate that mercuric chloride and other similar mercuric salts were used during historical operations along the Creek. Sediment contaminated with mercury acts as a potential reservoir of ongoing contaminant migration and direct exposure to ecological receptors. However, the mercury that is present at the Site is not in its elemental form, which would be considered highly mobile source material. There is no evidence of the import, handling, or conversion of elemental mercury, and the results during the RI revealed no observations of elemental droplets and no vapor detections during coring or air screening. Thus, Site sediment contaminated with mercury is not considered to be PTW.

RISK SUMMARY

As part of the RI/FS, a human health risk assessment (HHRA) and a screening level ecological risk assessment (SLERA) were conducted for the Site to estimate the risks and hazards associated with the current and future effects of contaminants on human health and the environment. A HHRA is an analysis of the potential adverse human health effects of releases of hazardous substances from a site in the absence of any actions or controls to mitigate these exposures under current and future site uses. A SLERA is an analysis to assess the risk posed to ecological receptors, during which some data gaps where identified causing EPA to conclude that further ecological risk evaluation was warranted. Following results of the SLERA, a baseline ecological risk assessment (BERA) was subsequently completed at the Site to refine the evaluation of ecological risks from contaminants at the Site.

Human Health Risk Assessment

In the HHRA, the cancer risk and noncancer health hazard estimates are based on current reasonable maximum exposure scenarios and were developed by taking into account various health protective estimates about the frequency,

duration, and concentrations of an individual's exposure to chemicals selected as contaminants of potential concerns (COPCs), as well as the toxicity of these contaminants.

A four-step human health risk assessment process was used for assessing Site-related cancer risks and noncancer health hazards in the absence of any remedial action. The four-step process is comprised of: Hazard Identification, Exposure Assessment, Toxicity Assessment, and Risk Characterization (see text box "What is Risk and How is it Calculated") for more details on the risk assessment process.

The HHRA began with selecting COPCs in surface water, sediment, and fish tissue that could potentially cause adverse health effects in exposed populations. All identified COPCs can be found in the HHRA. Contaminants at the Site identified as requiring remedial action are referred to as COCs. As discussed in more detail below, the principal COC targeted for OU1 in this interim action is THg.

In the exposure assessment, EPA identified potential human receptors based on a review of current and reasonably foreseeable future land use at the Site. EPA expects that the future land use in this area will remain the same as the current use. Therefore, recreational uses at the Site were evaluated. Several properties adjacent to the Industrial Park section are active commercial facilities. Downstream of the Industrial Park section, residential areas border the Creek. There are some access points (*e.g.*, a boat ramp in the Upper Shoal section) that enable recreational users to launch boats into the Creek or fish along the banks, which have been observed at the Site. Most of the Site is then accessible from a kayak or other small craft. Individuals who work or live near the Creek may have occasional contact with media at the Site, but it is expected that those who actively use the Creek for recreational purposes will have the greatest exposure, including individuals who consume fish caught from the Creek during recreational angling. Young family members of anglers are not expected to fish themselves but may also consume fish caught from the Creek. It should also be noted that there is an existing New York State Department of Health (NYSDOH) Hudson River & Tributaries Fish Advisory, which includes the entirety of the Site.[1]

Exposure point concentrations were estimated using either the maximum detected concentration of a contaminant or the 95% upper confidence limit of the average concentration. Chronic daily intakes were calculated based on the reasonable maximum exposure (RME), which is the highest exposure reasonably anticipated to occur at OU1 of the Site. The RME is intended to estimate a conservative exposure scenario that is still within the range of possible exposures. A complete summary of all exposure scenarios can be found in the baseline human health risk assessment section of the RI report, which can be found in the administrative record for this decision.

In the HHRA, two types of toxic health effects of COPCs were evaluated: cancer risk and noncancer hazard. Calculated cancer risk estimates for each receptor were compared to EPA's target risk range of $1x10^{-6}$ (one-in-one million) to $1x10^{-4}$ (one-in-ten thousand). The calculated noncancer hazard index (HI) estimates were compared to EPA's target threshold value of 1. The following section provides an overview of the cancer risks and noncancer hazard estimates associated with exposure to surface water, sediment, and fish tissue at the Site.

Cancer risks and noncancer hazards for recreators in direct contact with Creek surface water and sediment were all below a level of concern for all ages (adults, adolescents and children). For anglers consuming the fillets of bottom-feeding fish, there was an unacceptable cancer risk for adults, adolescents and children (all 2×10^{-03}) primarily attributable to benzo(a)pyrene, Aroclor 1254 and Aroclor 1260 via the consumption pathway. The noncancer HI for angler adults was 52, adolescents was 57, and children was 92, primarily attributable to BAP, Aroclor 1254, Aroclor 1260,

[1] https://www.health.ny.gov/environmental/outdoors/fish/health_advisories/maps/docs/dutchess_co_final.pdf

and mercury (as MeHg). For anglers consuming the fillets of predatory fish, there was an unacceptable cancer risk for adults, adolescents and children (all 5 x 10^{-04}) primarily attributable to Aroclor 1254 via the consumption pathway. The noncancer HI for angler adults was 25, adolescents was 27 and children was 44, primarily attributable to benzo(a)pyrene, Aroclor 1254, Aroclor 1260, and mercury (as MeHg).

Ecological Risk Assessment

A four-step process is utilized for assessing site-related ecological risks for a reasonable maximum exposure scenario: *Problem Formulation* - a qualitative evaluation of contaminant release, migration, and fate; identification of contaminants of concern, receptors, exposure pathways, and known ecological effects of the contaminants; and selection of endpoints for further study. *Exposure Assessment*--a quantitative evaluation of contaminant release, migration, and fate; characterization of exposure pathways and receptors; and measurement or estimation of exposure point concentrations. *Ecological Effects Assessment*--literature reviews, field studies, and toxicity tests, linking contaminant concentrations to effects on ecological receptors. *Risk Characterization*--measurement or estimation of both current and future adverse effects.

A SLERA was conducted for OU1 to evaluate the potential for ecological risks from the presence of contaminants in surface water, sediment, and biological tissue. Surface water and sediment concentrations, as well as calculated food chain exposures, were compared to ecological screening values as an indicator of the potential for adverse effects in ecological receptors. The SLERA determined that site-related COPECs in sediment, surface water, and fish tissue pose a risk (i.e., HQs exceeded 1.0 for one or more contaminants) to ecological receptors using the site. The SLERA concluded that additional ecological evaluation was warranted.

WHAT IS ECOLOGICAL RISK AND HOW IS IT CALCULATED?

A Superfund baseline ecological risk assessment is an analysis of the potential adverse health effects to biota caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these under current and future land and resource uses. The process used for assessing site-related ecological risks includes:

Problem Formulation: In this step, the contaminants of potential ecological concern (COPECs) at the site are identified. Assessment endpoints are defined to determine what ecological entities are important to protect. Then, the specific attributes of the entities that are potentially at risk and important to protect are determined. This provides a basis for measurement in the risk assessment. Once assessment endpoints are chosen, a conceptual model is developed to provide a visual representation of hypothesized relationships between ecological entities (receptors) and the stressors to which they may be exposed.

Exposure Assessment: In this step, a quantitative evaluation is made of what plants and animals are exposed to and to what degree they are exposed. This estimation of exposure point concentrations includes various parameters to determine the levels of exposure to a chemical contaminant by a selected plant or animal (receptor), such as area use (how much of the site an animal typically uses during normal activities); food ingestion rate (how much food is consumed by an animal over a period of time); bioaccumulation rates (the process by which chemicals are taken up by a plant or animal either directly from exposure to contaminated soil, sediment or water, or by eating contaminated food); bioavailability (how easily a plant or animal can take up a contaminant from the environment); and life stage (*e.g.,* juvenile, adult).

Ecological Effects Assessment: In this step, literature reviews, field studies or toxicity tests are conducted to describe the relationship between chemical contaminant concentrations and their effects on ecological receptors, on a media-, receptor- and chemical-specific basis. To provide upper and lower bound estimates of risk, toxicological benchmarks are identified to describe the level of contamination below which adverse effects are unlikely to occur and the level of contamination at which adverse effects are more likely to occur.

Risk Characterization: In this step, the results of the previous steps are used to estimate the risk posed to ecological receptors. Individual risk estimates for a given receptor for each chemical are calculated as a hazard quotient (HQ), which is the ratio of contaminant concentration to a given toxicological benchmark. In general, an HQ above 1 indicates the potential for unacceptable risk. The risk is described, including the overall degree of confidence in the risk estimates, summarizing uncertainties, citing evidence supporting the risk estimates and interpreting the adversity of ecological effects.

Risks estimated in the SLERA were refined in the subsequent BERA, which further evaluated potential risk to ecological receptors using more realistic exposure scenarios. Results of the BERA indicated that exposure to site-related COPECs in sediment, fish tissue, and benthic macroinvertebrate tissue pose a risk to upper trophic level ecological receptors using the Site. Specifically, the BERA showed that the primary drivers of potential adverse effects were from exposure to:

- Aluminum, antimony, barium, chromium, copper, lead, and mercury in aquatic invertebrate-eating birds (represented by the spotted sandpiper)

- Lead and mercury in fish-eating birds (represented by the great blue heron)
- Aluminum in insect-eating mammals (represented by the little brown bat)
- Aluminum and mercury in mammals that eat both plants and animals (represented by the raccoon)
- Total PCBs and mercury in fish-eating mammals (represented by the mink)

Additionally, the potential impact of site-related contaminants on the benthic invertebrate community (the organisms that live in the sediment) was evaluated, and toxicity tests evaluated the impacts on survival and growth of exposure of benthic invertebrates to sediment from the Site. Results of these evaluations did not indicate any site-related factors impacting community composition or toxicity to benthic invertebrates. A complete summary of all exposure scenarios can be found in the BERA. Based on the results of the ecological risk assessments, mercury is the primary driver of risk, and remedial action is necessary to protect ecological receptors and the environment from actual or threatened releases of hazardous substances.

Summary of Human Health and Ecological Risks

In summary, elevated cancer risks and/or noncancer hazards, along with unacceptable ecological risks, were identified for the Site. Based on the results of the RI and the risk assessments, EPA has determined that the actual or potential migration of source materials from OU1 of the Site, if not addressed by the preferred remedy or one of the other active measures considered, may present a threat to human health or welfare and/or the environment. It is EPA's current judgment that the preferred remedial alternative identified in this Proposed Plan is necessary to protect human health or welfare and the environment.

REMEDIAL ACTION OBJECTIVES

RAOs are specific goals to protect human health and the environment. These objectives are based on available information and standards such as applicable or relevant and appropriate requirements (ARARs), to-be-considered (TBC) advisories, criteria and guidance, and site-specific risk-based levels and background concentrations.

The following RAOs have been established for OU1:

Exposure-Related RAOs

RAO 1: Control contaminated sediment that is a source of unacceptable human health risks from ingestion of contaminated fish by addressing THg at levels above the remedial action level (RAL) in sediment and streambank soils at locations upstream or above the HRL.

RAO 2: Control contaminated sediment that is a source of unacceptable ecological risk (via direct contact, ingestion, or uptake into the food chain) by addressing THg at levels above the RAL in sediment and streambank soils at locations upstream or above the HRL.

Migration-Related RAO

RAO 3: Control contaminated sediment that is a source to Wappinger Creek and could migrate to downstream environmental media by addressing THg at levels above the RAL in sediment and streambank soils located upstream or above the HRL.

To achieve the RAOs, EPA has identified a RAL of 1.1 mg/kg for THg to define source materials that require remediation. RALs are commonly used at sediment sites to develop remedial alternatives and delineate areas exceeding a defined concentration threshold. They can be utilized for source reduction remedies prior to final risk-based preliminary remediation goals (PRGs) being developed for the site. The RAL of 1.1 mg/kg was derived as a multiple of a risk-based level developed using background information from Wappinger Lake. This level is intended to identify the most significant sources of THg that could be targeted as part of an IRA to reduce risk to human and ecological receptors. It is also anticipated that it would reduce migration concerns within sediment and to other environmental media. The RAL of 1.1 mg/kg is also consistent with the NYSDEC "Technical Guidance for Screening Sediment and Assessment of Contaminated Sediment," which defines sediment concentrations above 1 mg/kg for mercury as being "highly contaminated and likely to pose a risk to aquatic life."[2]

The practical outcome of applying the RAL approach to this site is that a large mass of material that is acting as a continuing source to the rest of the Site will be addressed. In addition, given the widespread presence of THg, addressing THg above the RAL is also expected to address other site-related contaminants. Streambank soils above the RAL will also be remediated so they do not serve as an ongoing source to sediment and to reduce the potential for recontamination of remediated sediment. However, it should be noted that this RAL is not a final remediation goal for Site sediment or streambank soils. A subsequent or final remedy will identify the final remediation goals for sediment and streambank soil contaminant levels, along with other Site media, for the entire length of the Site. Additional discussion of how the RAL was developed can be found in the FFS Report.

SUMMARY OF REMEDIAL ALTERNATIVES

Section 121(b)(1) of CERCLA requires that remedial actions must be protective of human health and the environment, be cost-effective, and utilize permanent solutions, alternative treatment technologies, and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions that employ, as a principal element, treatment to reduce permanently and significantly the volume, toxicity, or mobility of the hazardous substances, pollutants, and/or contaminants at a site. Section 121(d) further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and/or contaminants that at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to Section 121(d)(4) of CERCLA.

Potential technologies applicable to sediment remediation were identified and screened using the effectiveness, implementability, and cost criteria, with emphasis on effectiveness. Those technologies that passed the initial screening were assembled into alternatives. Detailed descriptions of the remedial alternatives for addressing the contamination associated with OU1 of the Site can be found in the FFS Report, dated July 2026, which is in the Administrative Record for this decision. The FFS Report presents four alternatives, including a required "no action" alternative.

The duration for each alternative reflects only the time required to construct or implement the remedy and does not include the time that may be required to negotiate with any responsible parties, obligate funding, design the remedy, procure contracts for design and construction, or conduct operation and maintenance post-construction at the Site.

[2] https://extapps.dec.ny.gov/docs/fish_marine_pdf/screenasssedfin.pdf

Common Elements

With the exception of the No Action alternative (Alternative 1), all the alternatives include the following common components:

***Dredging**:* Each of the active remedial alternatives includes various amounts of dredging that will reduce the volume of contaminated sediment in Wappinger Creek. Dredging of sediment could be implemented through various methods, including mechanical dredging methods, *e.g.*, barge-mounted excavators. The exact methodology for dredging and in-water transport of contaminated sediment would be further evaluated and determined in the future during the remedial design.

Excavation of Streambank Soils: Each of the active remedial alternatives includes excavation of streambank soils that will reduce their volume in Wappinger Creek. Based on currently available data, excavation depths are specified to a maximum depth of 0.5 feet, with an estimate of 10% of the streambank length and a width of 50 feet for each alternative. The remedial extent of streambank soils was developed using the 100-year floodplain in the vicinity of the remedial areas as a guide. The exact boundaries will be refined with additional sampling as part of the pre-design investigation (PDI).

Capping: Alternatives 2 and 3 include placement of reactive caps to control the migration of THg and prevent methylation of THg into MeHg. Alternative 4 includes the placement of backfill materials without the use of a reactive cap as sediments are dredged to below the RAL under this alternative. For streambank soils, it is assumed that once excavated, only backfill will be needed since there is less potential for underlying contamination (if it remains) to migrate upward to the soil surface; however, the need for reactive caps or soil cover for the streambank soils will be evaluated during PDI and RD.

Sediment and Streambank Soil Management, Treatment, and Disposal: Each active alternative includes the management, treatment, and disposal of removed materials. Dredged sediment and excavated streambank soils will be off-loaded and managed in an area near the creek. After removal, dewatering will be required to reduce the amount of water and prepare the contaminated materials for transport and treatment or disposal. It is assumed that wastewater generated during the dewatering process would require treatment prior to discharge to Wappinger Creek. The water from the dewatering process is assumed to be pumped through an on-site temporary water system prior to discharge. It is expected that treated water would meet discharge standards. Details regarding the dewatering process and wastewater treatment requirements would be further developed as part of the RD.

Following the dewatering process, sediment and streambank soils would be transported off-site and disposed of at a facility approved for receiving such contaminated materials. The approved facilities must be in compliance with the Off-Site Rule as established in the NCP. The type and location of the disposal facility will depend on the nature and concentrations of the waste materials. The disposal options being considered include both Subtitle C and D landfills. This could be a hazardous waste landfill, municipal solid waste landfill, construction and demolition debris landfill or industrial non-hazardous waste landfill, depending on the results of waste characterization during remedial action.

Restoration of Remediated Areas: Each of the active alternatives will require restoration of streambank soils after the remedial action is completed. The excavated areas would be backfilled with clean material and restored to their original grade. Additional data may be collected to support vegetative restoration of remediated areas.

All remedial alternatives would most likely disturb contaminated sediments in wetlands. A field delineation of the wetlands will need to be performed to determine the extent of actual wetland areas and types. Additional data collection may also be necessary to support habitat restoration of remediated areas. Disturbance during remediation is

considered temporary, and no permanent wetland loss is anticipated. It is assumed that each of the alternatives will include wetland mitigation in an area equivalent to the area of wetland disturbed by the remedial action, ensuring there would be no net change in overall acreage of wetlands. If reduction of wetlands is unavoidable, a third-party compensatory mitigation option would be considered to the extent necessary to meet ARARs.

Evaluation Monitoring: An evaluation monitoring program will be developed that includes baseline monitoring, construction-phase monitoring, and long-term monitoring. This program will assess the performance of the remedy, whether the RAOs have been achieved, the impact from ongoing sources post-implementation and evaluate the potential for natural recovery in the system. Sampling will include biotic (*e.g*., fish tissue) and abiotic (*e.g*., sediment, soil, surface water, porewater) media. Results will be used to support future decisions on the final remedy for OU2.

Pre-Design Investigation: A robust PDI will be conducted to fill the data gaps and collect necessary information for the RD. The data gaps include, but may not be limited to, potential upland sources that could re-contaminate Creek sediment; refinement of lateral and vertical extent for remediation; assessing multiple lines of evidence to determine the extent of Hudson River impacts; a second bathymetric survey to support analysis of net deposition and erosion areas; and full characterization of all the potential mercury methylation pathways. The PDI will also collect the information necessary for wetland delineation and habitat restoration activities following remedial action.

Institutional Controls: Since contaminated materials that do not allow for unlimited use and exposure will remain onsite below the HRL, ICs would be developed to protect the receptors to Wappinger Creek. ICs would involve administrative and legal measures, *i.e.*, legal controls, and/or informational measures, *e.g.*, risk communication programs, intended to inform activities within the Creek that could pose unacceptable risks to human health and the environment. EPA will work with local and state authorities to implement ICs, which could include notification programs to inform the community of the NYSDOH Hudson River & Tributary fish advisory already in place for the Creek, and/or other environmental and health advisories. The existing fish advisory may also be updated, or a waterbody-specific fish advisory for the Creek may be enacted. For areas where caps are implemented, waterway use restrictions, signage, or regulated navigation and land use restrictions would likely be implemented pursuant to ICs to prevent damage to the cap, *e.g.*, no boat anchoring. The specific categories and types of IC instruments to be used would be determined during the RD phase of the project.

Five-Year Reviews: The CERCLA statutorily requires reviews of remedies where hazardous substances will remain onsite above levels that would otherwise permit unlimited use and exposure to ensure continued protectiveness. Such reviews must occur no less often than every five years. While this statutory requirement is independent of, and thus not an element of, any remedial alternative considered, this review would occur at this Site under all the alternatives. As such, the protection that such a review provides can be relied upon during the evaluation of CERCLA remedial alternatives, and the acknowledgment of this protection is understood in the following descriptions of all the alternatives.

Alternative 1: No Action

Capital Cost:	$0
Annual O&M Costs:	$0
Present-Worth Cost:	$0
Construction Time:	Not Applicable
Estimated time to reach RAOs:	Not Applicable

The NCP requires that a “No Action” alternative be developed as a baseline for comparing other remedial alternatives. Under this alternative, there would be no remedial action conducted at the Site to remediate contaminated media or

otherwise mitigate the migration of contamination that poses unacceptable risks to human health and the environment. This alternative does not include monitoring or institutional controls.

Alternative 2: Dredge to Depth of One Foot; Capping of Underlying Contamination

Capital Cost: $68,281,000
Annual O&M Costs: $828,000
Present-Worth Cost: $77,298,000
Construction Time: 12 months (spread over 2 years)
Estimated time to reach RAOs: 2 years

Alternative 2 focuses on targeted removal and in-place containment of contaminated sediment and streambank soils in conjunction with ICs, access controls, and monitoring. This alternative would remove a significant amount of THg mass in sediment followed by placement of an amended cap to reduce/eliminate exposure of benthic organisms to THg contamination.

Alternative 2 would consist of removing levels of THg greater than the RAL of 1.1 mg/kg in surface sediment within the remedy footprint to a depth of 1 foot. In addition to the 1-foot dredge, an over-dredge thickness of 6 inches (*i.e.*, 1.5 feet total depth) is estimated based on Site conditions and cap constructability assumptions and will be refined during RD. There may be instances where the over-dredge depth will be more or less than 6 inches.

Following dredging, a reactive cap (e.g., sand and activated carbon) would be needed to provide a physical barrier to contain the THg contamination from migrating from deeper sediment to the post-remedy surface sediment. Once bound to the activated carbon, contaminants are effectively isolated, reducing their bioavailability and associated risks. EPA expects that the total thickness of the cap will match the depth of dredge to ensure that the post-remediation surface does not exceed the pre-existing bathymetric surface. A suitable habitat layer will be placed above the reactive cap to create conditions for the re-establishment of natural conditions in the Creek. An erosion protection layer to maintain the stability of the cap surface may also be required.

Operations and maintenance (O&M) activities will be necessary to ensure that the alternative is functioning as intended and protective of human health and the environment. Anticipated activities include periodic inspections of the reactive cap, bathymetric surveys to evaluation the condition of the reactive cap, and sampling to support post-construction monitoring.

Alternative 3: Dredge to Depth of Two Feet Maximum; Capping of Underlying Contamination

Capital Cost: $89,568,000
Annual O&M Costs: $816,000
Present-Worth Cost: $98,472,000
Construction Time: 14 months (spread over 2 years)
Estimated time to reach RAOs: 2 years

Alternative 3 focuses on removal and in-place containment of contaminated sediment and streambank soils in conjunction with ICs, access controls, and monitoring. This alternative removes more THg mass in the sediment than Alternative 2. Similar to the previous alternative, Alternative 3 includes the placement of a reactive cap to reduce/eliminate exposure of benthic organisms to THg contamination.

Alternative 3 would consist of removing levels of THg greater than the RAL of 1.1 mg/kg to a depth of 2 feet within select portions of the proposed remedy footprint, and to a removal depth of 1 foot in the remainder of the proposed remedy footprint. The targeted depth of removal is based on the depth of the RAL exceedance. If the concentration of THg exceeds the RAL between at a depth of 1 to 2 feet, then that location will be dredged to 2 feet. In areas where dredging is limited to 1 foot, an additional over-dredge thickness of 6 inches (*i.e.*, 1.5 feet total depth) is estimated based on Site conditions and cap constructability assumptions and will be refined during RD. There may be instances where the over-dredge depth is more or less than 6 inches.

Following dredging, a reactive cap (e.g., sand and activated carbon) would be needed to provide a physical barrier to contain the THg contamination from migrating from deeper sediment to the post-remedy surface sediment. Once bound to the activated carbon, contaminants are effectively isolated, reducing their bioavailability and associated risks. EPA expects that the total thickness of the cap will match the depth of dredge to ensure that the post-remediation surface does not exceed the pre-existing bathymetric surface. A suitable habitat layer will be placed above the reactive cap to create conditions for the re-establishment of natural conditions in the Creek. An erosion protection layer to maintain the stability of the cap surface may also be required.

O&M activities will be necessary to ensure that the alternative is functioning as intended and protective of human health and the environment. Anticipated activities include periodic inspections of the reactive cap, bathymetric surveys to evaluate the condition of the reactive cap, and sampling to support post-construction performance monitoring.

Alternative 4: Dredge to Remove Any RAL Exceedance; Backfill to Grade in the Dredge Footprint

Capital Cost: $83,072,000
Annual O&M Costs: $464,000
Present-Worth Cost: $88,098,000
Construction Time: 19 months (spread over 3 years)
Estimated time to reach RAOs: 3 years

Alternative 4 consists of removing sediment and streambank soils followed by the associated backfill in conjunction with ICs, access controls, and monitoring. This alternative removes the greatest amount of THg mass by removing all RAL exceedances of 1.1 mg/kg. Alternative 4 focuses primarily on removal of contaminant mass by removing sediment from areas where there are exceedances of the RAL. Containment and treatment are not the primary focus of this alternative, and this alternative will not require a reactive cap.

Under this alternative, sediment with THg concentrations exceeding the RAL of 1.1 mg/kg will be dredged. Based on contaminant levels, dredge depths for this alternative will vary between 1 foot to 5.5 feet.

For Alternative 4, a clean backfill layer (*e.g.*, sand) will be placed with a suitable habitat layer to create conditions for the re-establishment of natural conditions in the Creek. The total thickness of these layers will match the depth of dredge to ensure that the post-remediation Creek bottom level matches the pre-existing bathymetric surface. Since this alternative does not use a reactive cap, O&M activities would be limited to periodic Site inspections and post-construction performance monitoring to evaluate the effectiveness of the remedial action.

EVALUATION OF ALTERNATIVES

During the detailed evaluation of remedial alternatives, each alternative is assessed against the nine evaluation criteria set forth in the NCP, namely, overall protection of human health and the environment, compliance with applicable or relevant and appropriate requirements, long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, implementability, cost, and state and community acceptance. Refer to the text box for a description of the evaluation criteria.

This section of the Proposed Plan profiles the relative performance of each alternative against the nine criteria, noting how each compares to the other alternatives under consideration. A more detailed analysis of alternatives can be found in the FFS Report.

EVALUATION CRITERIA FOR SUPERFUND REMEDIAL ALTERNATIVES

Threshold Criteria

Overall Protectiveness of Human Health and the Environment evaluates whether and how an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the Site, or whether a waiver is justified.

Primary Balancing Criteria

Long-term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time.

Reduction of Toxicity, Mobility, or Volume (TMV) of Contaminants through Treatment evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.

Short-term Effectiveness considers the length of time needed to implement an alternative and the risks the alternative poses to workers, the community, and the environment during implementation.

Implementability considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

Modifying Criteria

Cost includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

State/Support Agency Acceptance considers whether the State agrees with EPA's analyses and recommendations, as described in the RI/FS and Proposed Plan.

Community Acceptance considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

Overall Protection of Human Health and the Environment

Alternative 1 (No Action) is not protective of human health and the environment because it does not eliminate, reduce, or control risk of exposure to contaminated sediment. Alternatives 2, 3, and 4 were given a rating of adequate. Since this is an IRA, the alternatives presented are not required to reach protective levels for human health and the environment until a final remedy is selected. However, they are considered to be adequate exposure and migration control in the short term.

Alternatives 2, 3, and 4 each include removal of contaminated sediment but vary in the depth of sediment removal. By reducing concentrations of THg, these alternatives would reduce contributions to human exposure that would otherwise occur through ingestion of contaminated fish from recreational fishing as well as ecological exposure (through dietary exposure and direct contact) with contaminated sediment. In addition, all three of these alternatives would reduce migration of mercury from sediment in the upstream portion of the site to downstream media (sediment, streambank soils, and surface water) through reactive capping of areas above the RAL following targeted removal for Alternatives 2 and 3, or the removal of all sediments above the RAL in Alternative 4.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Under Alternative 1 (No Action), contaminants would continue to be left in the Creek sediment. Because no remedial activities would be conducted, no ARARs would be triggered or pertinent to have to be attained.

Under CERCLA, remedial actions must comply with all federal and state environmental requirements, standards, criteria, and limitations, unless such ARARs are waived under certain specific conditions. Because the remedy for OU1 is an IRA, identification of final ARARs is not necessary at this time. It is nonetheless expected that each of the active alternatives could be designed in such a way that it attains location- and action-specific ARARs and TBC advisories, criteria, and guidance. Chemical-specific ARARs would be addressed by the eventual, final remedy selected for OU2 and thus have not been identified for this IRA.

Alternatives 2, 3, and 4 are expected to comply with location- and action-specific ARARs for water quality monitoring during excavation of sediment and wastewater discharge resulting from sediment dewatering. Erosion and sediment controls would be implemented to protect water quality and maintain a stable Creek system, thus complying with New York State Environmental Conservation Law and Clean Water Act discharge limitations. Compliance with the New York Solid Waste and Hazardous Waste Management regulations, as well as the federal Resource Conservation and Recovery Act and Toxic Substances Control Act requirements will be maintained through characterization of sampling and proper management of removed materials. Wastewater discharges from dewatering activities to surface water and coastal zones will be in compliance with Clean Water Act and New York's SPDES requirements.

Alternatives 2, 3 and 4 may also impact water bodies, essential fish habitats, wetlands, floodplains, and other sensitive areas that are part of the Site. These alternatives may affect endangered species, migratory birds, and archaeological resources. Consultations with federal agencies, NYSDEC, and other state agencies such as the State Historic Preservation Office will be conducted to identify the substantive requirements of these requirements to protect these resources, and steps would be taken to implement measures that ensure compliance with the pertinent ARARs.

There are currently no federal or state promulgated environmental standards for contaminant levels in sediment. There are, however, other federal or state advisories, criteria, or guidance. Any final remedy considered by EPA must comply with all federal and state environmental standards, requirements, criteria, or limitations unless they are waived under certain specific conditions. Compliance with federal water quality criteria, state water quality standards, and soil cleanup objectives are expected to be achieved with the final remedy for OU2.

Long-Term Effectiveness and Permanence

Alternative 1 would not provide long-term effectiveness and permanence, as no remedial activities would be conducted. In addition, no controls would be put in place to limit exposure of human or ecological receptors to unacceptable risks, and contaminants could continue to migrate within the upper portion of the Site and to downstream media.

Alternatives 2 and 3 would provide long-term effectiveness and permanence through a similar combination of targeted removal and off-site disposal, containment, ICs, monitoring, and access controls. These alternatives rely on in-place containment, through reactive capping, to manage residual contamination by reducing the mass of mercury in the system available to receptors, thereby reducing human health and ecological exposures. The effectiveness of the ICs is dependent on the legal and administrative enforcement of these controls, and EPA will work with state and local authorities to ensure these controls are in place and enforced.

For Alternatives 2 and 3, long-term effectiveness and permanence would be highly dependent on the integrity and design life of the cap, periodic inspection, post-construction monitoring and maintenance, and enforcement of ICs to ensure adequate protection in the interim until a final remedy for the Site is selected. If the engineered caps were compromised, contaminated sediment left in place could pose a risk of exposure or migration. Alternative 3 is expected to offer greater long-term effectiveness and permanence than Alternative 2 because of several factors, including the

following: (a) additional source removal through deeper excavation of contaminated sediment, (b) reducing the volume of material requiring long-term containment, (c) reduction in the long-term flux of THg, and (d) provision of a thicker physical barrier to erosive forces potentially exposing underlying contaminated sediment. As a result, Alternative 3 is subject to fewer long-term concerns related to potential breach of containment than Alternative 2.

Alternative 4 would provide the highest long-term effectiveness and permanence among the alternatives evaluated, as it would involve removal of all contaminated sediment and streambank soils in exceedance of the THg RAL and off-site disposal at a permitted facility. By eliminating the need for long-term containment and minimizing residual risk, Alternative 4 offers the most reliable long-term protection.

Based on the considerations above, Alternative 1 is the least satisfactory for long-term effectiveness and permanence. Alternative 2 is rated moderate, Alternative 3 is rated moderate to high, and Alternative 4 is rated high for long-term effectiveness and permanence.

Reduction of Toxicity, Mobility, or Volume through Treatment

For Alternative 1, only natural recovery processes would potentially reduce contaminant concentrations in sediment and surface water because it does not include any affirmative remedial activities. Under this alternative, there would be no reduction of toxicity, mobility, or volume through treatment.

Alternatives 2 through 4 would partially meet the statutory preference for treatment as a principal element of the remedial alternative. These alternatives involve ex-situ treatment of dredged sediment and streambank soils using stabilization amendments to facilitate transportation for off-site disposal. Dewatering liquids would be treated on-site, with contaminants captured in media such as granular activated carbon, which would be regenerated (a form of treatment) or disposed of (with treatment as needed to meet disposal facility requirements). In addition to the ex-situ treatment of dredged sediment, sediment exceeding the RAL that remains in place for Alternatives 2 and 3 following the targeted removal would be managed with a reactive cap. While the reactive cap would not directly treat underlying contaminated sediment, it would employ passive treatment to any aqueous media that may contain dissolved phase contamination moving through the cap layers.

Alternative 2 would provide a moderate reduction in toxicity, mobility, or volume through treatment. The shallow depth of dredging and smaller volume of treated sediment reduces the overall treatment volume and long-term contaminant reduction potential. Alternatives 3 and 4 would provide a moderate to high reduction in toxicity, mobility, or volume through treatment. Alternative 3 involves a smaller quantity of dredged sediment and streambank soils that would be treated to facilitate off-site disposal than Alternative 4. However, Alternative 3 does include the addition of a reactive cap to passively treat potential dissolved contaminants in porewater, enhancing long-term contaminant mobility reduction through treatment. Under Alternative 4, the combination of dredging to remove all RAL exceedances, a large volume of treated sediment, and treatment of dewatering liquids is expected to result in significant reductions in toxicity and mobility through treatment.

Short-Term Effectiveness

Alternative 1 would cause the fewest short-term impacts, as no remedial activities would be conducted. Because no construction activities would occur, there would be no short-term risks to workers, the community, or the environment associated with this alternative. Alternatives 2 through 4 would involve construction activities and dredging of contaminated sediment and streambank soils, resulting in temporary impacts to the community, workers, and the

surrounding environment. Alternatives 2 and 3 are estimated to take approximately 2 years to complete, and Alternative 4 is expected to take approximately 3 years because of the larger volume of sediment to be removed and backfilled.

Community impacts for Alternatives 2 through 4 include increased traffic, potential nuisance odors and noise, dust generation, and temporary restricted use of Wappinger Creek. These impacts would be most significant under Alternative 4 because of the higher volume of sediment and streambank soils excavation and material transport. Careful selection of haul routes, time-of-day restrictions, signage, and flaggers would help mitigate traffic-related safety hazards. Additional mitigation measures would include dust suppression, perimeter air monitoring, and restricting work hours to reduce community disruption.

Risks to workers would be present owing to the need to excavate, handle, and manage contaminated sediment and streambank soils. Alternative 2 would have the lowest risk to workers because it has the shallowest excavation depth. Alternative 3 would increase risk slightly with deeper excavation, while Alternative 4 would pose the greatest risk owing to the full excavation of contaminated sediment. Proper work procedures would be established and implemented to protect workers. Adherence to appropriate health and safety plans and Site management protocols would be required to mitigate risks. Safety measures may include dust suppression, use of personal protective equipment, and establishment of work zones would protect workers during remedy implementation.

Short-term environmental impacts are expected for Alternatives 2 through 4 because of in-water dredging and disturbance of contaminated sediment and streambank soils. These impacts include increased turbidity, resuspension of contaminated material, temporary habitat loss, and impacts on aquatic species. Alternative 4 would have the greatest environmental impact as it involves the most extensive dredging and backfill.

Based on these considerations, Alternatives 2 and 3 are rated moderate for short-term effectiveness owing to lower extent of excavation and disruption, and shorter implementation time. Alternative 4 is rated low to moderate owing to the highest level of construction activity and associated impacts on the community, workers, and environment.

Implementability

There are no implementability issues for Alternative 1 because it does not involve active remediation.

Alternatives 2, 3, and 4 involve dredging and in-place containment of contaminated sediment and streambank soils in Wappinger Creek using well-established technologies. Construction of reactive caps (Alternatives 2 and 3) and backfilling (Alternative 4) are relatively straightforward activities. However, each of these alternatives face similar site-specific technical challenges. These include restricted access for dredging equipment owing to shallow water depths, tidal conditions, fixed bridges with limited clearance, and overhead utilities. Equipment mobilization is complicated by the absence of waterway access from the Hudson River, requiring all machinery to be trucked in and launched via limited shoreline entry points. It is assumed that a temporary water treatment system may be required for treatment and discharge of wastewater collected from dewatering processes. Staging/processing area(s) would be required to facilitate dewatering and loading for off-site transportation and disposal. Finding suitable staging areas would be challenging given the limited space available near the Site.

Alternatives 2, 3, and 4 would also require coordination with multiple regulatory agencies. Coordination with NYSDEC would be needed for dredging within FEMA-designated floodways and for disturbance to wetlands. Coordination with State Historic Preservation Office would be required for any cultural resource surveys, and USFWS or state agency for threatened and endangered species would also be required. Approvals and permitting for off-site transportation of

dredged material must be secured through the New York State Department of Transportation, with possible involvement from other state and local agencies. ICs would need to be developed and coordinated with relevant regulatory entities. Additionally, approval from permitted facilities meeting EPA's Off-Site rule would be required for the acceptance of contaminated sediment, including hazardous waste where applicable.

Based on these considerations, Alternatives 2 and 3 have a rating of moderate and Alternative 4 has a rating of low to moderate for implementability owing to increased complexity from the more extensive dredging.

Cost

The estimated capital, operation and maintenance, periodic, and present worth costs are presented in the table below and discussed in detail in the FFS Report. The costs were calculated assuming a 7% discount rate over a period of 20 years. Alternative 1 has no cost because no activities are implemented.

Alternative	Capital Cost	Annual O&M Costs	Periodic Cost*	Present Worth Cost
Alternative 1 – No Action	$0	$0	$0	$0
Alternative 2 – Dredge to Depth of 1 Foot; Capping of Underlying Contamination	$68,281,000	$828,000	$532,000	$77,298,000
Alternative 3 – Dredge to Depth of 2 Feet; Capping of Underlying Contamination	$89,568,000	$816,000	$564,000	$98,472,000
Alternative 4 – Dredge to Remove Any RAL Exceedance; Backfill to Grade	$83,072,000	$464,000	$240,000	$88,098,000

*Periodic costs are assumed to occur every 5 years.

State/Support Agency Acceptance

NYSDEC concurs with the preferred alternative.

Community Acceptance

Community acceptance will be evaluated after the public comment period ends and will be described in the Responsiveness Summary section of the ROD for this OU at the Site. Based on public comment, the preferred alternative could be modified from the version presented in this Proposed Plan, or another alternative could be selected.

PREFERRED REMEDY

Based upon an evaluation of the remedial alternatives, EPA, in consultation with NYSDEC, proposes Alternative 4: **Dredge to Remove Any RAL Exceedance; Backfill to Grade in the Dredge Footprint** as the preferred interim remedy for OU1. An overview of Alternative 4 is provided in **Figure 2**.

The preferred remedy has the following key components:

- Dredging of contaminated sediment and excavation of streambank soils that exceed the RAL of 1.1 mg/kg for THg, followed by placement of clean backfill;
- Management, treatment, and disposal of removed materials;
- Restoration of remediated areas;

- Implementation of monitoring programs, which include baseline, construction-phase, and long-term monitoring, to establish initial and long-term environmental conditions, track progress towards achieving RAOs, verify remedy implementation, and assess performance of the remedy;
- Implementation of a robust PDI will be conducted to fill the data gaps and collect necessary information for the RD; and
- Institutional controls in the form of administrative and/or informational measures to limit exposure to Site contamination, including outreach programs to inform the public of the existing NYSDOH fish advisory for Wappinger Creek.

The total estimated present-worth cost for the Preferred Alternative is $88,098,000. This is an engineering cost estimate that is expected to be within the range of plus 50 percent to minus 30 percent of the actual project cost. Further detail on the cost is presented the FFS Report.

Green remediation techniques, as detailed in NYSDEC's Green Remediation Program Policy DER-31, will be considered during the implementation of the selected remedy to reduce short-term environmental impacts.[3]

Basis for the Remedy Preference

Alternative 4 was selected as the preferred alternative because it is expected to achieve the greatest levels of protection, risk reduction, and long-term effectiveness with comparable short-term impacts and costs to the other active alternatives. This alternative permanently removes the highest volume of contaminated sediment that is considered source material, thereby preventing migration over time to other portions of the Site. Since all exceedances of THg above the RAL would be removed, this alternative does not require continual monitoring of a reactive cap system to maintain protectiveness. It is expected that Alternative 4 would reduce risk and achieve all RAOs within a reasonable timeframe.

Based upon the information currently available, EPA, in conjunction with NYSDEC, believes that **Alternative 4: Dredge to Remove Any RAL Exceedance; Backfill to Grade in the Dredge Footprint** would meet the threshold criteria and would provide the best balance of tradeoffs among the alternatives with respect to the balancing criteria. The preferred alternative would satisfy the statutory requirements of Section 121 of CERCLA: (1) be protective of human health and the environment; (2) comply with location and action-specific ARARs; (3) be cost-effective; and (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The preferred alternative would partially meet the statutory preference for the use of treatment as a principal element because dredged sediment would be treated prior to disposal. With respect to the two modifying criteria, state acceptance and community acceptance, NYSDEC concurs with the preferred alternative, and community acceptance will be evaluated upon the close of the public comment period.

[3] https://extapps.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf

For further information on the Wappinger Creek Superfund Site, please contact:

Emily Wong
Remedial Project Manager
(212) 637-4303
Wong.emily@epa.gov

Olivia Cappo
Community Involvement Coordinator
212-637-3532
cappo.olivia@epa.gov

The administrative record file, which contains copies of this Proposed Plan and support documentation, is available online at http://www.epa.gov/superfund/wappinger-creek and at the following location:

USEPA – Region 2
Superfund Records Center
290 Broadway, 18th Floor
New York, New York 10007
(212) 637-4308
Hours: Monday – Friday: 9AM – 5PM (by appointment)

Written comments on this Proposed Plan should be mailed to Emily Wong by August 21, 2026 at the address below or sent via email.

Emily Wong
U.S. Environmental Protection Agency
290 Broadway
New York, New York 10007-1866
Telephone: (212) 637-4303

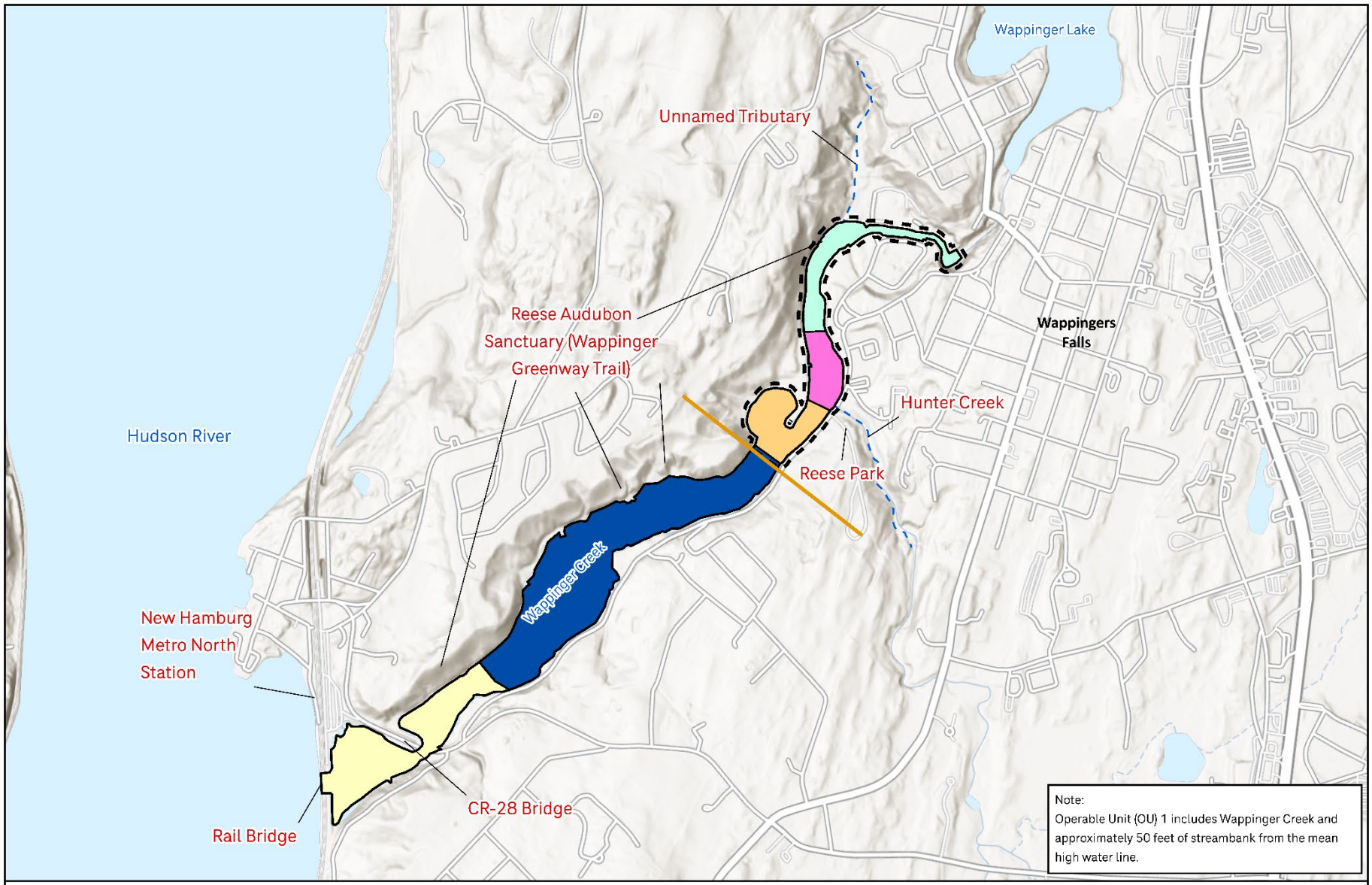


Figure 1

Site Overview

Wappinger Creek Superfund Site
Wappingers Falls, New York

CDM Smith

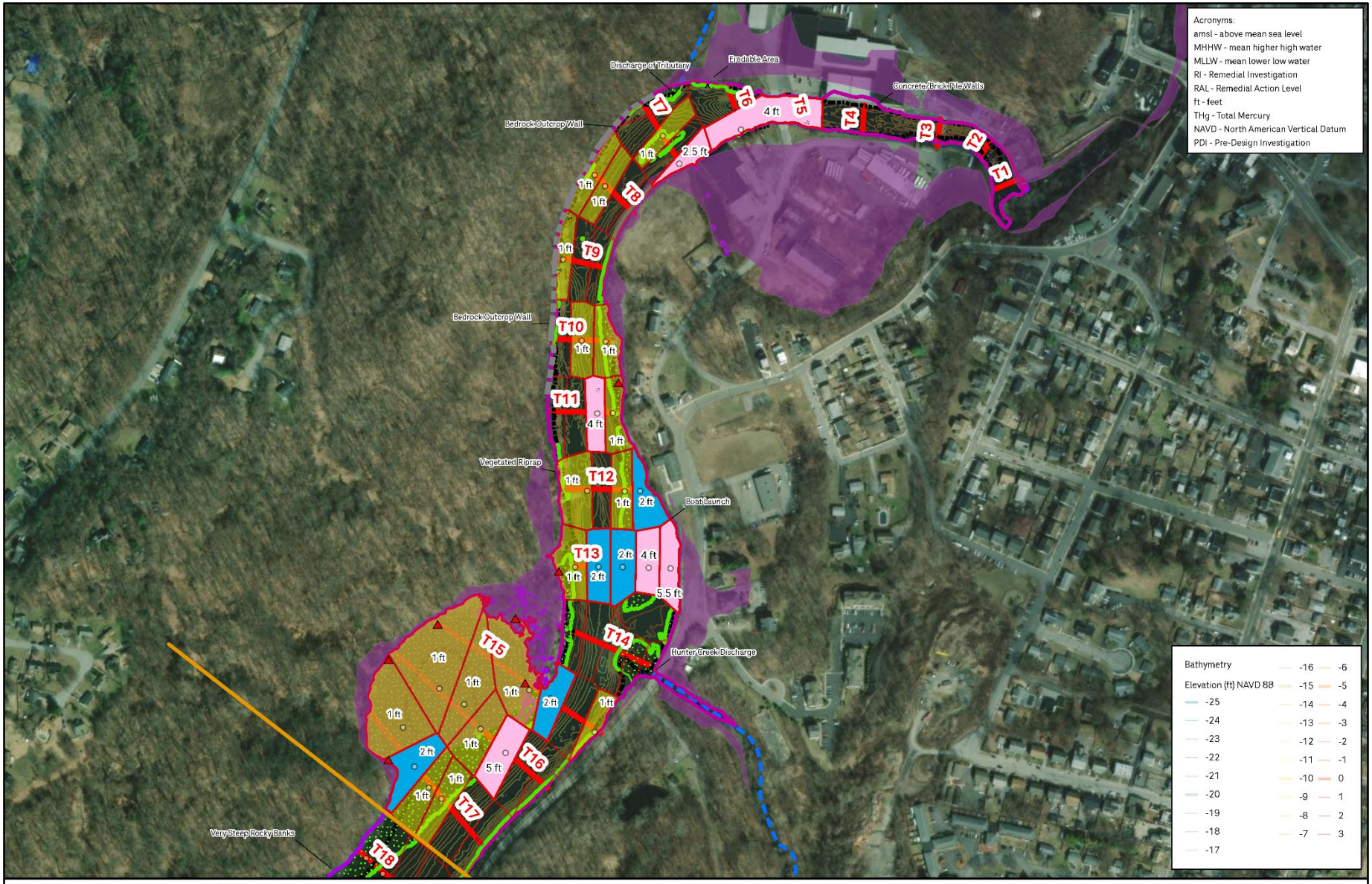


Figure 2

Alternative 4 Extent of Remediation Area

Wappinger Creek Superfund Site
Wappingers Falls, New York

CDM Smith

APPENDIX V

RESPONSIVENESS
SUMMARY ATTACHMENT C

PUBLIC NOTICE

EPA Proposes Interim Cleanup Plan for Wappinger Creek Superfund Site in Dutchess County, New York

July 24, 2026

Contact Information
Nikita Joshi (joshi.nikita@epa.gov)
934-210-9347

NEW YORK - U.S. Environmental Protection Agency (EPA) is proposing an interim cleanup plan to address mercury-contaminated sediment and soil along the banks of Wappinger Creek in Dutchess County, New York.

The Wappinger Creek Superfund site includes the lower two miles of the creek, from the base of Wappingers Falls to where the creek meets the Hudson River. EPA's proposed plan focuses on the upper portion of the site to remove contaminated material that could move downstream. The proposal calls for removing sediment from the creek and soil along the banks that contain high levels of mercury. After the contaminated material is removed, EPA would backfill the excavated areas and restore the affected parts of the creek and stream bank.

This proposed cleanup is an interim action designed to get cleanup action moving faster. It is not the final cleanup decision for the entire site. EPA would monitor conditions after the work is completed to confirm the interim cleanup is working as intended and to help guide a future final cleanup plan for the site.

Since day one, the Trump Administration has had renewed focus on delivering on its core mission <https://epa.gov/superfund/superfund-solutions-initiative> and has proven significant progress can be made at Superfund sites when resources are used correctly. At this

Superfund site, by taking an interim remedial action to address the most significant contamination first, EPA is utilizing enhanced project management and deploying tools and authorities earlier.

“This interim approach gets us in the creek sooner getting some of the worst contamination out more quickly,” **said EPA Regional Administrator Michael Martucci**. “By targeting contaminated sediment and soil along the creek banks in the upper portion of the site, EPA is working to reduce the movement of contamination downstream and protect the creek while we continue to evaluate the long-term cleanup needs for the entire site.”

EPA is accepting public comments on the proposed plan for 30 days, beginning July 23, 2026. The public may submit written comments to Emily Wong, Remedial Project Manager, U.S. Environmental Protection Agency, 290 Broadway, New York, NY 10007 or by email to Wong.Emily@epa.gov.

EPA will hold a public meeting on July 30 at 6:00 p.m. to provide an overview of the cleanup proposal and answer community questions. The meeting will be held at the Grinnell Public Library, 2642 E Main St, Wappingers Falls, NY 12590**.**

The proposed plan and supporting documents will be available on the Wappinger Creek Superfund site profile page <https://epa.gov/superfund/wappinger-creek>.

Follow EPA Region 2 on X <https://x.com/eparegion2>, Instagram, and visit our Facebook <https://www.facebook.com/epanortheastandcaribbean/> page. For more information about EPA Region 2, visit our website <https://epa.gov/aboutepa/epa-region-2>.

26-039

Last updated on July 23, 2026

APPENDIX V

RESPONSIVENESS
SUMMARY ATTACHMENT D

PUBLIC MEETING TRANSCRIPT

In the Matter Of:

W.C.S.S.P CLEANUP PLAN MEETING

MEETING

July 30, 2026

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STATE OF NEW YORK

ENVIRONMENTAL PROTECTION AGENCY

WAPPINGER FALLS SUPERFUND SITE

PROPOSED CLEANUP PLAN MEETING

DATE: July 30,2026 at 6:04 p.m.

LOCATION: Grinell Public Library
2642 East Main Street
Wappinger Falls, New York 12590

BEFORE: OLIVIA CAPPO, Community
Involvement Coordinator

Reported by Danielle Christian

EMILY WONG, Project Manager
DAMIAN DUDA, E.P.A. Eastern New York Supervisor
RACHEL GRIFFITHS, HydroGeologist
ABBY DEBOFSKY, Risk Assessor
ALAN WEITLICH, Weitlich Realty
PAUL ZABLOCKI, Weitlich Realty
JUSTIN STAR, NYSDEC
MELISSA DOROSKI, NYS Department of Health
AUDREY VAN GENECHTEN, NYS Department of Health
MIKE SCHADE, Toxic Free

ALIX WINSBY, County Legislator

(The meeting commenced at 6:04 p.m.)

MS. CAPPO: Yes, thank you. All right. Well, thank you all so much for coming out tonight to hear us present to you the proposed cleanup plans for the Wappinger Creek, Superfund Site here in Wappingers Falls. Now we're going to do some introductions before we get started. So my name is Olivia, I'm the community involvement coordinator with the United States Environmental Protection Agency and I will hand it off to my colleagues to introduce themselves.

MS. WONG: My name is -- my name is Emily Wong, and I'm the remedial project manager for the site.

MR. DUDA: Damian Duda, and I'm the supervisor of the Eastern New York remediation section for Emily's group.

MS. GRIFFITHS: Hi, I'm Rachel Griffiths. I'm the hydrogeologist on the project.

MS. DEBOFSKY: And I'm Abby Debofsky. I'm the ecological risk assessor on the project.

UNIDENTIFIED SPEAKER: You're what? I'm sorry, I didn't hear you.

MS. DEBOFSKY: The ecological risk assessor.

MS. CAPPO: Okay. So just a quick

overview of the agenda before we get into the meeting. So we're going to be going over the general Superfund cleanup process that they call the remedial process. Then we'll give you a little background on the Superfund Site and its history, and then we will get into the proposed cleanup plans and E.P.A.'s preferred cleanup method. And then afterwards, we'll have time for questions and answers. So if you can, we prefer if you can wait to ask your questions until that time. We'll have plenty of time to go over them, and then we'll have some closing comments. And just remind you again about the comment period, which we'll get into. So I will pass it off to Emily.

MS. WONG: Okay. Okay. Thank you, Olivia. So this portion of the presentation will provide you with some information on the Superfund remedial process. The Superfund program administered by the E.P.A. is designed to investigate and clean-up sites contaminated with hazardous substances. The basic steps in the Superfund -- Superfund process are laid out in this graphic. The first step is to assess whether or not there is a problem, and if there is a potential risk to human health and the environment. If the answer is yes, then the site gets added to the National Priorities

List and officially becomes a Superfund Site. Next, E.P.A. conducts a remedial investigation. This is a detailed investigation into the nature and extent of contamination, and assesses what the risks are at the site if it is not cleaned up.

E.P.A. reviews the possible cleanup options against the nine evaluation criteria as part of the feasibility study, and this is to ensure that all important considerations are factored into our decision-making process. Using the information from the remedial investigation and the feasibility study, E.P.A. puts together a proposed plan. The proposed plan looks at several options for addressing con -- the contamination and presents a preferred alternative for cleanup. Once a proposed plan is published, there is a public comment period where the community can provide their input on the proposed cleanup options. E.P.A. then reviews the comments and chooses a cleanup plan for the site. The selected cleanup plan is published in a document called A Record of Decision.

So now that we've gone over the background information on the Superfund remedial process, we'll be going over the Wappingers Creek site history and investigation. The Wappinger Creek site is

located in Wappingers Falls, Dutchess County, New York. The site is the lowermost two miles of Wappinger Creek and is tidally influenced. It starts at the base of Wappingers Falls, and ends where the Creek meets with the Hudson River. The historical source of contaminate -- con -- contamination at the site is related to activities that took place at the Market Street Industrial Park, which is located along the uppermost part of the site and is split by the creek along its northern and southern banks.

Beginning in the early 1800s and through the late 1900s, tenants at the industrial park operated manufacturing and industrial businesses and then dumped the wastewater into Wappinger Creek. Some of these operations include a cloth dyeing and bleaching facility, a metal plating facility, a felt hat manufacturer and a manufactured ga -- gas plant. The outlined areas in the figure represent the different tenants that operated at the industrial park over its one-hundred-and-eighty-year history. State investigations at the industrial park and Wappinger Creek began in the 1970s, and E.P.A. involvement began in the early 2000s. In September of 2016, Wappinger Creek was added to the National Priorities List and

became a Superfund site. E.P.A. began its remedial investigation in 2021.

The site was broken up into five sections based on its physical characteristics. And so, moving downstream -- moving downstream, there are the industrial park section. Thank you, Damian. Which is where the Market Street Industrial Park is located, the upper shoal section, thank you, the embayment section in orange, the lower shoal section, in blue, and the confluence section in yellow, which is where the site meets with the Hudson River. As part of the investigation, samples were collected to investigate the nature and extent of contamination in site media, which includes sediment, surface water, groundwater, air, and fish. Samples were also collected from Wappinger Lake, which is upstream of the site and used to understand what the background conditions are.

Results from the remedial investigation determined that total mercury is the main contaminant that is driving risk at the site. Total mercury is a combination of the different forms of mercury that exists at the site. E.P.A. found that the contamination was mostly in the sediment of the creek, located in the upper portion of the site, specifically in the embayment

section due to its natural setting being away from the main channel of the creek, and which allows the contaminants to settle here and deposit over time. Risks were also identified for both human health and the environment, particularly for eating fish caught at the site. Data from the remedial investigation also provided some more information about how the tides might be affecting the site.

We looked at a specific contaminant that is known to be associated with the Hudson River, and we saw that it was only found at the site between the confluence section at the bottom going up to the embayment section.

The upper limit of where we saw this contaminant is referred to as the Hudson River Line in orange. This line divides the site into an upper half that is less likely to be affected by the tides, and less likely to be affected by potential recontamination from the Hudson River, and a lower half that is more likely to be affected. After reviewing the data collected from the remedial investigation, E.P.A. decided to move ahead with the interim cleanup approach to address the greatest risks at the site.

We're proceeding with an interim approach

because while we have the data to support that sediment contaminated with total mercury needs to be addressed, we don't fully understand the movement of sediment and contamination around the site, particularly in the lower portions. And so, rather than delaying cleanup action for more rounds of sampling, E.P.A. will be targeting the contaminated materials in the upper half of the site first, while we co -- plan to collect more sampling and more field events in the future to address our data gaps. E.P.A.'s plan is to address what we're referring to as source material, which is sediment with high levels of total mercury that poses unacceptable risks and could spread to other areas of the site.

We're defining source material by using a value called the remedial action level for total mercury, which is one point one milligrams per kilogram. This value was calculated from background data that we collected from Wappinger Lake. The remedial action level defines when cleanup activities are needed. And so, for instance, if the contamination level is below or at one point one milligrams per kilogram, then no remediation is needed. If the contamination level is above one point one milligrams per kilogram, then action is needed. We're also considering the areas above the

Hudson River line as source material because they contain the highest amounts of contamination. The areas above the Hudson River line are also less likely to be recontaminated by a tidal action and influence from the Hudson River.

We anticipate that by completing this interim action, we will take a significant amount of mercury out of the system that would otherwise be bioaccumulating or spread to other areas of the site, and also remove other co-located site contaminants. So with those goals in mind, E.P.A. narrowed down the potential cleanup options to four alternatives. The first alternative is a no-action alternative, which is used as baseline for comparison purposes. The second alternative is to dredge sediment that exceeds the remedial action level in the top foot of the creek, and then place a cap to prevent the deeper contamination that would otherwise be left in place from reaching the creek bed surface.

The third alternative is to dredge sediment that exceeds the remedial action level in the top two feet of the creek, and then followed by the same cap. The fourth alternative is to dredge any exceedance of the remedial action level in creek sediment, and then

backfill with clean material. A cap would not be necessary for this alternative because all exceedances would be removed. And with all the active alternatives, there will also be a component of soil mo -- removal from the sides of the creek so that the soil does not recontaminate the creek after cleanup is complete. E.P.A. then reviewed those four alternatives against the nine evaluation criteria. The first step is to determine which alternatives satisfy the threshold criteria.

So only those alternatives that provide adequate protection of human health and the environment, and can comply with State and Federal Regulations, can move to the next step, where we compare the alternatives against the balancing criteria. This includes the long-term effectiveness and permanence, reduction of toxicity, mobility or volume through treatment, short-term effectiveness, implementability and cost. And last, we have the modifying criteria, which considers state and community acceptance, and is also why we have a public meeting and comment period to get feedback from the community. After reviewing these options, E.P.A.'s preferred alternative is alternative four, dredge to remove any exceedance of the remedial action level.

The figure on the screen shows colored-in areas of the creek where sediment would be removed under this alternative. Yellow areas will be dredged to one foot, blue areas to two feet, and pink areas between two to five and a half feet. This is E.P.A.'s preferred alternative because it offers the greatest levels of protection, risk reduction, and long-term effectiveness with comparable short-term impacts, implementability, and costs to the other alternatives. Alternative four also permanently removes the largest amount of source material. And so, since this mate -- alternative does not need a cap, there would also not need -- have a need to have continual monitoring to maintain protectiveness. And lastly, the State of New York concurs with our preferred option.

So this completes the technical portion of this presentation, and I'll hand it back over to Olivia.

MS. CAPPO: All right. Thank you all for listening. And just so you know, these slides will be put up on our website. So if you want to, you know, have any of these maps for yourselves, those will be publicly available. So now we will take any questions. Sorry. And also, if you -- I know we just threw a lot

of information at you. So if you think of anything later, we will have our contact information available. It's also on the website, so please don't hesitate to reach out to us. Even if you're reading and you're like, I don't quite understand this. What are the implications? We're happy to go through that with you. But yeah, are there any questions? We'll just start right in the center.

MS. BRANDEIS: My question is from a person who's on the creek a lot like --

MR. DUDA: Excuse me, could you please state your name?

MS. BRANDEIS: Oh, Magdalen BRANDEIS. I live in Wappingers Falls.

COURT REPORTER: Can you please spell your last name?

MS. BRANDEIS: B-R-A-N-D-E-I-S. I paddled the creek a lot. Where is that tidal line in relationship to the boat launch?

MS. WONG: Yeah --

MS. BRANDEIS: So like some actual landmarks would be great. (unintelligible) [00:24:25] (overspeaking) for people who are -- where's the boat launch? I can't -- no.

MS. WONG: So the boat launch is approximately right here.

MS. BRANDEIS: Okay.

MS. WONG: Roughly, yeah.

MS. BRANDEIS: So everything above the yellow is going to be worked with?

MS. WONG: So this is -- this is where we plan on remediating. This is the bottom extent, and so it would include the area by the boat launch.

MS. BRANDEIS: Okay. Thanks.

MR. RAFFAELE: In that picture, where is the steel bridge?

COURT REPORTER: I'm sorry, what's your name?

MR. RAFFAELE: Joe RAFFAELE, R-A-F-F-A-E-L-E.

MS. WONG: Do you mean the steel bridge for the industrial park area?

MR. RAFFAELE: Yes. Yes.

MS. WONG: Okay. That would be up here. I'm not exactly sure where, but the red box is where the industrial park is.

MR. RAFFAELE: Okay.

MS. WONG: So it's somewhere in this red

box.

MR. RAFFAELE: So this is -- the picture is as it comes out of the industrial park?

MS. WONG: Yeah. So this is the industrial park here, and then you move downstream, and then here is the boat launch.

MR. RAFFAELE: So what is the yellow part there, where do -- where the island is over there?

MS. WONG: This you mean?

MR. RAFFAELE: Yes.

MS. WONG: That's the embayment section, so that's just the embayment. The area where the -- I -- I -- you probably can't even see it right now because it's so overgrown.

MR. RAFFAELE: Right. Yeah.

MS. WONG: But that's where you go behind and that's --

MR. RAFFAELE: Right.

MS. WONG: -- where you work on the embayment section.

MR. RAFFAELE: That's where the big oil tank used to be sitting?

MS. WONG: I'm not aware that there was a big oil tank --

MS. BRANDEIS: And is there any kind of demarcation of the -- where the blue area begins? The dark blue?

MS. WONG: There -- I don't think there's anything that you could see when you go out there. This is really -- this was more so for our investigative purposes.

MS. BRANDEIS: Okay.

COURT REPORTER: I'm sorry. So the thing is, is you guys -- I'm taking a transcript, and I have microphones. So if you're making a comment, I need to know your name, and if you guys can slow down because everyone is kind of speaking. I'm not able to keep up with everyone, and I don't know you guys. If you can just kind of help me out a little bit. And there's a microphone here on this table, and that table, so just try to project your voice so that way it will just be a little bit helpful to me, please. So if you can just repeat what you said, Ma'am, and just tell me your name.

MS. ATKINS: Margret Atkins. And the question was asked, how far below the boat launch does the blue start? And I said, just below where the island ends, which is in the orange.

COURT REPORTER: Thank you.

MS. WONG: Do you want me to repeat my answer?

COURT REPORTER: Yes, please.

MS. WONG: Okay. So I don't think there's an actual marker when you go out to the site, and this was really more so designed for our investigative purposes.

COURT REPORTER: Thank you.

MR. DUDA: Damian Duda. I just -- just wanted to say, once we start actually doing the work out there, the redo action work, there'll probably be a formal demarcation of where we will start the excavation and dredging. So that -- at that time, there'll probably be some sort of landmark there that we can go from.

MR. TYLISZCZAK: My name is John TYLISZCZAK, T-Y-L-I-S-Z-C-Z-A-K. And I have a couple of questions. First of all, just for clarity, when you say Wappingers Falls is the start point, you mean the geographic feature of Wappingers Falls, the waterfall. Is that correct?

MS. WONG: Yes.

MR. TYLISZCZAK: Okay. And then can you give us an idea of what this dredging and soil from the

bank removal will look like in practical terms? Are you thinking of bringing in a barge? Will it be done from shore? Do we have any idea?

MS. WONG: We don't have the exact details or anything decided yet, but most likely, I think it'll -- will be a barge. And then we will probably end up just basically getting out there and taking out the material, and we'll probably have a place nearby somewhere where we're like loading up the sediment, and then we'll be taking it off site for disposal.

MS. CAPPO: Yeah, usually when we have a contract awarded for cleanup, then we have a better idea of what exactly is going to happen, the schedule of that. And you all signed up for the mailing list, which thank you. So when it does come to a time where you will actively be seeing work, I will definitely be sending out alerts about that. We always let people know if anything is in any public rights-of-ways or any public areas are going to be shut down, so you will be made aware of that.

MR. DUDA: Damian Duda. We're also going to be doing a full remedial design on how we're going to actually do the dredging and excavation, so that will be

a -- a somewhat long process too, so.

MS. WONG: Thank you. And then you – I know you had your --

MR. ZABLOCKI: My name is Paul. Last name is Zablocki, Z-A-B-L-O-C-K-I. Option four is what the preferred method is, which is great. I think that's wonderful because that means we're taking all of the material out. Since that decision hasn't been made yet, other options are still possible. What is a cap? If we were to take a foot out and put a cap on, here's a -- what does that cap do and how does that work?

MS. CAPPO: That's a great question.

MS. WONG: So with the cap, we put something in there called an amendment, and that helps to basically prevent these -- the contaminated material from reaching the surface. The con to a cap though, is that we have to constantly maintain it, and so that's why it was one of our considerations when we went through the nine criteria in comparing it to our preferred alternative.

MS. CAPPO: Can you see what a cap would look like? Just -- I think I'm --

MR. ZABLOCKI: Yes. What -- is it concrete? What is it? What do you mean?

MS. WONG: So it would be a sort of like a series of layers, but there would be sand, possibly activated carbon, something like that. We don't have the exact details just because you know --

MR. ZABLOCKI: And can things grow out of that?

MS. WONG: We would be putting a -- a layer. The top layer would allow for things to grow out of, yes.

MR. CAVACCINI: Joseph Cavaccini, C-A-V-A-C-C-I-N-I. Town Supervisor.

COURT REPORTER: Can you move closer to that mic there?

MR. CAVACCINI: Sure.

COURT REPORTER: Thank you.

MR. CAVACCINI: So -- sorry to anyone who is back, you know, it's -- it's -- get to them. Thank you, folks, for being here today. First and foremost, you've identified the areas, again, from the base of the waterfall to about the property line of Reese Park that will be remediated. You said that you had done testing in the Wappinger Lake. What did those tests find? And my only concern is we're going to do this incredible work to remediate from the base of the waterfall through

the industrial park into Reese Park, but is there any future contaminants that you fear will come from the lake and ultimately impact the work that you're doing downstream?

MS. WONG: We do not anticipate the lake actually affecting any of our work because there is also a dam. And so there's not really like a hydro connection, I guess, between the two water bodies. And I'm sorry, do you -- could you clarify what you mean when you say what did we find? Because we did sample --

MR. CAVACCINI: Yeah.

MS. WONG: -- it's very similar. We did sample both Wappinger Lake.

MR. CAVACCINI: Uh-huh.

MS. WONG: So I'm -- I'm just not really sure what --

MR. CAVACCINI: Did -- did you find similar contaminants to what you're looking at in the lower creek? Is there anything that our community needs to be concerned or aware of from what you found in the Wappinger Lake? Again, the Wappinger Lake is somewhat connected obviously via the -- the waterfall and the dam there. But it also has the pen stock that runs down and provides hydroelectric power to the hydroelectric plant

based on the lower Wappinger Creek. So it does flow through there. Just curious again, if there's anything in the Wappinger Lake that we need to be concerned about downrange.

MS. WONG: I would say -- I could give you a more complete answer because I think it's, you know, a little bit nuanced; we collected a number of samples. But I would say in general, on average, the contamination is in the creek. It's -- you know, there's really nothing that we have to report to about the lake at this time.

MR. CAVACCINI: Okay.

MS. WONG: Yeah.

COURT REPORTER: Can we take a quick pause for a second?

MS. CAPPO: I also want to clarify that the contamination we're addressing is anything from the Superfund site. So yeah, we wouldn't know anything that could be from anywhere else. But everything we're measuring is Superfund site.

MR. CAVACCINI: And -- and I --

MS. CAPPO: Yeah.

MR. CAVACCINI: -- I know that's one hundred percent where this is coming from. I obviously

heard where you said you did test in the Wappinger Lake. Was just curious as many people in this room --

MR. RAFFAELE: What are the results?

MR. CAVACCINI: -- are -- are concerned because there's folks that fish, boat --

MS. CAPPO: Right.

MR. CAVACCINI: -- live on the Wappinger Lake. And again, we're talking about what's upstream versus downstream. We want to make sure that we're looking at this from thirty thousand feet as I'm sure the E.P.A. is. So that's -- if -- if there is something in particular that you could share with us, that would be appreciated.

MS. WONG: All we can really say because it isn't part of our superfund investigation. For those of you who don't know, there is a fish advisory. We do have members from the Department of Health here. I don't know if they are willing to speak to that.

MR. CAVACCINI: Okay.

MS. WONG: I think they also brought some pamphlets, I think. So please feel free to take in the back.

MR. CAVACCINI: And we -- we've received your signs from the state. We put them up at the -- the

boat launch down on the lower Wappinger Creek. We just added a kayak launch there. And obviously, you'll be communicating with us. We have a kayak launch down there, so I'm sure that we'll have to pull those docks in and things like that. All right. Thank you.

MS. WONG: Thank you.

MR. SHAPLEY: Can I ask on that. If you have the remedial investigation, the site repository -- oh, I'm sorry. Dan Shapley, S-H-A-P-L-E-Y with Riverkeeper. And -- well, you'd have all that data in the reports, right? If people wanted to look at the specific results, it is available --

MS. WONG: Yes.

MR. SHAPLEY: -- right?

MS. WONG: It would be a part of our remedial investigation report, which is available online.

MR. SHAPLEY: Okay. Thanks.

MR. SCHADE: Hi. Mike Schade, S-C-H-A-D-E with Toxic Free Future. We're a national environmental health research and advocacy organization. We do a lot of work on the Superfund sites. Couple questions. I was looking at the proposed cleanup plan, and it talks about how there's other contaminants of

concern, dioxins, pesticides, benzopyrene. To what extent will the cleanup address those other contaminants, and will there be residual levels of these other contaminants that are not addressed, that may be of concern from alternative four? I'm curious if you're looking at -- you know, I know you have a target cleanup level for mercury, but what about these other contaminants? Are you going to be testing for these other contaminants post-dredging to ensure that they're not -- they're no longer present?

MS. WONG: Yeah. So we will continue testing for all the contaminants that we found are, you know, site-related. We did consider the presence of other site-related contaminants. And what we found in our remedial investigation is that they generally co-locate really well with mercury. So basically, what that means is wherever we're seeing mercury, we're also seeing these other contaminants. And so, while we are focusing on mercury because it's driving the most risk, we do think that our approach will actually get rid of a lot of the other site-related contaminants as well. We will continue sampling though just to confirm or verify that fact. And if those other contaminants appear to pose a risk, we will address them in the future.

MR. SCHADE: Thank you.

MS. GOODMAN: Barbara Goodman, G-O-O-D-M-A-N. I just live here. I -- I have a question. You talk about the fact that the mercury levels were above the criteria. Could you give the -- not maybe exact, but at least give us some idea of the level of mercury especially since this is such an extensive remediation? And if possible, if you could do it in each of the segments that -- that you investigated.

MS. WONG: So I can send you a figure that shows the breakout of each of the segments and the mercury levels. But I can -- off the top of my head, I can give you a sort of general approach.

MS. GOODMAN: Okay.

MS. WONG: So the levels range from zero point zero zero seven to two hundred and ten milligrams per kilogram. And just for reference, our cleanup level for this interim action is one point one.

MS. GOODMAN: Wow.

MS. WONG: So the average mercury levels across the entire site is about four milligrams per kilogram, and then the highest, the two ten, is actually right here.

MS. GOODMAN: Okay. Thank you. Right

where the lit

MS. LUPINO: Hi, Gina -- can you hear me okay?

COURT REPORTER: Not -- not so close.

MS. LUPINO: Gina Lupino, L-U-P-I-N-O. I'm a resident of East Fishkill, former engineer and a lawyer now. This is just for fun -- for fun here. I was reading through your website. I think there's a -- there's a work plan from 2019 prepared by C.D.M. Smith. Does that sound familiar? Is -- is that something I -- on page fifty-nine through like sixty-one, there's a whole -- really great chart of all samples, soil samples and -- and it lists a bunch of contaminants similar to this gentleman's earlier question, and there are a lot in there. Like, it wasn't just, you know, something that's stagnant. There were things like volatile and compounds that -- that can leach into the soil. Have you done any soil vapor intrusion tests to see how this contaminant pool or plume, if there is one, has -- has changed shape over the past, you know, ten years or so?

MS. WONG: I don't believe we have. Is that correct?

MS. GRIFFITHS: I don't think so. You can’t see much in the soil or groundwater. Usually, I

think when we're looking at vapor intrusion through a -- a geologist perspective. We're looking at a migration from groundwater through the soil and into buildings. We mostly focused the investigation around the creek. There was limited soil sampling and limit -- limited groundwater sampling, and we didn't find too much of note besides the mercury, I think, in the soil. So I don't think we were focused on vapor intrusion this time as a major issue in the area.

MS. LUPINO: Since the -- just a follow-up question. Since they did in the chart, V.O.C.s were identified. Was there any effort to perform soil vapor intrusion testing on samples?

MS. GRIFFITHS: I'm sorry, perform? I didn't hear the rest.

MS. LUPINO: Perform soil vapor intrusion tests on the -- on the samples since it was found and it's in the documented work plan.

MS. GRIFFITHS: I'm not sure. Not at this time, but I think that's something we'd continue to explore during the remedial design.

MR. DUDA: But once again -- Damian Duda -- is when we have a vapor intrusion problem, it -- it stems directly from groundwater. And you have soil

above it, and then you have, you know, slabs that buildings are on, and the possibility of those vapors coming up. In this case, we're dealing with the lake, with the creek, and the sediments, and there's really no, you know, issue with respect to vapor intrusion into any property that we know nearby at this particular time, so.

MS. CAPPO: Maybe you could explain how it --

MR. DUDA: Yeah. Well -- well, when you have V.O.C.s in groundwater, you know, if they're high levels, they of -- they can rise up through soils and then rise and -- and possibly affect the indoor air of houses and other buildings. Depending on what kind of slab you have over that, you may have a crack in the slab and the vapors can come up through there. I mean, we do vapor intrusion testing at almost every Superfund site that we have where we have volatile organic compounds in the groundwater, especially high levels. And we do testing. And sometimes it shows that there are -- there's a problem with indoor air volatile organics, and we put on systems to alleviate that. And it's a protective mechanism to eliminate what problems might be in the home.

But at this particular location, we're dealing with water, and there's no -- nothing on the water where vapor can -- vapor intrusion can happen. If there are -- if there are at some point, we are going to be doing excavation of some of these soils as Emily mentioned. So that would probably alleviate anything that might be under in the groundwater coming through the soil.

MS. LUPINO: Because there are homes that are directly on the lake and -- and --

MR. DUDA: On the lake -- on the lake? Yes.

MS. LUPINO: -- V.O.C.s can reach over. You know, they don't stay isolated on -- in the lake. They can easily get to the houses and --

MR. DUDA: Well, we don't -- we -- we don't have that kind of information about the lake --

MS. LUPINO: Yeah.

MR. DUDA: -- as we discussed.

MS. LUPINO: All right. Okay. Thanks.

MR. MCDONOUGH: Bob McDonough, M-C-D-O-N-O-U-G-H. Two questions. First one, a couple years ago, I ran a weed machine on the lake, and you guys did all kinds of testing in the lake. Is there a report out

showing what they found in the lake?

MS. WONG: Do you know approximately when this was? Because E.P.A. did sampling in 2021 for background.

MR. MCDONOUGH: That's about right.

MS. WONG: Okay. So then, that would probably be in our remedial investigation report.

MR. MCDONOUGH: Okay. And one -- my other question is, on that map where the square is there, where the green tree is, on that topo map, you see the brown -- dark brown part there? Yes. Did anybody look at -- I believe it's runoff from the mall. The sediment is coming down there and it's closing off the creek. Did you guys look into that? Is this going to affect -- are you going to solve that problem? Because there'll be more runoff from -- more contaminants coming in if you don't -- once you get rid of it, you can have more coming in.

MS. WONG: Right. So this -- the site is really focused more so on the historical contamination from the Market Street Industrial Park, so I -- I'm not sure that we would look into something like that. It would not be, sort of, within our purview.

MR. MCDONOUGH: Well --

MR. DUDA: Because you know, when we're looking at the industrial operations where you have some hazardous materials, the location there -- that's a secondary creek? Is that -- or what is that?

It's an unnamed tributary. (Unclear who speaker is from CR Notes)

MR. DUDA: An unnamed tributary. That was not part of the Wappinger Creek investigation.

MR. MCDONOUGH: It'll be part of it soon if it keeps going --.

MR. DUDA: We -- we don't have any information that there's an industrial discharge.

MR. MCDONOUGH: Okay.

MR. DUDA: If we had information, we would have looked into it.

MR. MCDONOUGH: So do you have a date on when all this could happen or whenever? I mean, this was done in when? What year?

MS. WONG: The remedial investigation was in 2021.

MR. MCDONOUGH: So I probably won't see it.

MS. CAPPO: Well, we can talk about what comes after this, like the record or decision and

contract --

MS. WONG: So this is where we are right now. We're working through the proposed plan at the public meeting. We're hoping to have a record of decision, which will, you know, explain our chosen selected remedy. We're hoping to have that by the late summer, early fall. And so, once we have that complete, we can go ahead and get a contract reward and start moving on the cleanup. But it's hard to say exactly when we'll actually mobilize. I -- I don't want to give a false answer.

MR. CAVACCINI: Is this something that requires congressional approval and a budget or is this allotted in E.P.A.’s budgeted dollars? Just looking at, you know, which route we're taking here.

MS. WONG: Yeah, I don't know about congressional approval, but there certainly is a cost to this. That is something that we're aware of so we're working on it.

MR. CAVACCINI: So this would be factored into the E.P.A.’s regular budget for –

MS. WONG: I believe so.

MR. DUDA: We will req -- request the remedial action dollars for this project, and we don't

really have that here, but did you have a cost?

MS. WONG: No, I -- I know the cost.

MR. DUDA: Yeah. The cost for the project completion is --

MS. WONG: Eighty-eight million for --

MR. DUDA: Proposed. This is -- right now, that's what it is. But as I said, we have to go through remedial design when we secure a contractor, so they have to evaluate all the situations, all the areas where we were going to do excavation, as you saw in the previous slide, and decide, you know, how much we're going to be doing, and that's all part of the design. And that usually takes -- it can take, you know, a couple of years depending on what kind of information we need to get. Cause also there could possibly (unintelligible). We're doing a preliminary remedial design investigation to make sure that we have all the information with respect to the data, mandated data, and then we go into the mi -- remedial design.

And at that point, then the remedial design and that has to go through state concurrence as well. We have the state review those documents. And then we go on and we start the remedial action, and that -- that could take -- I'm not sure what would be the

original projection of how long the remedial action would take.

MS. WONG: You mean for a construction, or -- ?

MR. DUDA: Right, construction.

MS. WONG: For construction, it would probably be over three years, but some of those months obviously we would not be working because of the winter.

MR. DUDA: And then we obviously, once that's completed, we will continue to monitor and make sure that we've got everything that we set out to do, so.

MS. CAPPO: But also, I just want to reinforce, of course, that the timeline is anticipated. Again, we don't have a contract yet, which we usually work with the United States Army Corps of Engineers, and they help us out with that. Again, you know, weather, certain sites in general, stuff with funding. So it can -- there's different factors, but again, I want to -- my job as a community involvement coordinator is to keep you guys involved as much as possible, informed as much as possible. If you ever feel like there's gaps in what we're sharing or you're confused, please don't hesitate to reach out to me. And if you ever have any preferred,

again, communication methods or ways of being updated as things like the contract is awarded and the timeline comes in, I'm always an email away, a call away, so, yeah. Just keeping that in mind.

MS. KAUL: My name is Lisa Kaul. That's K-A-U-L.

COURT REPORTER: Can you turn the mic towards you, please?

MS. KAUL: Lisa Kaul, K-A-U-L. I want to go back to something you said about co-located contaminants and addressing them in the future. I'm trying to understand what “in the future” means, and whether it would involve an entirely separate project that would -- that you would go and get funding for all over again? Or there would be a possibility of actually addressing the issue in the same timeline as you're addressing this particular remediation.

MS. WONG: So I'm -- we're actually hoping to address all that in this remediation because the contaminants are sort of appearing in the same places and depth as coal mercury. That's what we're aiming for. However, if that -- we don't achieve that goal, we will continue to collect samples after the cleanup plan has been implemented to monitor and to see

what the levels are. And if, at that point, there are still contaminant levels where there -- there is still risk at the site, then we would address it at that time. But again, I -- I could not give you a timeframe for when that would be. However, in the future, it would be for the entirety of the site and not just like one section.

MS. KAUL: And does that mean an entirely new project?

MS. WONG: Yes, it would be a different operable unit, is what we call it.

MS. CAPPO: But still all under this Wappinger Creek Superfund.

MS. KAUL: Okay. Thank you.

MR. ATKINS: Alan Atkins, A-T-K-I-N-S, son to Margret, former resident. I think my first -- I have two questions. Oh, sorry. Yeah. So I -- I believe my -- I have two questions. I believe my first question was already asked by this gentleman, which basically was what is the process involved with the dredging? And I think the answer that was not -- no details at this time because it was -- I was curious if it was a removal because it kind of ties into my second question which is, what other measures are used to

prevent the contamination from traveling further down the creek?

MS. CAPPO: Yeah, that's a great question.

MS. WONG: Yeah. I -- I think those details also haven't been decided. It's going to depend on the site-specific conditions. So we'll have to go back out there and assess what -- what it looks like first.

MS. GOODMAN: I get that we're talking about at least a three-to- five-year timeline with -- about -- with a project that's not even completely ready to be planned yet. But I'm going to ask this question anyway, which is, have you ever had a problem -- have you ever had a situation where you had started a project, star -- you know, started digging a two-to-four-year project and the budget was cut by Congress of the -- for the agency so severely that you were not able to complete it?

MS. WONG: Once we fund the cleanup, we keep going. I -- I -- to my knowledge, I don't think that's ever happened.

MR. DUDA: I don't know of a project that I --

MS. GOODMAN: Okay. That's -- Thank you.

MR. DUDA: But the thin -- the one thing I me -- must mention is when you have a project and you're trying to get the -- a lot of it has to do with respect to the money that you get. Remedial action money to do the project, it has a lot to do with the risk involved in the site. So the more risk you have, the more security you have on making sure that that money gets done to alleviate the project.

MS. GOODMAN: If this is considered a risky site, that's a little frightening since this has been going on since 2016. Is this considered a (overspeaking) risky site?

MR. DUDA: And we determined that there is a risk at this site.

MS. GOODMAN: Okay.

MR. DUDA: Whether it's a high risk or a low risk, it's still a risk.

MS. GOODMAN: Okay.

MR. DUDA: And that's why we're going to go -- we -- we're going forward to dredge the sediments.

MS. GOODMAN: Okay. Okay.

MS. CAPPO: Also, just to clarify, just for like general Superfund knowledge with funding. So

what we're saying is like once the contract is awarded, we have that funding secured and we would just go. But you may hear other sites it's -- they're in different places of the process and – and that some things can differ. But as far as this site, once we secure it for the contract, it’s good.

MS. GOODMAN: Basically, I'm just asking is once the disruption stop -- starts, will the project continue or will it sit disrupted for years until the political winds change or whatever? That's all.

MS. CAPPO: No, that's a great question.

MS. GOODMAN: Okay.

COURT REPORTER: And I'm sorry, you're Ms. Goodman, is that correct?

MS. GOODMAN: Yes, that's correct. Thank you.

MR. TYLISZCZAK: John TYLISZCZAK. You want me to spell it again?

COURT REPORTER: Nope. Got it.

MR. TYLISZCZAK: If I understand, we're here for your public hearing. Number four will be the record of decision. There's thirty days after today where the public comment is accepted, is my understanding.

MR. DUDA: Yes.

MR. TYLISZCZAK: And at that time, do options one, two, and three come off the table once you've decided?

MR. DUDA: No.

MR. TYLISZCZAK: When do we pick between one, two, three, and four?

MR. DUDA: You assess, we give you the opportunity to look at all the alternatives. What the -- the preferred alternative for E.P.A. is number four.

MR. TYLISZCZAK: Right.

MR. DUDA: But if you feel that one and two is -- you know, however you feel, and let us know, and we will respond accordingly.

MR. TYLISZCZAK: For the record, I believe option four is the good one, but option two might be cheaper and -- so I'm wondering when -- if -- if somebody decides that, will we repeat this process? If somebody -- I don't know how you guys make your decisions.

MR. DUDA: We make the decision.

MR. TYLISZCZAK: Okay.

MR. DUDA: We assess the public comment and make a decision as a result of that. Actually, the

state involves, it helps us along in that fa -- in that factor too, so.

MR. TYLISZCZAK: So we can have a high degree of confidence that if you don't get any public opposition or if the Martians don't land or something, that this would be the -- the intended route the E.P.A. would take?

MS. CAPPO: Yes. Also, just to clarify, which we'll have at the end before you go, the comment period started the day this was released which was --

MS. WONG: The 23rd.

MS. CAPPO: -- the 23rd through, I think, August 21st?

MS. WONG: Yes.

MS. CAPPO: And that includes if you want to physically mail it and it's August 21st, you can mail it out that day. We will still be making sure that it arrives. And if you want to mail it, you know, send it through postal mail and you're worried that we didn't get it, like, please feel free to reach out to us and we can let you know.

MR. TYLISZCZAK: Is the email in the --

MR. DUDA: Yes.

MS. CAPPO: Yes.

MR. DUDA: The email address is there.

MS. CAPPO: Yeah -- yeah.

MS. WINSBY: Alix Winsby, A-L-I-X --

COURT REPORTER: Because you're sitting down, maybe just turn that one towards you.

MS. WINSBY: So Alix Winsby, A-L-I-X, and then W-I-N-S-B-Y, County Legislator representing village of Wappingers Falls, town of Wappinger and town of Poughkeepsie. Is there -- if we go with option four, during the construction period, is there a heightened risk to the residents during that period?

MS. WONG: I'm sorry, what do you mean by heightened risk?

MS. WINSBY: Like, is there anything that like -- is the contaminants going to end up in the air or anything else that we should be aware of during the construction period as opposed to currently?

MS. WONG: We would post up, you know, signage or we would try to inform the community as much as we possibly can of like, noise disruptions, potential road closures --

MR. DUDA: And we would have air monitoring equipment as well.

MS. WONG: Yeah, so air monitoring. So

it -- I don't think that you guys have anything to worry about at this time. However, we don't know exactly what those systems will look like right now.

MR. DUDA: And of course, we would let the community know exactly what we're doing at that particular location prior to our even starting. And we might have -- I mean, there's a possibility of having a public availability session before we actually start remediation just to, you know, give more information to the community.

MS. CAPPO: Yeah, yeah. Whatever we deem best works for you guys. If you voice anything to us and say, hey, I want you to have an open house where you just come, and we can ask questions, or I want you to present on this. I would love for you to let me know, and we can work on that. But I know -- yes.

MS. CHADWICK: Eileen Chadwick, C-H-A-D-W-I-C-K, resident. I have two questions. How long have you known about the mercury contamination?

MS. WONG: So this was added to the National Priorities List in September of 2016.

MS. CHADWICK: Twenty?

MS. WONG: 2016.

MS. CHADWICK: Okay. And how is it we've

never heard any of this? People who live adjacent to the creek. Like I mean, I didn't hear about it till today that there's mercury contamination in the creek. But my -- okay. My real question though is fish that ha -- have a lot of mercury in the system are not safe to eat, correct?

MS. WONG: Yes.

MS. CHADWICK: And every day there are people fishing on the creek to -- to -- to this day today, and I've never seen a word of warning about it. But every day people either fish off the bridge --

MR. CAVACCINI: I -- we -- we put signs up at the entrance to the Hudson River and the Wappinger Creek at the launch. So we -- we actually put them up. We got them from the State.

MS. CHADWICK: Okay. It says -- it says, don't fish here. Don't eat the fish?

MR. CAVACCINI: At -- at your own risk. You can't, you know --

MS. GOODMAN: It's a catch and release area only.

MS. CHADWICK: Okay. Good. Okay. Thank you. Second question --

MR. CAVACCINI: No -- no -- no -- no,

it's -- no, it's at your own risk. It advises them of the risks.

MS. CHADWICK: Okay. All right. Thank you -- thank you. I'm glad to hear that.

MR. CAVACCINI: And then this was -- this was advertised in 2016, then Village Mayor Matt Alexander, then Senator -- State Senator Terry Gibson, I think Charles Schumer was here, former Town Supervisor Barbara Gutzler. There was a press conference down at the bleacher --

MS. CAPPO: Maybe if we can have clarification.

MS. CHADWICK: Okay. I didn’t know about that, but --

MS. VAN GENECHTEN: My name is Audrey Van Genechten. I'm sorry. V-A-N space G-E-N-E-C-H-T-E-N. Yeah. I work for New York State Department of Health. I'm the Fish Advisory Outreach Manager for the State, and I work primarily on the Hudson River Outreach Project. So there -- there's not a limitation on ability to fish in either the Wappingers, the tidal portion of the creek, the Hudson River, or the lake and above, right? The tidal portion of Wappingers Creek currently has the same advisory as the lower Hudson, and

these advisories are available here. There's a handful of species we don't recommend eating, mostly because of P.C.B.s from the Hudson River. But there are several species that both men and now younger women and kids can also eat which is news as of this year, first time in fifty years for the Hudson.

Above the da -- or above the falls, essentially, Wappingers Lake and the upstream part of the creek, there is only one advisory. It's for slightly larger yellow perch and that's from mercury, but it's not related to this contamination. As far as we know, it's the same contamination that we have across New York that comes up oftentimes in things like walleye and larger perch. So from an advisory perspective, Wappingers Lake, from the data that we currently have at D.O.H., Wappingers Lake and upstream is a great place to fish and eat fish from. And this lower section, we just encourage folks to make sure that they're aware of the Hudson River advisories. And we actually just completed a new signage project for the Hudson River, so we'll be reaching out to post new signs that are bilingual and have pictures.

MR. CAVACCINI: That's what we did.

MS. VAN GENECHTEN: They're not out yet.

I just got them last week.

MR. CAVACCINI: So then we got -- we got Spanish and English from you guys?

MS. VAN GENECHTEN: Yeah, there's new signs.

MR. CAVACCINI: Okay. We also had an option of Chinese.

MS. CAPPO: And just to clarify, so the state is who always puts out fish advisories. We can work with them, but they are the official agency that does that. I know --

MR. SCHADE: Yeah. Hi, Mike Schade. Couple of follow-up questions. One, I assume there's no responsible parties that you've identified since these are leg -- this is legacy contamination. And then -- which means the money would come from the federal Superfund pot. And then secondly, can you talk a little bit more about the process for addressing the other contamination further downstream? I know that P.C.B.s are a big concern, as you talked about. Of course, you know, there's been a lot of activity to clean up P.C.B.s in the Hudson River over the last twenty years. Can you talk a little bit about how you're planning to address the P.C.B.s contamination in the creek over time?

I know that that's separate from this interim remedial action, but cert -- you know, we know that P.C.B.s are extremely toxic at very low levels of concentration and should certainly be addressed sooner than later.

MS. WONG: So your first question, this is not -- we don't have a P.R.B., so this is a funding site, so you are correct. As far as addressing the lower portion of the stream or the creek, that's one of the questions that we have and why we chose to do an interim cleanup plan because our concern is we do not want to clean up the lower portion of -- of the creek just for recontamination from the Hudson to, you know, come in from the tides and then we have to address it again. And so we need -- we need to collect more data. We ha -- need to have more information and come up with a plan to address that with that in mind, just because we don't want to go up -- back up there and waste our time and effort. So I don't have an answer for you on that one yet.

MR. SCHADE: Thank you.

MS. ATKINS: Margret Atkins, resident. You talk about the contaminants from Market Street, and it sounds like you think they stayed pretty much on top

of the soil? But has any testing been done for like drinking water down into the water?

MS. WONG: We did collect samples for groundwater and groundwater at this time is not considered to be impacted from the contamination at -- at Market Street.

MS. ATKINS: Okay. Thank you.

MS. BRANDEIS: So that's the -- sorry, just jumping in on it. That's the water on the creek? Is not --

MS. WONG: Surface water and groundwater.

MS. BRANDEIS: -- is not contaminated.

MS. WONG: Surface water, we're going to investigate a little bit more. We don't really -- we didn't really find much risk with surface water. It's really more so with eating the fish from the site.

MS. BRANDEIS: Okay.

COURT REPORTER: Thank you. Can you tell me your name again?

MS. BRANDEIS: Magdalen Brandeis.

MR. ZABLOCKI: I did. Paul Zablocki again. We discussed the remediation options, and most of us think four is great. My question is -- is what are those options based on? Are those options already

pre-done by E.P.A., or are those options based on our creek? And if we were to go with one of those options, what -- is there a basis of a past history to show us if we go down to two feet, we remove X amount of -- or if we only go down to one feet, we remove X amount of contaminants. Do you understand what I'm --

MS. CAPPO: Yeah.

MS. WONG: Yeah. So dredging is a really common method that we use on a lot of sediment sites. Unfortunately, because it's a creek and it's -- you know, there's only so many ways you can really clean up a sediment site. And so it's a really classic option that we have, and that's why all the alternatives include some amount of dredging. I'm -- I'm sorry, could you repeat the second question?

MR. ZABLOCKI: Well, the second part was, in history, have you done this? Have you dredged before? We've retested and we found that the results are usually what? A -- are we still having contaminants, are they still in excess, or are they -- you know. When you go from point one to two hundred, how deep are those contaminants? Is two feet enough? I mean, how do we, you know --

MS. CAPPO: Are you asking like, just for

Superfund sites in general to refer to?

MR. ZABLOCKI: If there's a history to be -- that we could refer to to base --

MS. CAPPO: Yeah.

MR. ZABLOCKI: -- what our future might be depending on which those options are, if those options are based off of our creek or just standard.

MR. DUDA: Just wanted to say, the digging into the -- the alternatives we've listed are specific to this creek. And our contractor provided all -- or assessed all those alternatives cost-wise --

MR. ZABLOCKI: Okay.

MR. DUDA: -- whether they can be done, investigation-wise, data-wise and came up with the -- and we worked with them to come up with these three alternatives and -- but they all are specific to Wappinger Creek.

MS. CAPPO: And the dredging method is very commonly used in Superfunds, so that's great. And then I know -- also just to clarify because I know we're saying, well, the contract is awarded. So this contractor is for like, this pre-physical work. You'll see that portion of it, which is a different contractor. And then this map just shows the variations we were

planning on, I believe.

MS. WONG: Yeah.

MS. CAPPO: Right? Yeah.

MS. WONG: So the yellow is to one foot, the blue is to two feet, and the pink is between two and five and a half feet. And so those are depths based on samples that we collected and where we saw the levels above one point one milligrams per kilogram.

MR. ZABLOCKI: Was there an e -- I'm sorry, if I can -- if I may. What was the average depth you tested? Was there -- is there up to ten feet? You test up to twenty feet? What is that?

MS. WONG: I believe we sample to six feet.

MS. CAPPO: Thank you.

MS. BRANDEIS: A couple of people mentioned a tanker in that area that was high, and like, I'm just curious if you start digging, if you find something like that. Like, I don't know anything about it, but people who know the history of the town, what is this tanker and is there something -- (overspeaking)

MR. RAFFAELE: Big oil tank. A million-gallon tank that was there.

MS. CAPPO: In where? In that -- in the

yellow area?

MR. RAFFAELE: I can't really make out on that

MS. CAPPO: Oh, on the other pack? Because what if you like, dig inside it --

MR. BENNETT: It was -- it was -- it was where -- where the new bridge is, back in that corner over there. And it had sludge in it -- I mean --

MR. DUDA: Well, this is -- this -- this kind of question goes back to your question about things -- how things can happen at a site. If we start digging along the creek sides or the soils along the creek and find things that we didn't expect, of course we will deal with them when that happens. But that's also another thing that could happen, a -- another wrinkle in the process. And depending on how much we take -- how much soil we take from the sides of the creek and we find something that we didn't know was there, obviously we will respond and re -- remediate it. But, you know, there is a possibility. Like you said, if -- if things happen and you have to slow things down in order to respond, I mean, we have cultural resource surveys in various sites. And if we find, you know, various things, we have to stop and excavate and assess and

things like that. So we don't know specifically what we might find there, but right now we think it -- you know, these are the soils that are adjacent to the creek that will be remediated when the creek is dredged.

MS. CAPPO: And for any -- what was your name again sir?

MR. RAFFAELE: Joe Raffaele.

MS. CAPPO: And for anything like immediate danger, we also have a removal team, so this is remedial. But if we had a situation where someone had to come in and get something out super quick, then we have the folks at E.P.A. to do that.

MR. SCHADE: Your R.I. report talks about that there was tank removal previously going back to the early 2000s. I don't know if you guys could talk about that. It's in the executive summary of the R.I. report.

MS. GRIFFITHS: I'm a little rusty, but I do know that the state had been doing a lot of work around -- in the industrial park area. That might have been under some of their remedial actions.

MS. WONG: Justin.

MR. STAR: Yeah, I can take that. Hey, Mike. Justin Star, New York State D.E.C. Right, you're right. So the on-site portion, the source of a lot of

this contamination is the industrial -- the market there. It's known as Three-Star Anodizing. It is a D.E.C.-led remedial site. Back about ten years ago D -- up to -- up to very recently, D.E.C. did a number of source removals up there. Now we have an easement on the property. We have a series of institutional and engineering controls on the property. So a lot of that -- that tank that you mentioned, it sounds like that might be a gas holder connected to the former manufactured gas plant that was here. A lot of that infrastructure has been removed, and there are now --

MR. RAFFAELE: That was taken out about twenty years ago.

MR. STAR: Yeah -- yeah. So a lot of that's gone, so now that -- now we have controls on the property.

MS. WINSBY: What are you going to do with all the sediment? Where -- where is it going to go?

MS. WONG: It's going to be trucked off site for disposal. We'll find a landfill that will --

COURT REPORTER: I'm sorry, I can't hear you. Say it again.

MS. WONG: Oh, it's going to be trucked

off site for disposal, so we'll find a landfill that will take it, and everything is approved. We work with the state and whoever necessary to get the permits to make sure it's not going to be putting anyone at risk from where we move it to.

MR. RAFFAELE: Is it going to -- is it going to be processed there on site or taken off site? Joe RAFFAELE, again.

MS. WONG: I'm sorry, could you repeat your question?

MR. RAFFAELE: Is the f -- the fill that you pull out, contaminated soil, is it going to be treated on site or taken off site and treated?

MS. WONG: We anticipate just treating the -- the water content from the sediment on site and then everything else will go off site, but that's also subject to change.

MR. DUDA: That will be identified in our remedial design.

MR. RAFFAELE: Well, my que -- really my question is, you pull the soil out of the water, it's very wet. So you're going to be putting it in trucks that are not sealed. So are you going to be processing --

MR. DUDA: That it will be dewatered before it leaves.

MR. RAFFAELE: That's what I'm saying. So that's going to be processed on site.

MR. DUDA: And a -- as Emily said, that water will be treated.

MS. CAPPO: And also, when we transport soil generally, all the trucks have to be approved by the Department of Transportation. And, depending on the project, maybe they'll be washed down. We make sure that nothing is going to be flying out and putting people at risk.

MR. RAFFAELE: So once again, it's going to be processed -- the water is going to be taken out there and processed there to make it clean on site, is what my question is.

MS. CAPPO: Yeah. It's a very --

MR. DUDA: The water would be cleaned. The soils would be -- would be disposed of off-site.

MR. RAFFAELE: Okay.

MR. DUDA: But that -- that information will not be finalized until we complete our remedial design. And in the remedial design, we will i -- identify what needs to be done and what kind of

dewatering will happen and that sort of thing, how the -- the dredging aspects to it, whether a barge would be there to get everything out. I mean, there's a lot of details that we don't have right now until --

MR. RAFFAELE: Well, you better have a low -- a low-profile barge to get up that creek.

MR. DUDA: Like I said, it -- we'll -- we'll handle all this when we do our design.

MR. RAFFAELE: Plus -- plus you got the railroad bridge. That doesn't open anymore.

MR. TYLISZCZAK: So if you dredge, I'm looking at all the pink, you're going to take five feet off the bottom of the creek. Do you leave a hole there, that's clean, or do you backfill it?

MS. WONG: We would backfill.

MR. TYLISZCZAK: So you would backfill to -- so it would maintain basically the same --

MS. WONG: Yes. Basically.

MR. SCHADE: Do you have a sense of the timeline for the remedial design report? And then also, when do you anticipate cleanup beginning? And I guess my third question is, do you have a rough estimate of how many pounds or cubic feet of contaminated sediment are we talking about here?

MS. WONG: As far as a timeline, we do not just because there are so many things that are, you know, constantly changing. But we always send out updates when there is something along those lines. So as long as you're on our mailing list, we'll let you know. As far as the weight, I think -- I think we do have an estimate, but I don't have it off the top of my head. So I can follow up with you after the meeting.

MR. SCHADE: Thank you. Is it in the proposed cleanup plan?

MS. WONG: It's probably in the feasibility study report, yeah.

MR. BENNETT: Howard Bennett, B-E-N-N-E-T-T. I thought I heard something being said about, you know, they were concerned about recontaminating lower parts of the creek when they're dredging. Wouldn't you start at the very beginning of the -- where the site is? Like at the -- the -- the bleachery, and work -- you know, dig that out. Do what you have to do there, dig the next section out, and work your way all the way down to -- to the Hudson River?

MS. WONG: Yeah, so this cleanup, this interim cleanup is going to be focusing on the upper portion including where the bleachery is. So it's --

could be starting there and then going all the way down to the embayment. So it would be basically from here to here is what we're targeting for this interim cleanup.

MR. BENNETT: But you're not going to clean up anything --

MS. WONG: We will --

MR. BENNETT: -- in the blue or yellow section?

MS. WONG: Well, that -- we'll -- we will address that in the future after additional monitoring to see what the contaminant levels will be.

MR. DUDA: See this -- this is classified as an interim plan. In other words, beginning. We're -- we're doing this now because this is the most contamination, we want to get rid of it first. Then we will assess the other portions of the creek and see exactly what that might need.

MS. CAPPO: Thank you. Any other questions? Okay. All right. Well, if you remember any I'll put up my contact information. Thank you all again for coming out and just for your information, so another reminder -- another -- another reminder. The comment period again goes until August 21st. You can submit your comments either by email to Emily. You can also do

it by postal mail. And all these will be considered in our administrative record, which is basically on the site profile page with the site documents and data. They'll be logged in there. And again, if you're sending your comments via postal mail, you can still send them out on August 21st. We will look out a few days after to see if they've arrived. But I think this concludes our meeting. I really -- really appreciate all you guys coming out. You had great questions. And please don't be afraid to keep in touch. Again, if you want to see other meetings in the future as this goes on, please reach out to me.

(The meeting concluded at 7:10 p.m.)

I, DANIELLE CHRISTIAN, do hereby certify that the foregoing was reported by me, in the cause, at the time and place, as stated in the caption hereto, at Page 1 hereof; that the foregoing typewritten transcription, consisting of pages number 1 to 62, inclusive, is a true record prepared by Associated Reporters Int'l., Inc. from materials provided by me.

IN WITNESS WHEREOF, I have hereunto subscribed my name, this the 12th day of August, 2026.

DANIELLE CHRISTIAN, Reporter

Danielle Christian

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