EPA United States Environmental Protection Agency

Universal Oil Products

Proposed Plan | December 2018

Purpose of the Proposed Plan

This Proposed Plan describes remedial alternatives for the waterway sediment in Ackermans Creek, its tributaries, and the Ackermans South Area at the Universal Oil Products Superfund Site (UOP) in East Rutherford, New Jersey. The selected remedial alternative will be implemented as an interim source control remedial action in the "UOP Project Area", which is part of the second Operable Unit (OU2) of the UOP site. The UOP Project Area consists of the waterway sediment in UOP OU2 that is located on the west side of Murray Hill Parkway. Waterway sediment in UOP OU2 that is located on the east side of Murray Hill Parkway is being addressed in a separate interim action as part of the Ventron/Velsicol Superfund Site, for which the Environmental Protection Agency (EPA) has already selected a cleanup plan.

This Proposed Plan identifies the EPA's Preferred Alternative for the UOP Project Area, which would mitigate sediment resuspension and transport of contaminated solids into surrounding marshes and downstream waterways. EPA is issuing the 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), and 40 C.F.R. Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Following the public comment period and review of comments received, EPA will issue a Record of Decision (ROD), selecting an interim remedial action and providing the basis for the selected remedy. EPA expects that the proposed interim source control remedial action will be adequately protective of human health and the environment until a final ROD is issued for UOP OU2.

The nature and extent of contamination and the proposed remedial alternatives discussed in this Proposed Plan are

Mark Your Calendars

Public Comment Period

December 10, 2018 through March 22, 2019

Comments submitted during this period will be part of EPA's official administrative record for the remedy. EPA encourages public participation. **Submit comments via mail or email by March 22, 2019 to:**

Eugenia Naranjo
Remedial Project Manager
290 Broadway - 19th floor - New York, NY 10007
PH: 212-637-3467 naranjo.eugenia@epa.gov

Public Meeting

6:30 p.m. on Wednesday, March 6, 2019

Hasbrouck Heights Free Public Library
320 Boulevard - Hasbrouck Heights, NJ 07604

EPA encourages the public to review the Proposed Plan, supporting documents, and the administrative record, which are available at the Information Repositories listed below or on EPA's website for UOP:
https://www.epa.gov/superfund/universal-oil

Additional information on BCSA is available online at:
https://www.epa.gov/superfund/ventron-velsicol

Information Repositories

Wood-Ridge Memorial Library
231 Hackensack Street
Wood-Ridge, NJ 07075

East Rutherford Memorial Library
143 Boiling Springs Ave
East Rutherford, NJ 07073

EPA Records Center
290 Broadway - 18th floor
New York, NY 10007

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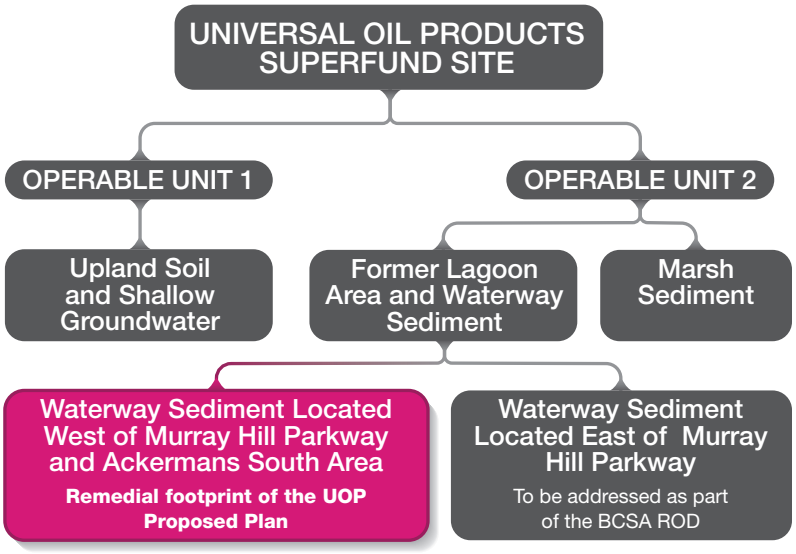
described in greater detail in the supporting Remedial Investigation Report (RI Report) and Feasibility Study Report (FS Report). These documents, along with the human health and ecological risk assessment reports prepared for UOP OU2, are part of the administrative record file and are publicly available electronically on the EPA UOP website and from the information repositories located at the East Rutherford Memorial Library in East Rutherford, New Jersey, Wood-Ridge Memorial Library in Wood-Ridge, New Jersey, and the EPA Records Center in New York, New York. EPA encourages the public to review these documents to gain a more comprehensive understanding of UOP OU2 and the Superfund activities that have been conducted to date at UOP.

The findings of the RI Report support an adaptive, multi-phase approach to address contaminated waterway sediment and marsh sediment; the first phase of the UOP OU2 work focuses on an interim source control remedial action for the waterway sediment. The waterway sediment presents potential risks to human health and the ecosystem and acts as a continuing source of contamination to the marshes and waterways located downstream, due to tidal exchange and sediment transport between the waterways and marshes. The FS Report evaluated four remedial alternatives for the proposed interim source control remedial action for the waterways. **EPA's Preferred Alternative** would provide source control through removal of contaminated sediment and subsequent placement of backfill that would act as a new, post-remediation surface sediment layer. The backfill would separate biota from the underlying contaminated sediment that would remain in place after construction. **The footprint of the proposed interim source control remedial action consists of the main channel of Ackermans Creek, its tributaries, the area previously addressed by a Non-Time Critical Removal Action (NTCRA), and the Ackermans South Area** *(refer to site map and map inset on Page 3)*.

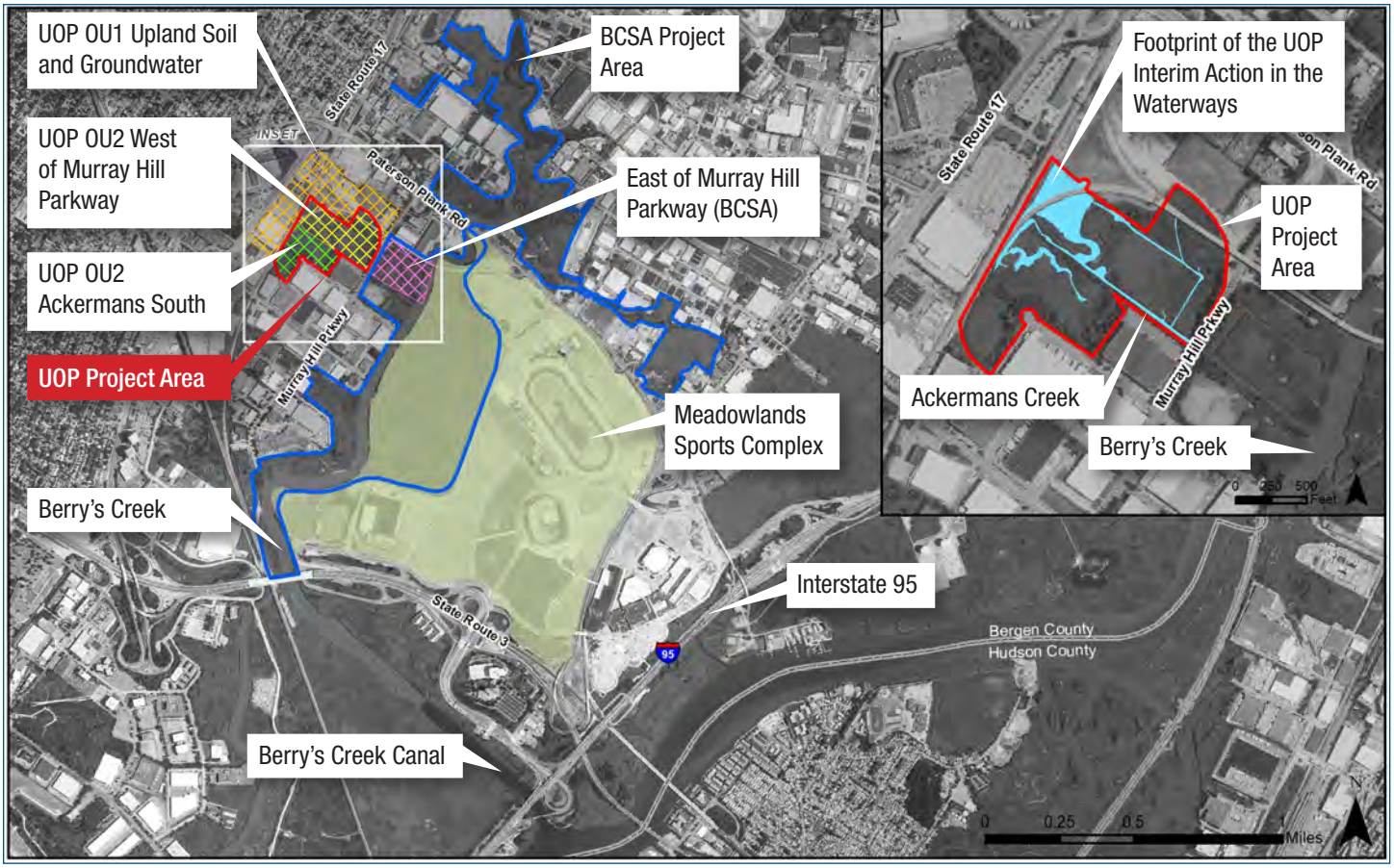
UOP ORGANIZATION CHART



EPA's Preferred Alternative includes:

1. Bank-to-bank removal and off-site disposal of 2 feet of waterway sediment and subsequent placement of backfill to the existing sediment surface elevation.
2. Dewatering, treatment, transportation, and off-site disposal of approximately 16,300 cubic yards of sediment removed from the waterways.
3. Groundwater monitoring during the remedial design to assess whether contaminated shallow groundwater is discharging to the waterways. If the presence of volatile organic compounds (VOCs) in the groundwater discharge presents an unacceptable risk to the benthic community in UOP OU2, an appropriate response will be selected in the future.
4. Institutional controls, such as the existing New Jersey fish consumption advisories.
5. Maintenance of backfill in the waterway.
6. A post-construction performance monitoring program to monitor the success of the proposed interim source control remedial action in the surrounding ecosystem and the adjacent marshes and waterways that are hydrologically connected to the UOP Project Area.

EPA is soliciting public comment on the alternatives considered because EPA may either revise the Preferred Alternative or select a different remedy based on comments received and/or review of additional data. The final decision regarding the selected remedy will be made after EPA has taken into consideration all public comments.



UOP SITE MAP

Site Description

The UOP site is located near the intersection of Route 17 and Paterson Plank Road in the Borough of East Rutherford, Bergen County, New Jersey. UOP consists of approximately 75 acres of upland property and marshes. UOP is surrounded by highways and light industrial and commercial properties. The following facilities are located to the north of the UOP site: the former Matheson Tri-Gas Products facility, a metals finishing facility, a truck and car repair shop, and a hotel. The east side of the UOP site is bordered by Berry's Creek, the south side by commercial properties, and the west side by New Jersey Route 17.

EPA divided UOP into two Operable Units to assist with site management *(refer to organization chart on Page 2)*:

- **OU1** consists of upland soil and shallow groundwater
- **OU2** OU2 consists of the former lagoon area, low-lying marshes, and waterway channels located on the west side of Murray Hill Parkway, between OU1 and the Berry's Creek Study Area.

UOP is geographically located within the watershed that forms the Berry's Creek Study Area (BCSA), which is part of the Ventron/Velsicol Superfund Site. (The boundaries of this watershed are defined by New Jersey hydrologic units.) While the area east of Murray Hill Parkway was originally part of UOP OU2, it is now included in the remedial footprint of the BCSA interim action and will be remediated pursuant to the ROD issued by EPA on September 25, 2018 for the Ventron/Velsicol Superfund Site. Waterway sediment located on the west side of Murray Hill Parkway is within the UOP Project Area and is the subject of this Proposed Plan.

Site History

The upland portion of UOP is the former location of the Union Ink Company, which manufactured printing inks, lacquers, enamels, coatings, and silk screening inks from 1930 to 1945, and the former Trubek Laboratories, Inc. (Trubek) facility. Trubek began operations in 1932 as a chemical manufacturing facility. In 1955, Trubek began operating a solvent recovery facility and handling waste chemicals. Trubek constructed and began operating a wastewater treatment plant and two wastewater holding lagoons in 1956, which were located in the current OU2 marsh area. Universal Oil Products Company purchased the facility from Trubek in 1963 and became the owner and operator of the facility. Between 1956 and 1971, seepage from the wastewater lagoons and routine handling of products and wastes resulted in the release of various hazardous substances to the upland soils and groundwater (currently OU1) and the tidal marshes and waterways (currently OU2). Universal Oil Products Company was renamed UOP, Inc. in 1975. Operations at the facility ceased in 1979, and the building structures were demolished in 1980. Between 1975 and 1979, The Signal Companies acquired UOP, Inc. In 1985, the Signal Companies merged with Allied Corporation, becoming Allied Signal, Inc. Following a merger and a series of name changes, Honeywell International, Inc. (Honeywell) became the owner of the property in 2002. UOP is currently a wholly-owned subsidiary of Honeywell.

In 1983, the New Jersey Department of Environmental Protection (NJDEP) issued an Administrative Consent Order requiring UOP to conduct a remedial investigation and feasibility study (RI/FS) *(refer to sidebar at right on remedial action on OU1 Upland Soil and Groundwater)*. The UOP site was also listed on the EPA National Priority List on September 8, 1983. NJDEP was the lead agency for the site from 1982 to 2008, after which EPA assumed the role of lead agency. Honeywell and its predecessors have been conducting response actions under NJDEP and EPA oversight since the early 1980s.

To address some areas of contaminated sediment, Allied Signal, Inc. performed an interim remedial measure in 1990 under NJDEP oversight to remove PCB-contaminated sediment in the former lagoon area. Sediment was dredged and transported off-site for incineration. Honeywell began RI activities in the

Background on OU1 Upland Soil and Shallow Groundwater:

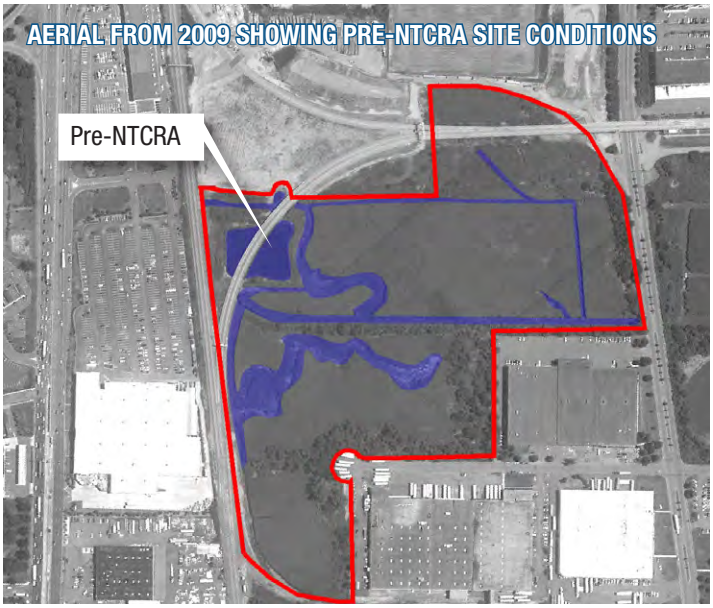
The OU1 RI revealed that soils were contaminated with polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), VOCs, and lead. The shallow OU1 groundwater was also contaminated with VOCs. NJDEP, with EPA concurrence, selected an interim remedial action for UOP OU1 upland soil and shallow groundwater in a 1993 ROD. This ROD was modified through a 1998 ROD Amendment and was further modified by a document known as an Explanation of Significant Differences in April 1999. Allied Signal, Inc. began construction in 1996. The amended remedy required excavation of contaminated soil followed by either off-site disposal or thermal treatment (based on the type of contamination) and placement of treated soil in an on-site containment area. The sanitary sewer and stormwater lines were also cleaned and excavated. As part of the remedy, approximately 6.8 million gallons of shallow groundwater were pumped, treated, and discharged to Ackermans Creek under a New Jersey Pollutant Discharge Elimination System (NJPDES) permit.

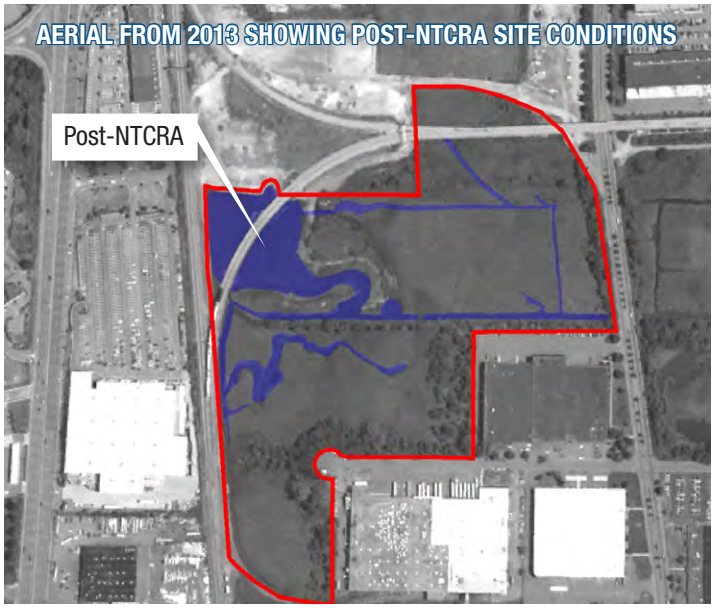
In 1997, NJDEP determined that the shallow groundwater was non-potable and changed the shallow groundwater classification at UOP to a Class III-B aquifer.[1] In November 2004, NJDEP and EPA determined that the OU1 upland soil remedial activities had been completed and the objectives of the 1993 ROD achieved. A portion of the OU1 property was then redeveloped in 2005 and is currently occupied by a shopping center; however, the 1993 ROD provided that a final evaluation would be needed to determine if the soil remedy and shallow groundwater removal were sufficient to protect the surface water quality of Ackermans Creek and groundwater. Final action on the shallow groundwater was again deferred in 2004, and a decision is currently awaiting further analysis to determine if discharging contaminated groundwater could present an unacceptable risk to the benthic community in UOP OU2.

① CLASS III-B AQUIFER DEFINITION

Under New Jersey Groundwater Quality Standards (GWQS), Class III-B groundwater consists of all geologic formations or units that contain groundwater having natural concentrations or regional concentrations (through the action of saltwater intrusion) exceeding 3,000 mg/L Chloride or 5,000 mg/L Total Dissolved Solids, or where the natural quality of groundwater is otherwise not suitable for conversion to potable uses. New Jersey designates Class III-B groundwater for any reasonable use at existing water quality, other than potable water. The GWQS establishes narrative descriptions of these classifications and their corresponding criteria as opposed to numerical standards.

AERIAL PHOTOS OF PRE-NTCRA AND POST-NTCRA CONFIGURATION





waterway channels and marshes (located on both the east and west sides of Murray Hill Parkway) in 2005 with collection of sediment and surface water data to investigate the nature and extent of contamination and to develop a preliminary conceptual site model. Two removal measures were performed in 2005 and 2007 under NJDEP's cleanup procedures and oversight in the marshes and lagoon area to accommodate the construction and placement of the New Jersey Transit rail line and right-of-way. The rail line was designed to cross over UOP OU2 to connect the Pascack Valley rail line with the Meadowlands Sports Complex. The removal consisted of excavation of soil and sediment to a depth of 2-4 feet below grade in the proposed construction area and areas where the railroad tracks would be supported by pilings; excavated material was disposed off-site. Contaminated soil was also buried under clean soil in areas where the railroad tracks would be elevated on soil embankments. A portion of the UOP property was then transferred to the New Jersey Sports and Exhibition Authority (NJSEA); however, responsibility for site cleanup remains with Honeywell.

In 2010, Honeywell signed an Administrative Settlement Agreement and Order on Consent (AOC) with EPA to complete the UOP OU2 RI/FS and perform the NTCRA. The 2010 AOC incorporated the former lagoon area as well as the marshes and waterway channels into one operable unit (OU2). The Ackermans South area was subsequently added to OU2 in an AOC Amendment to be issued shortly in 2018 because this area was impacted by historical UOP activities.

The NTCRA was completed in 2013 and included excavation and off-site disposal of the lagoon berms and sediment followed by placement of a 1-foot layer of sand on the bottom of the excavated area *(refer to aerial photographs above on extent of NTCRA)*. The objective of the NTCRA was to remove highly-contaminated sediment in the former wastewater lagoons and adjacent areas of Ackermans Creek that had not been addressed during the 1990 removal action. As a result of the NTCRA, the configuration of the former lagoon area was altered, and the area is now hydrologically connected with Ackermans Creek and subject to tidal fluctuations affecting the surrounding watershed. Post-NTCRA sampling in 2015 showed that newly deposited sediments had re-contaminated the NTCRA area, and post-NTCRA surface sediment concentrations were similar to pre-NTCRA conditions.

Honeywell completed the RI Report and risk assessments for UOP OU2 in 2018. The RI Report includes a discussion of the removals performed in 2005 and 2007 and the NTCRA. The risk assessments, which incorporate both the pre-NTCRA and post-NTCRA data, identified PCBs as contaminants of concern (COCs). The FS Report completed in 2018 focuses on the proposed interim source control remedial action for the waterway sediment. The RI Report and FS Report provide the basis for this Proposed Plan.

Site Characteristics

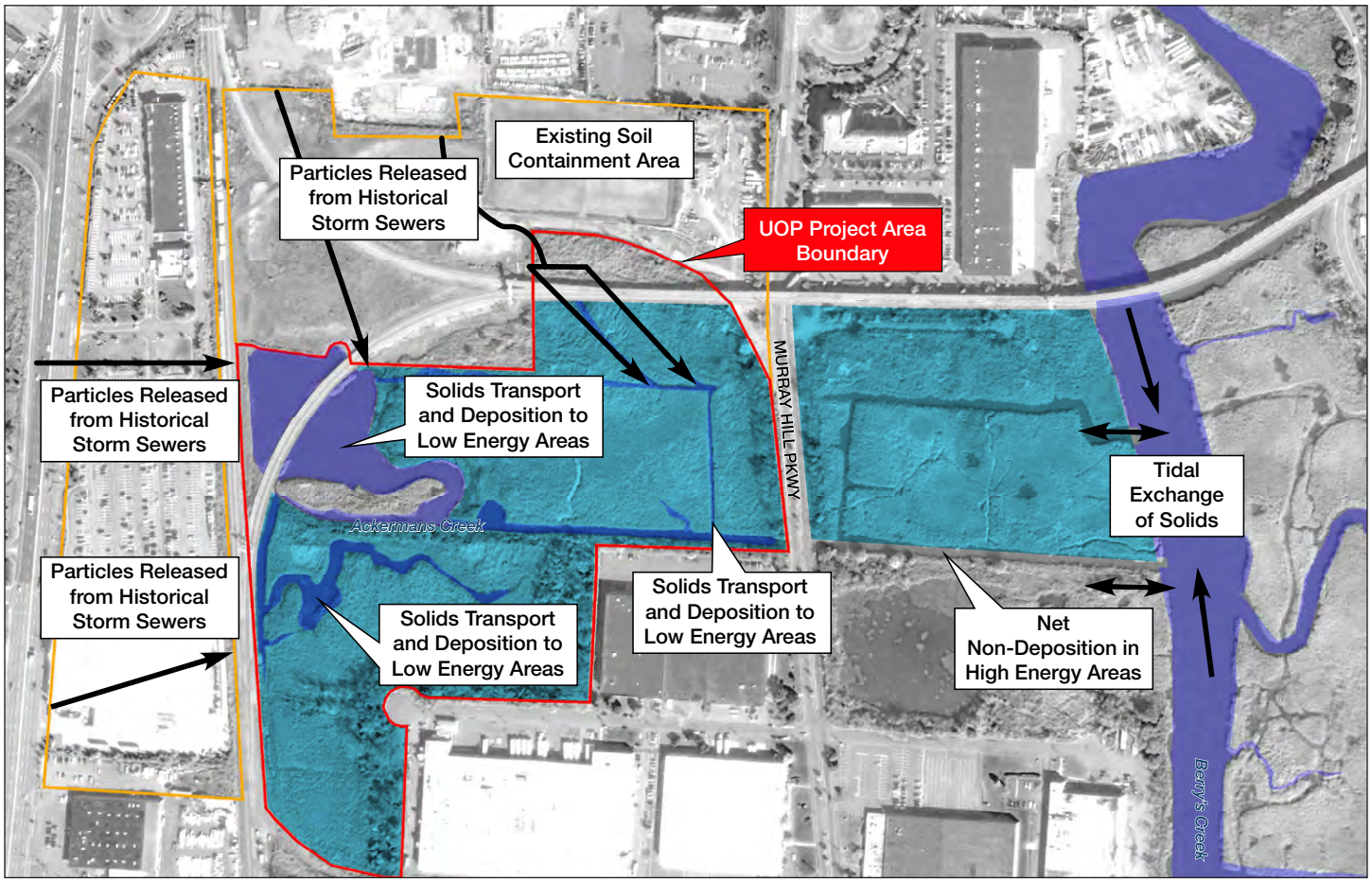
The RI Report includes a conceptual site model for UOP OU2 based on physical characteristics of the area and the nature and extent of contamination.

Physical Characteristics

The OU1 upland soil consists mainly of urban fill material that was historically placed on top of a pre-existing wetlands meadow mat. The shallow groundwater that moves within this overburden material is hydraulically connected to saline surface waters of Ackermans Creek. NJDEP has classified the shallow aquifer as a Class III-B (non-potable) aquifer because of the salinity levels. The shallow groundwater is separated from the deeper aquifer by approximately 100 feet of varved clay, but likely continues to discharge into the waterways from the north and west.

UOP OU2 is composed of open waterways and vegetated marsh areas. **Ackermans Creek consists of a main channel and a number of tributaries** *(refer to conceptual site model figure below)*. The main channel is the primary conveyance for surface water into and out of the system. It experiences the highest current velocities, which can resuspend and transport surface

PHYSICAL CONCEPTUAL SITE MODEL



sediment during the semidiurnal (twice daily) tidal cycle. Due to these high velocities, the main channel of Ackermans Creek has a much coarser-grained sediment bed compared to the tributaries. The tributaries have lower current velocities, which tend to accumulate fine-grained sediment and experience more deposition than erosion.

Surface water elevations and current velocities are influenced by daily tidal fluctuations and monthly lunar tidal cycles. On the incoming tide, surface water flows from Berry's Creek into Ackermans Creek, across the waterways and marshes on the east side of Murray Hill Parkway that are to be remediated as part of the BCSA interim action, then through a culvert to the waterways and marshes on the west side of Murray Hill Parkway. The marsh and waterway channels are affected by mixing between UOP and Berry's Creek during each tidal cycle. Storms can also cause sediment resuspension when stormwater discharges from outfalls into the waterways, or when stormwater enters as runoff along the rail line or from Murray Hill Parkway.

The surface and subsurface sediments in the waterways are dominated by clays and silts. The marsh sediment is dominated by root mat material surrounded by clay or silt. The main channel of Ackermans Creek and the two north-south side-channels connecting Ackermans Creek to the north channel typically exhibit soft sediment thicknesses between less than 1 foot to 3 feet thick. The marshes and the northern channel exhibit thicker deposits ranging from 1 to 7 feet. Thick sediment deposits were previously measured in the former lagoon areas; however, this material was removed as part of the NTCRA. New sediment deposits in the NTCRA area are 0.75 to 1 foot thick (measured two years after excavation).

Nature and Extent of Contamination

Based on the conceptual site model, several sources and release pathways have resulted in, or have potentially contributed to the contamination at UOP, including: historical discharges from the former UOP operators and adjacent properties, historical overflow and releases from the former lagoon system, surface water drainage, tidal mixing and deposition of contaminated solids, groundwater-to-surface water discharge, and atmospheric deposition. The historical discharge from the storm drains and surface water drainage have been the most significant transport pathways because these pathways would have captured historical spills, wastewater, grit, and other byproducts of the historical industrial processes, discharging them to the environment. These historic releases have been controlled, or are within permit conditions, so that at present the primary sources of contamination are remobilization of existing contaminated sediment, transport and deposition of contaminated solids from Berry's Creek, and resuspension and deposition of contaminated solids from the marshes.

For the waterway sediment, remedial investigations within UOP and the BCSA have shown that PCBs and mercury are the most significant contaminants from a human and ecological health risk perspective, although other contaminants, such as chromium and VOCs, were detected with high frequency. Prior to completion of the NTCRA, the highest contaminant concentrations of PCBs, VOCs, mercury, and chromium were detected on the west side of Murray Hill Parkway in the waterways (north and east of the former lagoon) and near historical stormwater outfalls. VOCs, mercury, and chromium concentrations also appeared to be relatively higher near the historical surface drainage feature on the north side of UOP OU2. These heavily contaminated sediments were removed during the NTCRA.

An evaluation of the pre-NTCRA data suggested the existence of a common source of chromium and mercury on the west side of Murray Hill Parkway, and a different source of mercury on the east side of Murray Hill Parkway, which was more heavily influenced by Berry's Creek. Statistical evaluations of PCB patterns in the pre-NTCRA sediment revealed different sources of PCBs, with certain PCB compounds having high concentrations closer to the discharge location(s) from historical operations at the UOP facility, and decreasing in concentration across UOP OU2 from west to east. The evaluation of these patterns suggested a greater influence of UOP-related PCBs on the west side of Murray Hill Parkway and a greater influence from Berry's Creek on the east side of Murray Hill Parkway. The pre-NTCRA data also suggested that marsh sediment exhibited lower average chemical concentrations than waterway sediment. Statistical evaluations of the PCB patterns in the pre-NTCRA sediment suggested the transport of contaminated fine-grained sediment from the waterways into marsh areas. The marsh areas would

flood during the slow-moving peak tide, velocities would decrease as the tidal waters entered the marshes, and solids would be deposited. The marshes would then trap and retain solids during the subsequent ebb tide.

Following the NTCRA, the residual sediment waterway concentrations were lower and were similar to the existing marsh concentrations. PCBs, chromium, and mercury in waterway sediment from the 2013 post-NTCRA data set were lower than concentrations detected in pre-NTCRA conditions. (Note that the post-NTCRA sampling did not include VOC analysis.) PCBs in the 2013 post-NTCRA data were also comparable to those observed in the Mill Creek reference area (a tributary of the Hackensack River), whereas mercury was statistically lower than reference concentrations. However, the 2015 monitoring data indicated that sediment contaminant concentrations had increased, relative to the 2013 results. This recontamination was determined to be associated with resuspension and transport of sediments within OU2, exposure of previously buried contaminated waterway sediment, or export of contaminated sediment from the marshes to the waterways. **PCB, mercury, and chromium concentrations in waterway sediment are currently higher than concentrations detected in the Mill Creek reference area waterway** *(refer to data table below and figure on Page 9 showing surface sediment concentrations in UOP relative to reference areas)*. In UOP OU2, the highest contaminant concentrations are typically within the top 2 feet of waterway sediment, and a notable decrease in concentration is observed below 2 feet in depth. Samples collected from the underlying clay had either very low or non-detect contaminant concentrations.

A limited tissue dataset (including benthic macroinvertebrates and mummichog) was collected in 2010, 2013, and 2015 to assess the efficacy of the NTCRA; however, these data had limited utility since the 2015 sediment chemistry data demonstrated that the NTCRA area was recontaminated. Overall, residual contaminant concentrations in the tissue showed no significant difference between the pre-NTCRA and post-NTCRA conditions, and tissue contaminant concentrations were higher in UOP OU2 samples compared to the Mill Creek reference area.

A limited surface water and groundwater dataset was also collected in 2010. While these data showed low VOC levels and while NJDEP does not identify numerical standards for Class III-B (non-potable) aquifers, based on these data EPA was unable to rule out the possibility that groundwater discharge was a transport pathway for VOC contaminants to the surface water and benthic macroinvertebrates in the waterway sediments. Due to the uncertainty, which has yet to be resolved, the groundwater-to-surface water discharge pathway will be further evaluated during the remedial design.

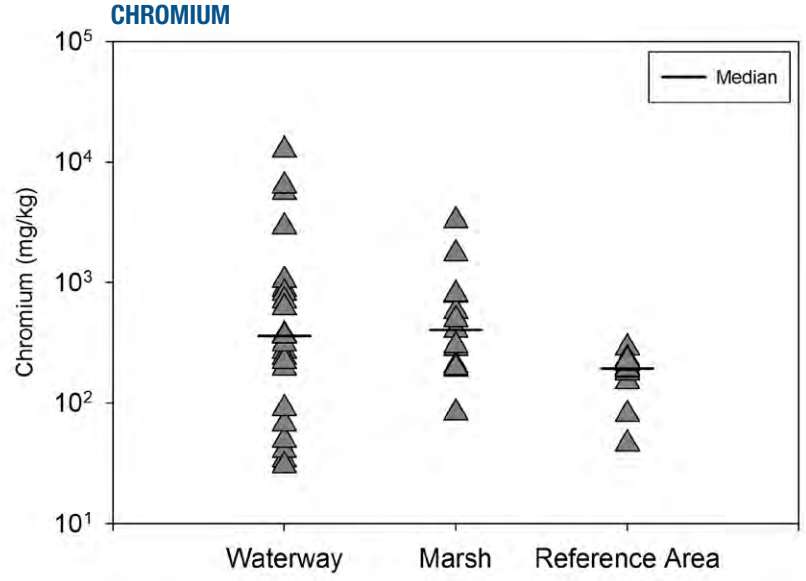
	2015 Surface Sediment Concentration (Median mg/kg)		
	PCB Aroclors	Mercury	Chromium
Waterway sediment in UOP OU2 West Side of Murray Hill Parkway	6.3	7.6	320
Waterway sediment in Ackermans South	33	24	360
Waterway sediment across entire UOP OU2	6.3	7.6	360
Waterway sediment from UOP Reference Area	0.11	2.8	190
Waterway sediment from BCSA Reference Area	0.20	1.3	43

Note 1: Waterway sediment from BCSA Reference Area
Note 2: BCSA Reference Area includes Mill Creek, Bellmans Creek, and Woodridge Creek

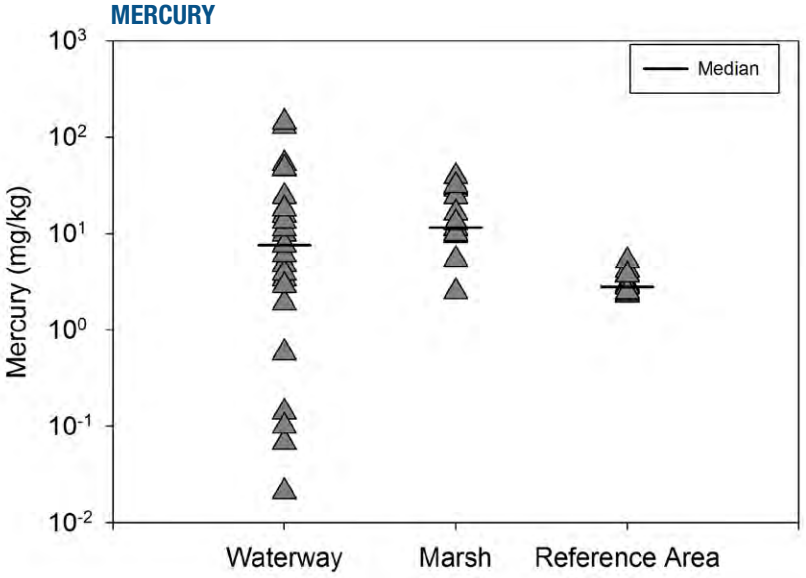
Principal Threat Waste

In general, EPA identifies as principal threat waste those 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 (with a potential cancer risk of 10^{-3} or greater) should exposure occur. No principal threat waste remains in OU1 due to the implementation of the interim remedy, which included excavation of contaminated soils followed by off-site disposal or thermal treatment (based on the type of contamination) and placement of treated soil in an on-site containment area. In the UOP Project Area, the detected PCBs, VOCs, mercury, and chromium in the sediment act as a source to surface water contamination, and PCBs cause potential risk; however, these contaminated sediments are not highly mobile and can be reliably contained, so they are not considered principal threat wastes at UOP OU2. Although some contaminant concentrations are high and exposure point concentrations, which are the statistical values calculated to represent reasonable maximum exposures to both human and ecological receptors, result in potential risks that exceed acceptable levels, these potential risks do not meet the principal threat waste threshold.

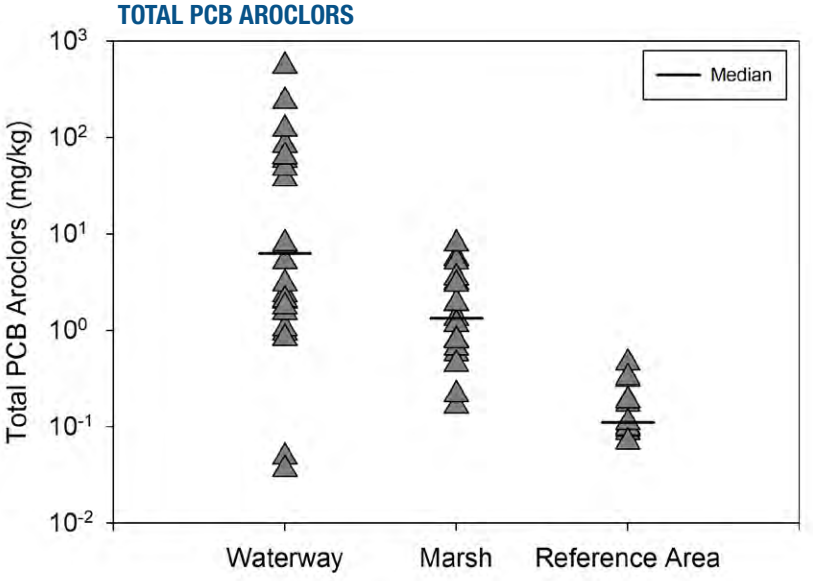
CHROMIUM



MERCURY



TOTAL PCB AROCLORS



NATURE AND EXTENT SEDIMENT CONCENTRATION SUMMARY:
TOTAL PCB AROCLORS, MERCURY, AND CHROMIUM

Summary of Site Risks

Human health and ecological risk assessments were conducted to estimate the risks associated with exposure to contaminants based on current and likely future uses of the UOP Project Area.

The Human Health Risk Assessment (HHRA) was conducted to assess the cancer risk and noncancer health hazards associated with exposure to COCs present at the UOP Project Area. The HHRA was completed using the standard EPA risk assessment process comprised of Hazard Identification, exposure assessment, toxicity assessment, and risk characterization. The HHRA incorporated sediment (waterway and marshes), surface water, and fish tissue data (collected between 2006 and 2015) to estimate exposures and health risks to current and potential future human receptors in the UOP Project Area. The shallow (Class III-B, non-potable) groundwater was included in the assessment. The following receptors and exposure pathways were evaluated quantitatively in the HHRA:

What is Human Health Risk and How is it Calculated?

A Superfund baseline Human Health Risk Assessment (HHRA) 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 the hazardous substances under current and future land uses. A four-step process is utilized for assessing site-related human health risks for actual and/or plausible exposure scenarios. **(1) Hazard Identification:** In this step, the chemicals of potential concern (COPCs) at the site in various media (e.g., sediment, surface water, and fish tissue) are identified based on such factors as: toxicity, concentration, fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation. **(2) Exposure Assessment:** In this step, the different exposure pathways through which people might be exposed to the COPCs in the various media identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated surface water and sediment. Factors relating to the exposure assessment include, but are not limited to, COPC 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" scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated. A "central tendency exposure" scenario, which portrays the average or typical level of human exposure that could occur, is calculated when the reasonable maximum exposure scenario results in unacceptable risks, as discussed below under Risk Characterization. **(3) 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 COPC-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 and noncancer health hazards. **(4) 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 lifetime cancer risk;" or one additional cancer may be seen in a population of 10,000 people as a result of exposure to COPCs 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 (which is considered the overall hazard from exposure to multiple COPCs from all relevant exposure pathways for a receptor) 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, even for sensitive members of the population. The goal of protection is a 10-6 cancer risk and an HI of 1 for a noncancer health hazard. Cumulative risks that exceed a 10-4 cancer risk or an HI of 1 require remedial action at the site. COPCs that exceed these goals are considered contaminants of concern (COCs) in the FS.

- Current/potential future on-site trespassers, including an older child (6 to 18 years old) and adult trespassers potentially exposed to sediment (0-6 inches) via ingestion and dermal contact and to surface water via dermal contact.
- Current/potential future fish consumers, including younger children (0 to 6 years old), older children, and adults assumed to consume white perch caught on-site. Consumption of crab was not evaluated because edible-size blue crabs were not observed at UOP during the long-term monitoring sampling events.
- Current/potential future off-site trespassers, including an older child (6 to 18 years old) and adult trespassers potentially exposed to sediment (0 to 6 inches) in Ackermans South Area via ingestion and dermal contact.

The estimated lifetime cancer risks (ELCRS) for current and potential future trespassers (older child and adult) exposed to sediment and surface water (ECLRs = 9×10^{-7} to 2×10^{-5}) were less than or within EPA's target cancer risk range of 1 in 10,000 (i.e., 10^{-4}) to 1 in 1,000,000 (i.e., 10^{-6}); however, the estimated noncancer Hazard Index (HI) for current and potential future older child and adult trespassers exposed to sediment and surface water (HI values = 2), exceeded EPA's HI threshold of 1 due to PCBs in sediment. PCBs were identified as a COC for sediment. Direct contact with surface water did not result in cancer risk or non-cancer health hazards above regulatory thresholds.

The ELCRs for current and potential future fish consumers (younger child, older child, and adult) (ELCRs = 7×10^{-5} to 1 $\times$ 10-^{4}) were within EPA's target cancer risk range of 10^{-4} to 10^{-6}; however, the estimated noncancer HI exceeded EPA's HI threshold of 1 due to PCBs in white perch (HI values = 3

What Is Ecological Risk and How Is It Calculated?

A Superfund Baseline Ecological Risk Assessment (BERA) 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 them under current and future land uses. The four-step process is used to assess site-related ecological risks. **(1) Problem Formulation:** In this step, the contaminants of potential concern (COPCs) 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. **(2) 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 to the COPCs 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). **(3) 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 medium-, receptor- and chemical-specific basis. In order 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. **(4) 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 COPC 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.

to 16). PCBs were identified as COCs for sediment based on exposure through consumption of white perch in the UOP Project Area.

The **Baseline Ecological Risk Assessment (BERA)** was completed using the standard four-step process developed by EPA, consisting of problem formulation, exposure assessment, ecological effects assessment, and risk characterization. The BERA incorporated sediment (waterway and marshes), surface water, and fish tissue data (collected between 2006 and 2015) to estimate exposures and risks to potential current and future ecological receptors. The BERA evaluated exposures in the waterway and marsh habitats in the UOP Project Area. The estuarine aquatic and wetland habitats support a wide range of ecological receptors including the following:

- Benthic invertebrates (represented by worms and crustaceans that live in/on the sediment)
- Estuarine fish (represented by mummichog and white perch)
- Water-dependent birds (represented by great blue heron and spotted sandpiper)
- Water-dependent mammals (represented by raccoon and muskrat)
- Wetland birds (represented by marsh wren and red-winged blackbird)

The BERA evaluated environmental impacts to ecological organisms. Wildlife, fish, and invertebrates are exposed to contaminants either through association with surface water and sediment, incidental ingestion of sediment, or through bioaccumulation of contaminants from the local estuarine food web. Although environmental risks appear to have decreased due to the NTCRA remedial work, they remain unacceptably elevated, particularly for organisms that consume benthic invertebrates and incidentally ingest sediment during foraging (e.g., spotted sandpiper). PCBs were identified as a COC in marsh sediment with HQ values as high as 500 (wren), and PCBs were identified as COCs in waterway sediment based on wildlife exposures, with HQ values as high as 3,000 (spotted sandpiper). While direct contact with surface water was not identified in the BERA as being a pathway of concern, the data could not rule out the possibility that groundwater discharge is a possible transport pathway for VOC contaminants to the surface water and benthic macroinvertebrates in the waterway sediments and may pose a risk.

Basis for Action

It is EPA's current judgment that the Preferred Alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect the health or welfare of the environment from actual or threatened releases of hazardous substances into the environment, by mitigating an unacceptable risk to humans and the ecosystem that is due primarily to PCB contamination in the sediments.

Scope and Role of Action

The findings of the RI Report support an adaptive, multi-phase approach to address contaminated waterway sediment and marsh sediment, which is consistent with the the ROD (issued on September 25, 2018) for the BCSA. EPA determined that the waterway surface sediment had the highest contaminant concentrations. The proposed UOP interim source control remedial action will address the waterway sediment, which is the primary source of exposure and risk and is the on-going source of contamination to marshes and downstream waterways due to resuspension and transport with tidal exchange.

EPA intends to coordinate the UOP and BCSA remedial construction, so that the work could proceed concurrently.

Following an adaptive, multi-phase approach, additional UOP remedial actions, including remedial actions for the tidal marshes and discharging groundwater (if required), will be evaluated in one or more subsequent site decision documents based on the results of monitoring associated with this interim source control remedial action for the waterway sediment.

ACKERMANS CREEK, FACING EAST

Remedial Action Objectives

Remedial Action Objectives (RAOs) provide a general description of what the proposed interim source control remedial action is intended to accomplish. When developing the RAOs for the UOP Project Area, EPA considered reducing risks to human health and the environment, controlling the source of those risks, and maintaining the stability of the marsh habitat. For the UOP Project Area, unacceptable risk to humans and the ecosystem is due primarily to PCB contamination in the sediments; therefore, PCBs are the COCs. The two RAOs for the proposed interim source control remedial action are:

- Control sources of COCs by replacing the current biologically active zone in waterway soft sediment, thereby reducing exposure of human and ecological receptors to COCs in the waterways.
- Control sources of COCs by replacing the current biologically active zone in waterway soft sediment, thereby reducing resuspension of COCs into the water column and transport into adjacent marshes and downstream areas.

While the remedial construction will be designed for 100 percent bank-to-bank sediment removal, a performance metric has been identified that would allow EPA to determine when the proposed interim remedy has been successfully completed. This metric is removal of at least 95 percent of the targeted surface area of the remedial footprint, which would result in a significant reduction in on-site contaminant mass and source material. Greater percentages of success are anticipated in the main stem waterways as compared to the narrow, shallow tributaries where implementation will be more challenging. Since this Proposed Plan evaluates alternatives for an interim remedy, any residual contamination that may remain upon completion would be characterized through the post-construction performance monitoring program. This program would include, among other things, sampling of surface sediment, surface water, and biota in the remedial footprint to evaluate remedy effectiveness and degree of recontamination. Metrics to evaluate the monitoring program results will be determined in the remedial design. Human health and ecological risks will be estimated to assess whether any future action in the waterways is needed, and if so, risk-based remedial goals and appropriate actions will be selected in a future ROD.

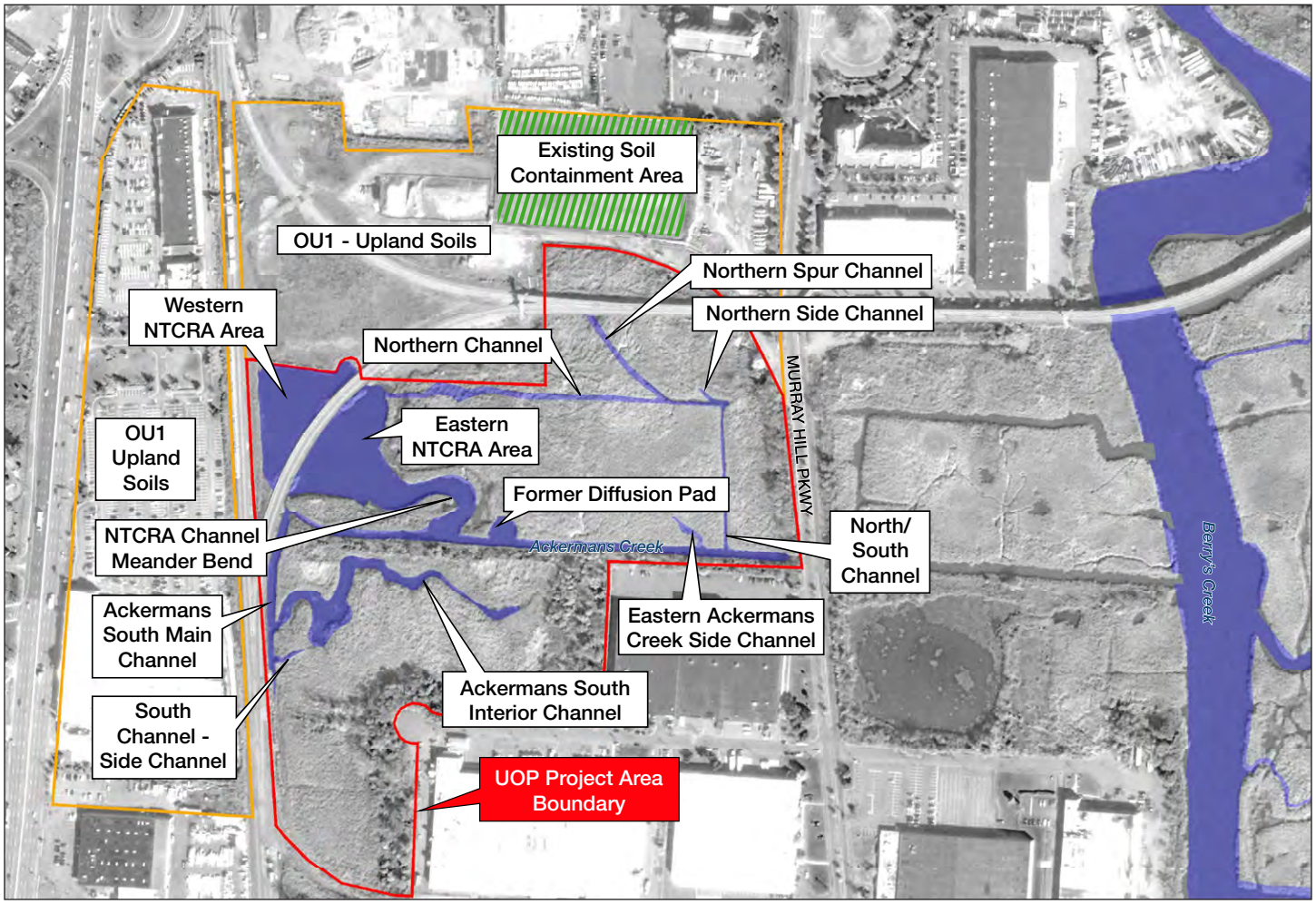
BIOLOGICALLY ACTIVE ZONE (BAZ) DEFINITION:
The upper layer of the surface sediment where plants and benthic organisms are actively living (also referred to as the biotic zone).

VIEW OF THE LAGOON IN UOP PROJECT AREA POST-NTCRA CONSTRUCTION, FACING EAST

Summary of Interim Remedial Alternatives

Section 121(b)(1) of CERCLA, 42 U.S.C. § 9621(b)(1), mandates that remedial actions must be protective of human health and the environment, be cost-effective, and use permanent solutions, alternative treatment technologies, and resource recovery alternatives to the maximum extent practicable. CERCLA § 121(d), 42 U.S.C. § 9621(d), further specifies that a remedial action must require a level or standard of control of the hazardous substances, pollutants, and contaminants that at least attains applicable or relevant and appropriate requirements (ARARs) under federal and state laws, unless a waiver can be justified pursuant to CERCLA § 121(d)(4), 42 U.S.C. § 9621(d)(4).

Four remedial alternatives were developed for the interim source control remedial action for the UOP Project Area *(refer to schematic diagrams, page 17, showing post-construction cross-sections of the waterway)*. The footprint of the interim source control remedial action includes the main channel of Ackermans Creek, its tributaries, the area of the previous NTCRA, and the Ackermans South Area. This Proposed Plan presents EPA's Preferred Alternative and evaluates whether it satisfies the various mandates of CERCLA. Interim source control remedial actions should be designed to be protective of human health and the environment, cost effective, and consistent with the final remedy. The alternatives evaluated in the FS Report, except for the No Action alternative for the UOP Project Area, all mitigate risk to human health and the environment (thus satisfying the RAOs), comply with ARARs, and are cost-effective.



FOOTPRINT OF PROPOSED INTERIM SOURCE CONTROL REMEDIAL ACTION IN UOP PROJECT AREA

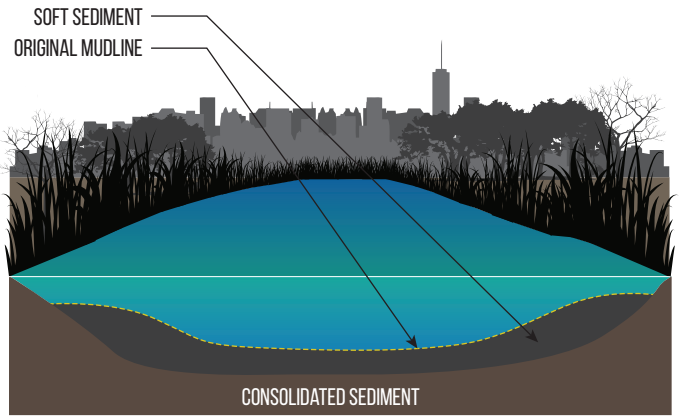
Common Elements:

Common elements among the alternatives, other than the No Action alternative, include: implementation of the BCSA interim action (including remediation of the waterway sediment on the east side of Murray Hill Parkway) according to the ROD issued on September 25, 2018, implementation of a post-construction performance monitoring program, continuation of the NJDEP fish consumption advisories, and maintenance of the backfill in the waterway. Another common element among the active alternatives will be the implementation of a groundwater monitoring program during the remedial design to assess whether shallow groundwater (contaminated with VOCs) is discharging to the waterways. If groundwater VOC discharge presents an unacceptable risk to the benthic community in UOP OU2, an appropriate response will be selected in the future. The response to the groundwater monitoring results will not affect the implementation of the waterway sediment remedy.

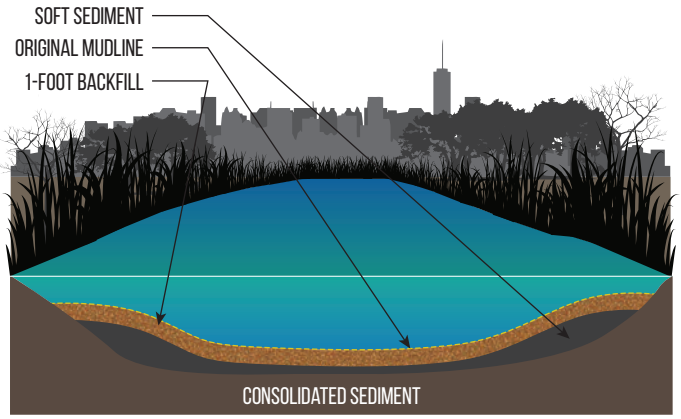
The active alternatives include bank-to-bank excavation. The area considered for this proposed interim source control remedial action is the same for all of the active alternatives, so the only significant difference between the alternatives is the depth of excavation, which affects the volume of material being removed, and the corresponding volume of backfill. Fixed excavation depths were used to estimate removal volumes and construction costs for comparative evaluation purposes only. The remedial design process will include sediment probing and coring work in the waterways to define the thickness of accumulated sediment overlying the clay stratum to generate more accurate removal estimates. If the clay layer is encountered at a shallower depth, only the soft sediment will be removed, resulting in less excavation. A 6-inch over-excavation allowance was included in the alternative design and cost estimate.

Alternative-Specific Elements:

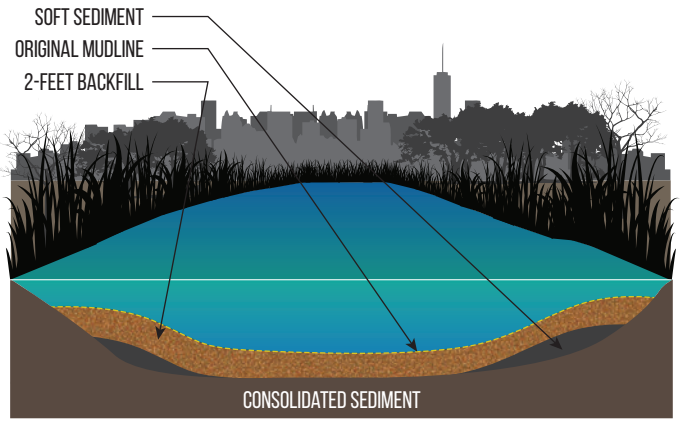
	Description	Volume of Sediment Removal and Backfill (Ea.)	Estimated Present Value	Estimated Construction Time
Alternative 1	**No Action** provides a baseline for comparison to other alternatives. Alternative 1 does not include any remedial actions within the waterways, monitoring, or institutional controls.	None	-	-
Alternative 2	The removal of **1 foot** of waterway sediment and placement of backfill to the existing surface sediment elevation would address the RAOs by reducing human and ecological exposure pathways and mitigating the potential for contaminated surface sediment resuspension and transport.	12,200 cubic yards	$14.6 million	8.5 months
Alternative 3	The removal of **2 feet** of waterway sediment (where most of the contaminated sediment is located) and placement of backfill to the existing surface sediment elevation would address the RAOs. Alternative 3 has the same general approach and objectives as Alternative 2 but would remove a greater amount of sediment from the waterway.	16,300 cubic yards	$18.2 million	11.5 months
Alternative 4	The removal of all waterway sediment to the native clay layer **(approximately 3 feet)** and placement of backfill to the existing surface sediment elevation would address the RAOs by eliminating the source of contamination to the marsh as well as removing the human and ecological exposure pathways.	19,600 cubic yards	$21.6 million	14 months



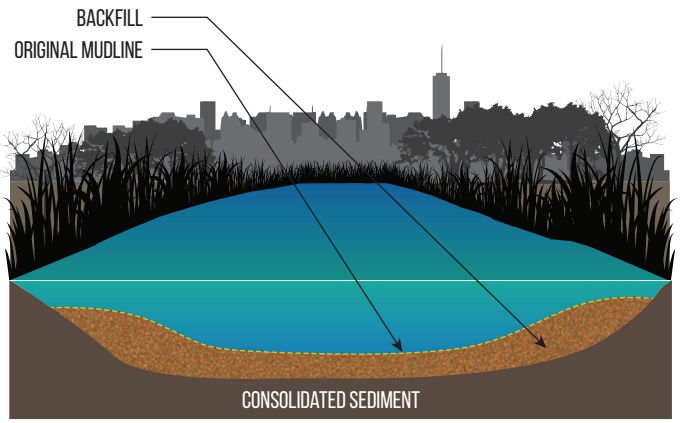
ALTERNATIVE 1: NO ACTION



ALTERNATIVE 2: 1-FOOT REMOVAL OF SEDIMENT AND BACKFILL



ALTERNATIVE 3: 2-FOOT REMOVAL OF SEDIMENT AND BACKFILL



ALTERNATIVE 4: ALL SOFT-SEDIMENT REMOVED (APPROXIMATELY 3 FEET) AND BACKFILL

SCHEMATIC DRAWING OF FOUR ALTERNATIVES POST REMEDIAL WORK

Evaluation of Interim Remedial Alternatives

The alternatives for the interim source control remedial action were evaluated and compared to each other using the nine criteria set forth in the NCP at 40 C.F.R. Section 300.430(e)(9)(iii). These criteria fall into three categories: threshold criteria, balancing criteria, and modifying criteria, which are briefly defined below.

THRESHOLD CRITERIA

CRITERION 1 — **OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT** evaluates whether an alternative eliminates or effectively controls threats to human health and the environment.

CRITERION 2 — **COMPLIANCE WITH ARARS** evaluates whether the alternative meets federal and state environmental statutes, regulations, and other promulgated requirements that pertain to the site, or whether a waiver is justified.

BALANCING CRITERIA

CRITERION 3 — **LONG-TERM EFFECTIVENESS AND PERMANENCE** considers the ability of an alternative to maintain protection of human health and the environment over time.

CRITERION 4 — **REDUCTION OF TOXICITY, MOBILITY, OR VOLUME 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, or the amount of contamination present.

CRITERION 5 — **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.

CRITERION 6 — **IMPLEMENTABILITY** considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

CRITERION 7 — **COST** includes estimated direct and indirect capital and operation and maintenance costs. Costs are presented as a Present Value Cost, which is the total cost of an alternative over time in terms of today's dollar value, calculated using a discount rate of 7 percent. Cost estimates are expected to be accurate within a range of +50 to -30 percent of the actual cost to implement the alternative. A remedy is cost effective if its costs are proportional to its overall effectiveness.

MODIFYING CRITERIA

CRITERION 8 — **STATE/SUPPORT AGENCY ACCEPTANCE** considers whether the state agrees with the EPA's analyses and recommendations.

CRITERION 9 — **COMMUNITY ACCEPTANCE** considers whether the local community agrees with EPA's analyses and Preferred Alternative. Public comments received on the Proposed Plan are an important indicator of community acceptance.

All NCP evaluation criteria, except the two modifying criteria (i.e., state acceptance and community acceptance) were evaluated as part of the FS. State acceptance will be determined after NJDEP completes its review of the Proposed Plan. Community acceptance will be evaluated following receipt and consideration of public comments on this Proposed Plan.

A summary of the comparative analysis of alternatives for the UOP Project Area is provided below. In the evaluation of balancing criteria, each alternative was assigned a relative rating from low to high. A low rating shows that the alternative has a low level of achievement for some or all of the factors considered for the criterion compared to other alternatives, while a high rating indicates a relatively high level of achievement. Intermediate levels of achievement are rated as low-to-moderate, moderate, and moderate-to-high. Qualitative ratings were based on professional judgment and knowledge of the conceptual site model. In this qualitative analysis, EPA assumed that the greater sediment removal depth would yield better protection by eliminating the human and ecological exposure pathway, and that proper engineering controls would be effective in containing underlying contaminated sediment.

Conditions within UOP will benefit from the BCSA interim action because areas of UOP OU2 located on the east side of Murray Hill Parkway will be remediated as part of the BCSA interim action. Moreover, the BCSA interim action will have an indirect benefit on the portion of UOP OU2 located on the west side of Murray Hill Parkway, because Ackermans Creek is hydrologically connected to Berry's Creek. Consequently, the following comparative analysis was completed with the understanding that the benefit of the BCSA interim action is common to all of the alternatives.

CRITERION 1 Overall Protection of Human Health and the Environment

Alternative 1 (No Action Alternative) will not meet the RAOs or be protective of human health and the environment because it will not reduce the exposure of human and ecological receptors to COCs in the waterway sediment or reduce the resuspension or transport of sediment and COCs to the water column within a reasonable timeframe. Alternative 2 (1 foot removal and backfill) would mitigate exposure to humans and the ecosystem because the backfill placed over underlying contaminated sediment (following the removal of 1 foot of sediment) would reduce the exposure pathways for human and ecological receptors and would mitigate the potential for COC resuspension or transport from underlying contaminated sediment to the water column. Alternative 3 (2 feet removal and backfill) and Alternative 4 (removal of all sediment and backfill) are considered more protective of human health and the environment because these alternatives would remove the majority or all of the contaminated sediment and employ thicker layers of backfill, thereby further reducing or eliminating the exposure pathways and potential for resuspension and migration of COCs from sediment into the adjacent marshes, waterways east of Murray Hill Parkway, and Berry's Creek.

CRITERION 2 Compliance with Applicable or Relevant and Appropriate Requirements

Alternative 1 (No Action) will not trigger action-specific ARARs or location-specific ARARs because no action would be conducted within the UOP Project Area. Action-specific and location-specific ARARs are identified in the FS Report, including the requirements of the Clean Water Act that apply to dredging, 33 U.S.C. §404(b)(1) and 40 C.F.R Part 230, which require that disturbance to aquatic habitat be minimized to the extent possible, the New Jersey Flood Hazard Control Act Rules, and federal floodplain management requirements. Alternatives 2 through 4 will be designed to comply with action-specific and location-specific ARARs that apply to the scope of the proposed interim source control remedial action. Note that there are no chemical-specific ARARs for sediment. The alternatives are not intended to achieve a risk-based preliminary remedial goal; rather the alternatives are intended to achieve targeted excavation depths (bank-to-bank) in the waterways.

CRITERION 3 Long-term Effectiveness and Permanence

Alternative 1 (No Action) would not provide any long-term effectiveness and permanence since no action would be taken. Active alternatives would remove the sediment that serves as the current source for potential human and ecological exposures and COC transport. Comparatively, Alternative 3 (2 feet removal and backfill) and Alternative 4 (removal of all sediment and backfill) would have more long-term effectiveness and permanence than Alternative 2 (1 foot removal and backfill), since Alternative 2 includes only 1 foot of excavation, whereas most or all of the contaminated sediment would be removed from the waterways under Alternatives 3 and 4. A thicker backfill

layer would also provide more protection and control of post-construction risk. The sediment removal and backfill thicknesses for Alternatives 3 and 4 would be more than adequate and would have high long-term effectiveness.

Criterion 4 Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment

Alternative 1 (No Action) will not reduce the toxicity, mobility, or volume of contaminants because no action is occurring in the UOP Project Area. Alternatives 2 through 4 include bank-to-bank excavation. The area considered for this proposed interim source control remedial action is the same for all of the active alternatives, so the only significant difference between the alternatives is the depth of excavation, which affects the volume of material being removed, and the corresponding volume of backfill.

CERCLA expresses a preference for remedial alternatives that employ treatment technologies that permanently or significantly reduce the toxicity or mobility of hazardous substances, specifically principal threat wastes; however, the UOP waterway sediment is not a principal threat waste. The waterway sediment consists of material that can be effectively removed and placed in a permitted disposal facility where it would be appropriately managed. Although the risk assessment concluded that the sediment has unacceptable levels of COCs, these levels are not highly toxic. In addition, the COCs in the sediment are not highly mobile. Notwithstanding these factors, the criterion for treatment is being addressed by managing the excavated material. Active alternatives will include ex-situ sediment dewatering followed by the addition of a treatment amendment for solidification to meet transportation and disposal requirements. This treatment will reduce the toxicity and mobility of COCs in the sediment, compared to untreated sediment. All active remedial alternatives are rated moderate for this criterion.

Criterion 5 Short-term Effectiveness

No action would be taken under Alternative 1; therefore, the short-term effectiveness criterion is not applicable. For the remaining active alternatives, short-term impacts to the local community may include: increased local traffic, exhaust emissions, dust, noise, and possible odors associated with construction, as well as potential accident risks to construction workers and short-term impacts to water quality and sediment quality associated with construction operations. Due to the similarities of the active alternatives, the overall risks to workers, community, and environment are similar since the same technology will be implemented in the UOP Project Area. The differentiating factor between the active alternatives is the construction duration and the amount of material requiring transport to or from the work site (which can affect neighboring communities). The durations of Alternatives 2, 3, and 4 range from approximately 8.5 to 14 months, which directly reflects the total quantity of sediment that is estimated to be removed (approximately 12,200 to 19,600 cubic yards). The sediment removal quantities are directly related to quantity of backfill required and the quantity of sediment requiring disposal. As such, the alternatives have been ranked for short-term effectiveness in order from high to low based on the construction duration: Alternative 2 will have the highest short-term effectiveness (and lowest construction duration), followed by Alternative 3 and then Alternative 4, which will have the lowest short-term effectiveness and longest construction durations.

Criterion 6 Implementability

All of the active alternatives can be implemented with readily available materials and methods. Based on the NTCRA experience, excavation (in the dry) and backfill are feasible. Unlike in the BCSA, excavation (in the dry) is feasible in the UOP Project Area because the channels and tributaries of Ackermans Creek are shallower than Berry's Creek, resulting in less volume of water to manage and control. As demonstrated during the NTCRA, excavation (in the dry) would better handle the challenges associated with working in the marsh area. Bank stability (e.g., banks along the shoreline collapsing during construction) is not anticipated to be a concern based on the NTCRA construction, but stability will be further evaluated in the remedial design. The implementability of all alternatives is considered moderate to high based on the previous NTCRA work.

Criterion 7 Cost

Alternative 1 (No Action) has no capital costs because no active remediation will occur.

Alternative 2 (1-foot excavation and backfill) has a Present Worth total estimated cost of $14.6 million (associated with approximately 12,200 cubic yards of sediment removed).

Alternative 3 (2-feet excavation and backfill) has a Present Worth total estimated cost of $18.2 million (associated with approximately 16,300 cubic yards of sediment removed).

Alternative 4 (removal of all sediment and backfill) has a Present Worth total estimated cost of $21.6 million (associated with approximately 19,600 cubic yards of sediment removed).

Criterion 8 State/Support Agency Acceptance

This Proposed Plan is currently under review by NJDEP.

Criterion 9 Community Acceptance

After EPA has received comments and questions during the public comment period, EPA will summarize the comments and provide responses in the Responsiveness Summary section of the ROD. Community acceptance of the Preferred Alternative will be evaluated based on this activity.

ACKERMANS CREEK, FACING WEST

Summary of EPA's Preferred Alternative

EPA's Preferred Alternative for the UOP Project Area is Alternative 3 (removal of 2 feet of waterway sediment and backfill to the existing sediment surface elevation). The footprint of the interim source control remedial action includes the main channel of Ackermans Creek, its tributaries, the area of the previous NTCRA, and the Ackermans South Area. This Preferred Alternative is consistent with the BCSA ROD (issued on September 25, 2018). Moreover, the footprint of the BCSA interim action will include the part of UOP OU2 on the east side of Murray Hill Parkway. The means and methods for implementing the alternative selected in the UOP ROD will be presented in the remedial design along with guidelines for the backfill material.

EPA's Preferred Alternative includes:

1. Bank-to-bank removal and off-site disposal of 2 feet of waterway sediment and subsequent placement of backfill to the existing sediment surface elevation.
2. Dewatering, treatment, transportation, and off-site disposal of approximately 16,300 cubic yards of sediment removed from the waterways.
3. Groundwater monitoring during the remedial design to assess whether shallow groundwater is discharging to the waterways. If the presence of VOCs in the groundwater discharge presents an unacceptable risk to the benthic community in UOP OU2, an appropriate response will be selected in the future.
4. Institutional controls, such as the existing New Jersey fish consumption advisories.
5. Maintenance of backfill in the waterway.
6. A post-construction performance monitoring program to monitor the success of the proposed interim source control remedial action in the surrounding ecosystem and the adjacent marshes and waterways that are hydrologically connected to the UOP Project Area.

Selection of the Preferred Alternative was accomplished through evaluation of the seven threshold and balancing criteria as specified in the NCP. The Preferred Alternative would satisfy the statutory requirements of CERCLA Section 121(b). EPA prefers Alternative 3 because it provides equivalent risk reduction to Alternative 4 at a lower cost and with fewer construction-related impacts to the environment and community. EPA has concluded that the Preferred Alternative would provide the best balance of the seven threshold and balancing criteria and is consistent with the BCSA interim action. EPA is inviting the community to comment on the Proposed Plan to help determine the ninth criterion, which is community acceptance. EPA recognizes the community concerns regarding potential flooding. The Preferred Alternative would address this concern by backfilling to the existing surface sediment elevation only.

Since this Proposed Plan proposes an interim source control remedial action, EPA will continue to evaluate the effectiveness of the remedy through a post-construction performance monitoring program and a Five-Year Review. Additional determinations will be necessary for EPA to finalize the decision for the waterway sediment remedy. EPA, in consultation with NJDEP, will also evaluate further remedial actions, including appropriate remedial actions for the tidal marshes and discharging groundwater, if required.

Community Outreach Considerations

Since UOP is geographically located within the watershed the forms the BCSA, EPA expects that the community concerns for UOP and the BCSA are similar. In 2008 and 2017, EPA conducted community interviews with various BCSA stakeholders to understand community concerns. A common concern expressed during these interviews and meetings related to the potential impacts of remedial action on flooding and mitigating future flooding issues. EPA also hosted a Public Meeting in 2012 at the East Rutherford Memorial Library to discuss the NTCRA with the community.

Public comment on the Proposed Plan for the proposed UOP interim source control remedial action will be accepted during the public comment period from **December 10, 2018 to March 22, 2019.** EPA will present the details of the Proposed Plan during a public meeting scheduled for **March 6, 2019 beginning at 6:30 p.m. at the Hasbrouck Heights Free Public Library.**

Additional information on UOP is available through the administrative record, announcements published in the local newspapers, and access to the EPA website for UOP. These activities will:

- Help the public to understand the alternatives presented in the Proposed Plan, including the Preferred Alternative, and EPA's evaluation criteria, so that the public can effectively provide input on the Proposed Plan.
- Make the public aware of the full range of opportunities to learn about the Proposed Plan and how to provide input.

EPA is committed to maintaining a transparent, proactive community interaction process during each remedial phase.

Contact Information

View Proposed Plan and Supporting Materials

EPA encourages the public to review the Proposed Plan, supporting documents, and the administrative record, which are available at the Information Repositories listed below or on EPA's website for UOP:
https://www.epa.gov/superfund/universal-oil

Additional information on BCSA is available online at:
https://www.epa.gov/superfund/ventron-velsicol

Information Repositories:

Wood-Ridge Memorial Library
231 Hackensack Street
Wood-Ridge, NJ 07075

East Rutherford Memorial Library
143 Boiling Springs Ave
East Rutherford, NJ 07073

EPA Records Center
290 Broadway - 18th floor
New York, NY 10007

How to Submit Formal Comments

Comments submitted during this period will be part of EPA's official administrative record for the remedy. EPA encourages public participation. If you have any questions or would like additional information, please contact one of the project contacts listed below.

Submit comments via mail or email by March 22, 2019 to:

Eugenia Naranjo
Remedial Project Manager
290 Broadway - 19th floor
New York, NY 10007
PH: 212-637-3467
naranjo.eugenia@epa.gov

Keep in touch with the project online:

EPA UOP website:
https://www.epa.gov/superfund/universal-oil

Follow EPA Region 2 on Twitter at: http://twitter.com/eparegion2
and Facebook at: http://facebook.com/eparegion2

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EPA United States Environmental Protection Agency