RECORD OF DECISION

Operable Unit Three
Eighteen Mile Creek Superfund Site
Niagara County, New York

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

September 2024

744513

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Eighteen Mile Creek Superfund Site
Niagara County, New York

Superfund Site Identification Number: NYN000206456
Operable Unit: 03

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) documents the U.S. Environmental Protection Agency's (EPA's) selection of a remedy for Operable Unit 3 (OU3) of the Eighteen Mile Creek Superfund Site (Site) in Niagara County, New York. This remedy is being chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. §§ 9601-9675, and 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 OU3 remedy. The attached index (see **Appendix III**) identifies the items that comprise the Administrative Record for this action, upon which the selected remedy is based.

The New York State Department of Environmental Conservation (NYSDEC) was consulted on the planned remedy in accordance with Section 121(f) of CERCLA, 42 U.S.C. § 9621(f), and 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 response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The selected remedy described in this document addresses contaminated sediment and floodplain soil in a discrete portion of the Site, identified as OU3. For the purposes of this OU3 ROD, OU3 is comprised of the portion of the Eighteen Mile Creek (Creek) beginning from Harwood Street and extending downstream for approximately 5.3-miles, referred to herein as the sediment transitional area (STA)[1], as well as certain floodplain soil adjacent to the STA. As described in the Decision Summary, below, in more detail, the portion of this remedy addressing sediments is an interim remedy, and the portion addressing floodplain soils is a final remedy.

The major components of the selected interim remedy for sediment include the following:

- Excavation of contaminated sediment that exceeds the remedial action level (RAL) of 1 parts per million (ppm) for PCBs within the STA followed by backfilling with clean sand and covering with a suitable habitat layer to create conditions for the re-establishment of natural conditions in the Creek.
- Construction of access roads and staging areas in upland areas. Following remediation of the Creek, removal of the access roads and staging areas in accordance with the habitat reconstruction plan.
- Water and air quality monitoring during construction.
- Development of a monitoring plan to track PCB concentrations in sediment, surface water, and fish tissue over time in the STA.
- Institutional controls in the form of informational devices to limit exposure to PCBs. EPA is relying on existing New York State Department of Health (NYSDOH) fish consumption advisories. NYSDOH periodically reviews fish PCB data to ensure the advisories are up to date and considers whether the fish consumption advisories need modification. Other informational devices could include outreach programs to inform the public to promote knowledge of and voluntary compliance with the fish consumption advisories.

The major components of the selected final remedy for floodplain soil include the following:

- Excavation and off-Site disposal of PCB- and lead-contaminated floodplain soil exceeding the remediation goals adjacent to the STA regardless of the land use designation. Backfill of excavated areas with clean fill material and topsoil.
- Construction of temporary access roads from the remediation areas to the closest public roads and the staging area.
- Implementation of erosion and sediment controls at each remediation area to prevent the migration of floodplain soil to the Creek.
- Water and air quality monitoring during construction.
- Following remediation of the Creek, removal of the access roads and staging areas, and restoration of the impacted areas in accordance with the habitat reconstruction plan.

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[1] Although EPA's OU3 investigation of the Creek initially included the full length of the Creek downstream of Harwood Street (Reaches 9 through 1), and adjacent floodplains to this portion of the Creek, EPA has redefined OU3 to consist of the Creek (bank to bank) starting at the downstream end of OU2 (beginning of Reach 9) and extending approximately 3,800 feet downstream of the convergence with the East Branch in Reach 6 at Station 312+93, and adjacent floodplains. The STA extends for approximately 5.3 miles (28,000 ft) and includes Reaches 9, 8, 7, and the upper portion of Reach 6. The station number refers to the length of the centerline of the Creek starting from the headwaters at the Canal. The downstream extent of the STA was determined based on an assessment of the mixing and depositional zone downstream of the confluence between the East Branch and the Creek. Portions of the Creek downstream of OU3 will be addressed in a future operable unit(s).

- Development of a Site Management Plan (SMP) to provide for management of floodplain soil post-construction, including the use of institutional controls to limit future use of the commercial properties and impose restrictions on excavation, and periodic reviews.

During the remedial design, additional sampling of floodplain soil adjacent to the STA will be conducted. Risk evaluations, based on land use designations, will be performed to determine if additional properties or areas require remediation. The Creek banks will be a particular area of attention due to their high potential for use and Contaminants of Concern (COC) levels exposure by human and ecologic receptors and their potential to be a source of COC release and transport and to re-contaminate the OU3 sediment remedy if unaddressed. Design sampling will ensure that Creek banks that exceed RALs are delineated for remediation. The selected remedy is a final remedy for addressing floodplain soil in the STA.

In addition, EPA's investigations of groundwater within the Creek Corridor have not revealed a source of the generally low-level volatile organic compounds (VOCs) concentrations detected in groundwater. As a result, no action will be taken to address Creek Corridor groundwater.

The estimated present-worth cost of the selected remedy is $192,076,000.

The environmental benefits of the selected remedy may be improved by consideration, during remedy design or implementation, of technologies and practices that are sustainable in accordance with EPA Region 2's Clean and Green Energy Policy and NYSDEC's Green Remediation Policy[2].

The remaining areas of the Creek (commencing immediately downstream of the STA to the Creek's discharge at Lake Ontario) that are not addressed by this ROD would be addressed under separate, future action(s). The impoundment areas upstream of Newfane Dam and Burt Dam have historically acted as sinks for contaminated sediment, and, as such, these areas have been identified as potential sources of downstream contamination in the event of a change in the flow regime of the Creek. These remaining areas require additional evaluation to establish a final remedy for the full length of the Creek. This evaluation will identify and address the following:

- data gaps including the nature and extent of contamination within these remaining areas;
- the characteristics of the sediment bed behind the Newfane and Burt dams;
- a study of the impacts from having addressed the source areas;
- an assessment of the fate and transport mechanisms of the remaining contamination in the Creek, including residual soil contamination following excavation of floodplain soil in the STA;
- bathymetry monitoring of sediment to evaluate recovery, accumulation and/or erosion; and
- a long-term monitoring program.

After a comprehensive evaluation of the full length of the Creek is conducted, a final remedy for the entire length of the Creek will be determined. The final remedy would include final remediation

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[2] See https://www.epa.gov/sites/default/files/2016-01/documents/r2_clean_and_green_update.pdf and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf

goals for contaminated sediment, including the Creek Corridor (OU2) and the STA (OU3), as well as any additional remedial action objectives that are determined necessary, including for additional media such as surface water. In addition, floodplain soil sampling will be conducted downstream of the STA as part of a separate investigation. Separate response actions or a future operable unit(s) would address risks identified in floodplain soil downstream of the STA.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy satisfies the statutory requirements for remedial actions set forth in Section 121 of CERCLA, 42 U.S.C. § 9621, as follows: 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; 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, 42 U.S.C. § 9621, 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 (or justify not satisfying the preference). The selected remedy may satisfy the preference for treatment to the extent that contaminated material requires treatment prior to land disposal.

This remedy will result in hazardous substances, pollutants, or contaminants remaining at the Site above levels that will not allow for unlimited use and unrestricted exposure. Pursuant to Section 121(c) of CERCLA, statutory reviews will be conducted no less often than once every five years after the initiation of construction to ensure that the remedy is, or will be, protective of human health and environment. If justified by the review, additional remedial actions may be implemented to remove, treat, or contain the contaminants.

ROD DATA CERTIFICATION CHECKLIST

The ROD contains the remedy selection information noted below. More details may be found in the Administrative Record file for this action.

- Contaminants of concern and their respective concentrations may be found in the "Summary of Site Characterization" 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 contaminants of concern may be found in the " Summary of Site Risks" section;
- Cleanup levels established for contaminants of concern and the basis for these levels maybe be found in the "Remedial Action Objectives" section;
- Estimated capital, annual operation and maintenance (O&M), and total present-worth costs are discussed in the "Description of Remedial Alternatives" section;
- A discussion of principal threat waste may be found in the "Principal Threat Waste" section; and
- 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 "Comparative Analysis of Alternatives" and "Statutory Determinations" sections.

AUTHORIZING SIGNATURE

BARRY BREEN Digitally signed by BARRY BREEN Date: 2024.09.12 18:07:09 -04'00'

Barry Breen, Principal Deputy Assistant Administrator — Date
Office of Land and Emergency Management
U.S. Environmental Protection Agency

RECORD OF DECISION
DECISION SUMMARY

Operable Unit Three
Eighteen Mile Creek Superfund Site
Niagara County, New York

United States Environmental Protection Agency
Region 2
New York, New York
September 2024

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LIST OF APPENDICES

1.0 SITE NAME, LOCATION AND DESCRIPTION

The Eighteen Mile Creek Superfund Site (Site) is located in Niagara County, New York. The main channel of the Creek originates just south of the New York State Barge Canal (Canal) and flows north for approximately 15 miles until it discharges to Lake Ontario in Olcott, New York. The Eighteen Mile Creek watershed includes the two main tributaries: East Branch of Eighteen Mile Creek and Gulf Creek. A Site location map is provided as **Figure 1**.

2.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

The Creek Corridor has a long history of industrial use dating back to the 19th century when it was used as a source of hydropower. Various industrial plants operated at properties within the Creek Corridor, including the former United Paperboard Company, the White Transportation Company, the former Flintkote Company, and various operations at Upson Park. Damaged drums, ash, slag material, and contaminated fill material have been observed at these properties. Aerial photographs also suggest that by 1938, fill was disposed in the section of 300 Mill Street between the Creek and the Millrace, which is a small segment of the Creek that splits and flows around an area of soil and fill on the Flintkote property, known as the Island. Downstream of Harwood Street, Eighteen Mile Creek drops down the Niagara Escarpment and passes through approximately 12 miles of rural Niagara County. Land use within this portion of the Creek watershed consists primarily of cropland and orchards, with residential, commercial, and small industrial areas located closer to the City of Lockport and further downstream around Newfane. Several other industrial facilities are located along Eighteen Mile Creek, including the City of Lockport Wastewater Treatment Plant, VanChlor Inc., Twin Lakes Chemical, and VanDeMark Chemical. Several dams were constructed to provide power near Newfane, two of which remain today. Newfane Dam was originally built in the 1830s near the end of McKee Street and Ewings Road to provide power for the Newfane mill district; the current dam was built in 1912 and is not in service. Burt Dam was built farther north of Newfane in 1924, creating a 95-acre impoundment that extends approximately two miles upstream of the dam. The original dam generated power until the 1950s. It was restored in 1988 and still is currently operational. 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.

The people of the Tuscarora and the Tonawanda Seneca Nations fish and hunt at various locations along the Creek. The Tuscarora Nation reservation is located about 11 miles west of the City of Lockport, and the Tonawanda Seneca Nation reservation is located about 14 miles southeast of the City of Lockport.

3.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

On July 19, 2024, EPA released a Proposed Plan for cleanup of OU3 of the Site, which described a number of remedial alternatives including the preferred remedial alternative, to the public for comment. EPA made supporting documentation comprising the administrative record for that proposed decision available to the public at the information repositories maintained at the EPA Region 2 Office in New York City, the Lockport Public Library, 23 East Avenue in Lockport, the Newfane Public Library, 2761 Maple Avenue, Newfane, and EPA's website for the Site at: www.epa.gov/superfund/eighteenmile-creek.

EPA published notice of the start of a public comment period and the availability for the above-referenced documents in the *Lockport Union-Sun Journal* on July 19, 2024. A copy of the public notice published in the *Lockport Union-Sun Journal* can be found in **Appendix V**. EPA accepted public comments on the Proposed Plan from July 19, 2024 through August 19, 2024.

On August 1, 2024, EPA held a public meeting at the Newfane Town Hall located at 2737 Main Street, Newfane, New York, to inform local officials and interested citizens about the Superfund process, to present the Proposed Plan for OU3 of the Site, including the preferred remedial alternatives, and to respond to questions and comments from the attendees. Responses to the questions and comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary (see **Appendix V**).

4.0 SCOPE AND ROLE OF RESPONSE ACTION

Section 300.5 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.5, defines an OU as a discrete action that comprises an incremental step toward comprehensively addressing a site's problems. A discrete portion of a remedial response eliminates or mitigates a release, a threat of release, or a pathway of exposure. The cleanup of a site can be divided into a number of OUs, depending on the complexity of the problems associated with the site. The EPA also uses interim actions to address areas or contaminated media, such as sediment, that ultimately may be included in the final record of decision for a site. Interim actions are used, for example, to institute temporary measures to stabilize a site or operable unit and/or prevent further migration of contaminants or further environmental degradation until such time as a final remedial decision is made. As noted above, to date EPA has designated the following OUs for the Site.

- OU1 addressed the risks associated with the residential soil contamination at nine residential properties located on Water Street and the threats posed from the deteriorating building at the Flintkote property. On September 30, 2013, EPA selected a final cleanup plan for OU1 (OU1 ROD). As part of EPA's selected remedy for OU1, residents on Water Street were permanently relocated from their homes because of the presence of PCB-contaminated soils in residential yards and the likelihood of recontamination based on recurring flooding of the properties with PCB-contaminated water and sediments from the Creek, given their properties' location within the Creek's floodplain. It was determined that the OU1 soil excavation work would be performed at the time of the cleanup of the OU2 sediments to prevent the Creek from re-contaminating the above-referenced residential properties subsequent to their cleanup. Following the relocations, the structures at the OU1 properties were demolished. The buildings at the Flintkote property were also demolished.
- OU2 addresses the contaminated soil at the following properties adjacent to the Creek: the former United Paperboard Company property, the White Transportation property, the former Flintkote Plant property (Flintkote), and Upson Park. OU2 also addresses contaminated sediment within the Creek Corridor; an approximately 4,000-foot segment of the Creek that extends from the Canal to Harwood Street in the City of Lockport. The cleanup plan for OU2 includes bank-to-bank excavation of sediment in the Creek Corridor and a combination of soil excavation and capping at the upland properties. This remedy is currently in the remedial action phase and began in Summer 2024.
- OU3, the subject of this remedy, addresses sediments within a portion of the Creek, referred

to as the Sediment Transition Area (STA)[3]. The STA is a subset area of the full length of the Creek comprising the portion of the Creek beginning from Harwood Street and extending downstream for approximately 5.3 miles (upper portion of Reach 6 through Reach 9; see **Figure 2**). The selected remedy in this OU3 ROD is an interim action for sediments in the STA and is not intended to attain acceptable Contaminants of Concern (COC) levels in all media throughout the Creek. A future, final remedy will establish acceptable COC levels in sediments that are protective of human health and the environment. Floodplain soils impacted by the Creek adjacent to the STA are also included within this OU. Creek Corridor groundwater is also included in this OU. The selected remedy in this OU3 ROD is a final remedy for floodplain soil adjacent to the STA and groundwater.

- OU4 addresses lead-contaminated soils at certain residential properties in the vicinity of the former Flintkote Property. EPA selected a cleanup plan for OU4 (in the OU4 ROD) in 2019, which calls for the excavation and off-Site disposal of lead-contaminated soils found to be located at the residential properties. The remedy for the first phase of the OU4 remediation includes 33 residential properties, and construction began in Summer 2024. Soil sampling at additional residential properties, referred to as Phase 2 of OU4, is ongoing.

Future Operable Unit(s)

The remaining areas of the Creek (commencing immediately downstream of the STA to the Creek's discharge at Lake Ontario) that are not addressed by this ROD will be addressed under separate, future action(s). The impoundment areas upstream of Newfane Dam and Burt Dam have historically acted as sinks for contaminated sediment, and as such these areas have been identified as potential sources of downstream contamination in the event of a change in the flow regime of the Creek. **Figure 3** depicts the location of these two dams. These remaining areas require additional evaluation to establish a final remedy for the full length of the Creek.

After a comprehensive evaluation of the full length of the Creek is conducted, a final remedy for the entire length of the Creek will be established. The final remedy would include final remediation goals for contaminated sediment, including the Creek Corridor (OU2) and the STA (OU3), as well as any additional remedial action objectives that are determined necessary, including for additional media such as surface water. In addition, floodplain soil sampling will be conducted downstream of the STA as part of a separate investigation. Separate response actions or a future operable unit(s) would address risks identified in floodplain soil downstream of the STA.

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[3] Although EPA's OU3 investigation of the Creek initially included the full length of the Creek downstream of Harwood Street (Reaches 9 through 1), and adjacent floodplains to this portion of the Creek, EPA has redefined OU3 to consist of the Creek (bank to bank) starting at the downstream end of OU2 (beginning of Reach 9) and extending approximately 3,800 feet downstream of the convergence with the East Branch in Reach 6 at Station 312+93, and adjacent floodplains. The STA extends for approximately 5.3 miles (28,000 ft) and includes Reaches 9, 8, 7, and the upper portion of Reach 6. The station number refers to the length of the centerline of the Creek starting from the headwaters at the Canal. The downstream extent of the STA was determined based on an assessment of the mixing and depositional zone downstream of the confluence between the East Branch and the Creek. Portions of the Creek downstream of OU3 will be addressed in a future operable unit(s).

5.0 SUMMARY OF SITE CHARACTERISTICS

5.1 Overview

The area encompassing OU3 consists of residential properties, vacant land, some light commercial use and agricultural land. It is expected that the future land use in this area will remain the same.

5.2 Geology and Hydrogeology

Overburden deposits throughout OU3, and much of the Creek Corridor consists of mostly glacial tills and lacustrine silts and clays overlying bedrock. According to the Soil Survey of Niagara County *(U.S. Department of Agriculture, Soil Conservation Service, 1972*), the length of the majority of OU3 is classified as glacial till with areas of lake-laid sands and silts with reported gravelly glacial outwash along the Olcott Harbor.

Observations made during the remedial investigation within the Creek Corridor are generally consistent with previous geologic studies of the area that indicate glacial tills and lacustrine silts and clays overlying bedrock of the Clinton and Medina Groups along Clinton Street, which include the Thorold and Grimsby Formations. The overburden on and around the Canal Corporation property was observed to consist mainly of sandy fill material and weathered bedrock likely from historical construction of the Erie Canal overlying native lacustrine silts and clays. Based on the regional stratigraphic and structural information and depths of bedrock wells, it is believed that the bedrock wells are set within the Thorold and Grimsby Formations of the Medina Group.

The Eighteen Mile Creek watershed is located within both the Ontario and Huron plains, which are two relatively flat plains that are separated by the Niagara Escarpment, which runs generally east/west along the northern portion of the City of Lockport. The watershed has a drainage area of approximately 90 square miles and includes Eighteen Mile Creek; two main tributaries, the East Branch of Eighteen Mile Creek and Gulf Creek; and several minor tributaries (see **Figure 1**). Within the watershed area, the escarpment ranges from 100 to 175 feet. The maximum elevations within the watershed occur within the Huron Plain in the southern portion of the watershed and are approximately 635 feet above mean sea level (AMSL) in the southwestern portion and approximately 655 feet AMSL along the southeastern extent.

The Headwater West Branch and the Main Branch of Eighteen Mile Creek are located within a well-incised, steeply sloped channel for most of their lengths in the Creek Corridor. The channel walls range in height, but average approximately 35 feet. In OU3, the East Branch and Gulf Creek lacks the incised channel characteristic of the rest of Eighteen Mile Creek.

The Creek Corridor is located in an area of deep, well-drained to excessively drained, medium-textured soils formed in glacial outwash deposits composed primarily of sand and gravel. The remaining area north in OU3 is located mainly in deep, somewhat poorly drained and moderately well-drained soils, and medium-textured loamy soil over fine and very fine sand.

Groundwater underlying the Creek Corridor area occurs in both the soil and fill material above the bedrock (the overburden) and the upper fractured bedrock, and it flows toward the Creek along some portion of the Corridor. The City of Lockport is the provider of potable water to residents within the Creek Corridor and surface water from the east branch of the Niagara River is its primary source.

5.3 Results of the Previous Investigations

Creek Corridor

Beginning in 1999, NYSDEC conducted several investigations at the Site related to the Creek Corridor. NYSDEC investigations of the former United Paperboard Company property, Upson Park, and the White Transportation property documented the presence of fill material on these properties, with surface and subsurface soil and fill contaminated with PCBs, metals, and semi-volatile organic compounds (SVOCs). The erosion and runoff of contaminated fill material from properties adjacent to the Creek appears to be the primary mechanism for transport of contamination to the Creek. PCBs and lead concentrations in soil at these properties are as high as 630 parts per million (ppm) and 77,300 ppm, respectively. Sediment samples collected in the Creek Corridor and the Millrace revealed concentrations of PCBs and lead up to 25,400 ppm and 15,000 ppm, respectively. A turbine located at the Flintkote property is also believed to be a source of PCB contamination in the Creek. As mentioned in the Scope and Role section above, EPA selected the OU2 remedy to address soil and sediment contamination in the Creek Corridor in 2017. The remedial design that provides the detailed specifications for the performance of that remedy has been completed, and construction activities for this work began this summer.

Sediment

Several studies were completed under projects funded by EPA Region 2, the EPA Great Lakes Legacy Act (GLLA), and the EPA Great Lakes Restoration Initiative (GLRI). EPA's Great Lakes National Program Office (GLNPO) has identified part of the Eighteen Mile Creek as an area of concern (AOC) for Lake Ontario as part of its GLRI because of its sediment contamination and poor water quality. In March 2015, a report summarizing data collected for the characterization of the AOC under the GLLA program was prepared for the EPA's GLNPO. The RI report included sediment data collected under investigations performed by various agencies from Olcott Harbor (mouth of the Creek) upstream through the City of Lockport to the Canal and including the Creek Corridor. The results of the RI are presented in the 2015 report entitled "Final Remedial Investigation Report, Eighteen Mile Creek, Remedial Investigation/Feasibility Study."

Surface Water

While surface water in the Creek has not been extensively sampled as part of previous sediment investigations, water quality has been evaluated as part of regional studies conducted by EPA and NYSDEC. Historical samples collected to measure concentrations of PCBs, mercury, and dioxins/furans were obtained in 1993 and 1994 as part of a NYSDEC study to track contaminants to Lake Ontario. Results of this study are presented in a report entitled, *Trackdown of Chemical Contaminants to Lake Ontario from New York State Tributaries*.

GLNPO conducted semiannual monitoring of the surface water discharge from Eighteen Mile Creek and several other tributaries from 2002 to 2010. Results from these monitoring events are presented in the 2011 report entitled, *Field Data Report, Lake Ontario Tributaries*.

The data indicate that Eighteen Mile Creek had the highest PCB concentrations (0.043 - 0.093 micrograms/liter (µg/L)) in surface water compared to other major tributaries to Lake Ontario.

Bioaccumulation

The U.S. Army Corps of Engineers performed two studies in 2003 that focused on bioaccumulation and food web modeling that established a significant bioaccumulation potential for PCBs in fish tissue by collecting sediment and fish samples in the Creek. The earliest studies focused on the area downstream of Burt Dam, and more recent investigations included collecting sediment and fish tissue data from upstream of Burt Dam and Newfane Dam. In part, the studies found that PCBs were highly bioavailable and predicted to cause wildlife bioaccumulation risks. Results from these studies are presented in the following 2004 reports: "*Volume I (Project Report Overview): Sediment Sampling, Biological Analyses, and Chemical Analyses for Eighteenmile Creek*", "*Volume II: Laboratory Reports Sediment Sampling, Biological Analyses, and Chemical Analyses for Eighteenmile Creek AOC*", and "*Final Bioaccumulation Modeling and Ecological Risk Assessment, Eighteenmile Creek Great Lakes Area of Concern.*"

For the Niagara County Soil and Water Conservation District, several studies were completed to evaluate beneficial use impairments in the Eighteen Mile Creek AOC. A study was performed in 2006 to evaluate whether PCBs and metals continued to migrate from upstream source areas and to identify other potential sources of contamination. Another investigation was conducted in 2007 downstream of Burt Dam to determine: (a) whether the Eighteen Mile Creek AOC was impaired based upon the existence of fish tumors and other deformities, (b) the status of fish and wildlife populations, and (c) the status of any bird or mammal deformities or reproductive impairment. Finally, baseline benthic community and fish sampling and a pilot study on the use of powdered activated carbon to reduce PCB bioavailability in Eighteen Mile Creek sediment were completed in 2012.

More recent studies assessing beneficial use impairments in the Eighteen Mile Creek AOC are also included in the Administrative Record file.

New York State Department of Health (NYSDOH) has also monitored fish populations in the Creek, and there is currently a fish consumption advisory for the entire Eighteen Mile Creek issued by NYSDOH because of the presence of PCBs. For more information regarding the advisory, please refer to the following website www.health.ny.gov/environmental/outdoors/fish/health_advisories/by_county.htm?county=niagara.

5.3.1 Results of EPA's Operable Unit 3 Remedial Investigation

In 2018, EPA initiated a separate investigation of sediments, surface water, biota, and floodplain soil along the Creek. Groundwater within the Creek Corridor was further investigated as part of EPA's investigations in an effort to define the nature and extent of the groundwater contamination and locate the source(s) of the low-level concentrations detected during previous studies.

Consistent with previous investigations, the Creek was divided into smaller investigation areas, or reaches, based on the following physical characteristics (see **Figure 2**):

- **Reach 1** consists of the Creek channel from Burt Dam to the mouth of the Creek in Olcott Harbor where the Creek discharges into Lake Ontario.

- **Reach 2** consists of the impoundment immediately upstream of Burt Dam.
- **Reach 3** is the historical channel that was flooded after the Burt Dam was installed.
- **Reach 4** is the section of the Creek located immediately downstream of Newfane Dam.
- **Reach 5** consists of the impoundment immediately upstream of Newfane Dam.
- **Reach 6** extends from the upstream end of the Newfane Dam impoundment to the confluence of the main channel and the East Branch.
- **Reach 7** runs from the confluence of the main channel and the East Branch to the downstream portion of the Niagara Escarpment.
- **Reach 8** is a 2,000-foot-long section of the Creek that cascades down the steep gradient of the Niagara Escarpment.
- **Reach 9** is an approximately 1,000-foot-long section of the Creek immediately downstream of OU2.

The following provides an overview of the sampling conducted by EPA in the Creek over multiple phases.

Phase IA, conducted from May to June 2018, included surface water, floodplain soil, and soil sampling of agricultural areas that were irrigated with Creek water. Bathymetric surveys and light detection and ranging (LiDAR) surveys were also conducted. Five groundwater monitoring wells were installed on the west side of the Creek Corridor.

Phase IB, conducted from October to November 2018, included surface water sampling. Game and forage fish from the Creek were collected, and tissue samples were analyzed. Groundwater sampling was conducted from monitoring wells installed in Spring 2018 as well as existing wells in the Creek Corridor.

Phase IIA, conducted in July 2019, included surface water sampling targeting high-flow events and floodplain soil.

Phase III, conducted from October to November 2020, included the following: surface water sampling targeting high-flow and low-flow events; a filtration study to examine the relationship between particle size and PCB concentrations in surface water; floodplain soil sampling; surface sediment sampling; sediment core collection and analysis; additional bathymetric surveys; and young-of-year[4] fish sampling.

The results indicate that chemical contamination of the sediment in the Creek generally decreases in concentration moving downstream (the Reach numbers descend from Reach 9 to Reach 1 as they flow downstream to Lake Ontario). For Reaches 1 through 9, the highest concentrations of PCBs were detected in Reaches 6 and 7 where a significant portion of the contaminated sediment has settled. A maximum PCB concentration at 97 ppm was detected in Reach 7. Elevated concentrations of PCBs and lead are found in shallow and deeper sediments behind Burt Dam and Newfane Dam. Lead concentrations ranged from 3.8 ppm in Reach 5 to a maximum concentration of 6,760 ppm in Reach 2. The higher concentrations in the sediment at depth behind the dams indicate that the major contributions of PCBs and lead were from historical sources. However, high concentrations of PCBs in both the total and dissolved phases of surface water indicate that

[4] "Young-of-year" refers to all the fish species that are younger than one year of age.

PCBs in the shallow sediments of Reaches 6 and 7 are being transported and deposited downstream by sediment resuspension and resettling.

Floodplain soil sampling in areas prone to flooding revealed maximum PCB and lead concentrations of 26 ppm and 2,630 ppm, respectively. The higher concentrations for both PCBs and lead were primarily on properties within Reach 7. Areas with steeper banks were not impacted by deposition of contaminated sediment. Soil sampling conducted in nearby areas irrigated with water from the Creek did not reveal PCB detections.

Surface water was analyzed over three years under a range of flow conditions. Additional studies designed to understand contaminant sources and migration pathways included passive sampler and filtration studies. While PCBs were consistently detected in both the whole-water and field-filtered samples, based on the absolute magnitude of total PCB concentration in whole-water samples compared to the total PCB concentration in the field-filtered samples, suspended solids contribute the largest load of PCBs into the water column. For example, total PCB concentrations ranged from 20 to 160 ng/L for whole-water samples collected from 2018 to 2020, whereas the corresponding field-filtered samples, where suspended solids were removed, had reported total PCB concentration of less than 7 ng/L. Lead was consistently detected in the whole-water samples in all reaches of the Creek at concentrations that exceed background levels. Lead was not consistently found in the dissolved phase. Lead concentrations in Reaches 1 to 7 are comparable to the concentration in the OU2 source area. Except for the lead concentrations collected during very high flows, resuspension of the contaminated sediment does not appear to be a significant mechanism to transport lead in the water column currently. In general, metals in surface water are not currently a significant contaminant source or migration pathway. In addition, other contaminants such as polycyclic aromatic hydrocarbons also are not currently a significant contaminant source or migration pathway in surface water. As discussed below, migration of sediment via surface water, however, is likely the mechanism for transport of contamination in the Creek downstream of the OU2 sources.

The uptake of PCBs from sediment and surface water has resulted in elevated concentrations of PCBs in fish tissue and biota. Sampling of game fish including largemouth bass, northern pike, and walleye revealed PCB concentrations ranging from 0.26 ppm to 27 ppm. Sampling of forage fish including pumpkinseed, common shiner, and rock bass revealed maximum PCB and lead concentrations of 8.5 ppm and 8.3 ppm, respectively. Mercury detections in the fish from the Creek are generally low.

Contaminant Fate and Transport

The main transport method of contaminated material in the Creek is through sediment movement in the surface water with deposition in sediment beds and on floodplains. This sediment transport has been identified to occur through the following two processes: (1) transport of fine-grained sediment through resuspension of fine sediment in the water column, with the suspended fine sediments being transported downstream, and the settling of suspended sediments in quiescent conditions; and (2) movement of sand as bed load and resettlement.

The transport of contaminants throughout the Creek is influenced by the geology, hydrology, and geomorphology of the surrounding area along with the presence of wetlands, structures, and obstructions in the Creek.

An analysis of sediment erosion and deposition and contaminant movement at the Site revealed the following:

- Upstream sources of PCBs in OU2 likely contribute to PCB concentrations in surface water and sediment in the STA and further downstream; and
- High flows or other disturbances can mobilize the elevated concentrations of PCBs in Reaches 7 and 6 and redistribute them downstream.

5.4 Environmental Justice

According to EPA's EJScreen: Environmental Justice Screening and Mapping Tool, www.epa.gov/ejscreen, there are no demographic indicators for communities on each side of the Creek along OU3 of the Site that would indicate a community with environmental justice concerns. However, an EJScreen analysis of the local community upstream of OU3, including the area encompassing OU1, OU2 and OU4, found that this area exceeded the 80th percentile relative to the rest of New York State for air toxics cancer risk and lead-based paint. The Air Toxics Cancer Risk results are based upon lifetime cancer risk from inhalation of air toxics, as risk per lifetime per million people. The remedy is not anticipated to result in adverse impacts to environmental resources that would affect the populations living within the vicinity of the Site.

5.5 Climate Change

Low-lying areas within the City of Lockport are subject to flooding. The *Resilient New York Flood Mitigation Initiative Report for Eighteen Mile Creek*, dated November 2020, states that more frequent and intense precipitation events are expected because of climate change, resulting in a higher likelihood of flooding along the Creek. The increased flooding may reduce the lifespan of capping and backfill material through increased erosional forces from faster flow.

6.0 CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

6.1 Land Uses

In OU3 land use includes vacant land, residential, commercial, and agricultural. The land uses vary slightly between the reaches. Residential land use accounts for the highest percentage in more populous areas along Reaches 1, 2, and 4. Vacant land accounts for the highest percentage of land use in less populous areas along Reaches 3, 5, 6, 7, and 8.

Within OU3 there are several industrial facilities and inactive hazardous waste sites located along or in vicinity of the Creek, including the Lockport Wastewater Treatment Plant (Reach 7), the Old Upper Mountain Road Landfill site on Gulf Creek (Reach 7) and VanDeMark Chemical, Inc. (Reach 8).

6.2 Groundwater

As discussed above in Section 5, the groundwater investigations that were conducted as part of the OU3 Remedial Investigation (RI) were a continuation of the groundwater investigation of the Creek Corridor conducted during the OU2 RI. Groundwater in the geographic area of OU3 was not investigated as part of the OU3 Remedial Investigation/Feasibility Study (RI/FS).

The most recent groundwater sampling conducted in 2018 and 2019 generally showed low level concentrations of VOCs, including trichloroethylene (TCE), with some exceedances of federal maximum contaminant levels (MCLs) and state standards in some monitoring wells. For example, in 2019, the highest concentration of TCE was detected in well MW-14, at a concentration of 11 µg/L, compared to the federal MCL and state standard of 5 µg/L. This represents a decline from 2007, when TCE was detected in MW-14 at a concentration of 20 µg/L.

The results also revealed fluctuating concentrations in TCE daughter products (cis-1, 2-dichloroethylene, trans-1, 2-dichloroethylene, and vinyl chloride), with higher concentrations of the daughter products occurring downgradient of the TCE detections. For example, at MW-5 cis-1, 2-dichloroethylene was detected at a concentration of 8.4 µg/L in 2019, compared to the federal MCL and state standard of 70 µg/L and 5 µg/L, respectively. This represents a decline from 2007. Historically, TCE has not been detected in MW-5. Trend analyses including historical data collected by NYSDEC beginning in 2007 show an ongoing reduction in concentrations of chlorinated VOCs. Furthermore, the City of Lockport is the provider of potable water to residents within the Creek Corridor and surface water from the east branch of the Niagara River is its primary source.

The groundwater investigation within the Creek Corridor identified a limited area of contamination with no historical or active source of VOCs and evidence of on-going natural attenuation of the contaminants in the groundwater. Since groundwater is not expected to be a significant source of contamination to the Creek, it was determined that groundwater in the Creek Corridor would not be addressed further as part of the FS.

7.0 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 and resource uses. The baseline risk assessment includes a baseline human health risk assessment (BHHRA) and a Screening Level Ecological Risk Assessment (SLERA). It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. This section of the ROD summarizes the results of the risk assessments for OU3 of the Site.

7.1 **Human Health Risk Assessment**

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

- Hazard Identification – uses the analytical data collected to identify the contaminants of potential concern 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 NCP as an excess lifetime cancer risk greater than 1×10^{-6} to 1×10^{-4} (one in a million to one in ten thousand) or a non-cancer Hazard Index (HI) greater than 1 (HI > 1); contaminants at these concentrations are considered chemicals of concern (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.

7.1.1 Hazard Identification

The COCs 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.

Site COCs included PCBs and metals in soil, sediment, and fish. The associated risks and hazards from exposure to these chemicals are discussed in the sections below.

Table 1: Selection of Exposure Pathways provides a list of potential exposure pathways under Current and Future exposure assumptions, including the rationale for the selection of each pathway. A comprehensive list of all Chemicals of Potential Concern (COPCs) can be found in the BHHRA and in the administrative record for the Site. Only the COCs, or those chemicals requiring remediation at the Site, are listed in risk **Table 2: Contaminants of Concern**.

7.1.2 Exposure Assessment

The BHHRA is a baseline human health risk assessment and therefore assumes no remediation has been performed and no institutional controls (ICs) are in place to mitigate or remove hazardous substance releases. Cancer risks and non-cancer HIs were calculated based on an estimate of the RME expected to occur under current and future Site conditions. The RME is defined as the highest exposure that is reasonably expected to occur at the Site.

The Site is currently zoned for residential and commercial land use within this portion of the Eighteen Mile Creek watershed and consists primarily of cropland, orchards and vacant land, with residential, commercial, and small industrial areas located closer to the City of Lockport and around Newfane. Newfane includes the hamlet of Newfane on Route 78, which is centrally located within the town and on the east bank of Eighteen Mile Creek (see **Figure 2**). Several other industrial facilities and inactive hazardous waste sites are located along or in the vicinity of Eighteen Mile Creek within OU3, including the City of Lockport Wastewater Treatment Plant, VanDeMark Chemical, Inc., and the Old Upper Mountain Road Landfill site on Gulf Creek.

The BHHRA evaluated current and future risks to the recreational user, angler, and visitor trespasser on a reach-specific basis. In addition to the recreational areas within the OU3 area, there are several residential properties along the Site study area. Current and future risks to the residents were individually evaluated based on samples collected on the individual residential properties during the RI. Risks were evaluated under baseline conditions, in the absence of any remedial action and/or institutional controls to prevent exposure. The COCs that are found in surface water and sediment in the creek are consumed by biota, and contaminants, such as PCBs, that are known to bioaccumulate and bio-magnify within the food chain. Therefore, the following receptors were evaluated in the BHHRA:

- **Recreational users:** Adult (older than 18 years), adolescent (7 to 18 years), and children (6 years and younger) exposed through incidental ingestion and dermal contact with surface water; incidental ingestion and dermal contact with sediment; and inhalation of dust particles from floodplain soil and exposed Creek nearshore sediment.

- **Visitor/trespasser:** Adult, adolescent, and children exposed through incidental ingestion, dermal contact, and inhalation of dust particles with floodplain soil.

- **Resident:** Adult and children exposed through incidental ingestion, dermal contact, and inhalation of dust particles from floodplain soil.

- **Angler:** Adult and adolescent exposed through incidental ingestion of and dermal contact with surface water, incidental ingestion, dermal contact, and inhalation of dust particles from floodplain soil and nearshore sediment in the Creek.

- **Fish Consumers:** Adult, adolescent, and child exposed through ingestion of fish caught in the Creek.

EPA anticipates that the future land use will remain consistent with current use. The BHHRA evaluated potential risks to populations associated with both current and potential future land uses.

The assessment of the transect data included the following assumptions:

- Properties zoned as residential were assessed individually under a residential exposure scenario.
- Creek bank/floodplain soil samples were collected along 13 total soil transects located in five of the nine reaches, with the transects extending in a perpendicular direction away from the banks of the Creek. The sample locations were selected based on the potential for exposure from flooding.
- Soil samples collected from the floodplain areas were used in the risk assessment to assess exposures of residents on a property-by-property basis, as well as exposures of the angler or recreational user who are exposed on a less frequent basis than the resident.
- In some limited instances, a transect traversed more than one property.

Exposures to fish tissue under current/future exposures were evaluated in Zone 3.[5]

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[5] For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of the reaches that are included in OU3.

Exposure pathways were identified for each potentially exposed population and each potential exposure scenario for the soil, sediment, surface water, and fish. A summary of the exposure pathways evaluated in the BHHRA can be found in **Table 1: Selection of Exposure Pathways.** **Table 2: Contaminants of Concern** summarizes the minimum/maximum concentrations, detection frequency, and selection of Contaminants of Concern.

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 based on the number of samples collected. A summary of the exposure point concentrations for the COCs in each medium can be found in **Table 3: Summary of Contaminants of Concern and Medium-Specific Exposure Point Concentrations**. A comprehensive list of the exposure point concentrations for all COPCs can be found in the BHHRA.

The Exposure Assessment evaluates current and future exposures to contaminants in surface soil/sediment, residential soil and fish. The BHHRA provides the specific exposure assumptions for the RME and Central Tendency Exposure (CTE) or Average Exposures for receptors including young children, adolescents, and adults. Exposure factors and other values were largely obtained from EPA's Standard Default Exposure Assumptions, Risk Assessment Guidance for Superfund Parts E and F, and a 1991 study on fish consumption and are detailed in the BHHRA.

7.1.3 Toxicity Assessment

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 non-cancer 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 non-cancer health effects.

Under current EPA guidelines, the likelihood of carcinogenic risks and non-cancer hazards due 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 risks and non-cancer hazards associated with exposures to individual COPCs were summed to indicate the potential risks and hazards associated with mixtures of potential carcinogens and noncarcinogens, respectively.

Non-Cancer Toxicity Values: Toxicity data for the BHHRA were obtained from the EPA 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 detailed in **Table 4: Non-Cancer Toxicity Data Summary**. Additional toxicity information for all other COPCs are available in the BHHRA. **Table 5** identifies chronic toxicity values including information on the Oral Reference Dose (RfD) and Inhalation Reference Concentration (RfC).

Cancer Toxicity Values: Chemicals are classified based on the potential to cause cancer. The five classifications include: Known Human Carcinogen, Probable Human Carcinogen, Possible Human Carcinogen, Not Classifiable Human Carcinogen, and Non-Human Carcinogen. In addition, Cancer Slope Factors (CSFs) are used to evaluate plausible upper bound estimates of actual cancer risks when combined with exposure assumptions. **Table 5: Cancer Toxicity Data Summary** summarizes the cancer toxicity data for oral and inhalation exposures for the chemicals evaluated in the BHHRA.

7.1.4 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 non-cancer health hazards.

Noncarcinogenic Hazards

Non-cancer hazards were assessed using a HI approach, based on a comparison of expected contaminant intakes and benchmark comparison levels of intake (RfDs, RfCs). RfDs and 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 RfDs or the RfCs to derive the Hazard Quotient (HQ) for the contaminant in the particular media. The HI is obtained by adding the HQs 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 represent the same exposure period (*i.e.*, chronic, sub-chronic, or acute).

The HI is calculated by summing the HQs for all chemicals for likely exposure scenarios for a specific population (*e.g.*, young child, adolescent, or adult). The non-cancer HI is a "threshold level," set at an HI of less than 1, below which non-cancer health effects are not expected to occur. An HI greater than 1 indicates that the potential exists for noncarcinogenic health effects to occur due to site-related exposures, with the potential for health effects increasing as the HI increases. When the calculated HI for all chemicals for a specific population exceeds 1, separate HQ 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 non-cancer 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 hazards associated with these chemicals for each exposure pathway is provided in **Table 6: Risk Characterization Summary - Non-Carcinogens Hazards** for Transects 10 to 25 for those transects with non-cancer HIs greater than the goal of protection of HI = 1.

Table 6 indicates that the HI for non-cancer effects are primarily from PCBs (effects on the immune system). The Young Child Resident in Transects 10, 13, 15, 19, 20, 22, 23, and 25 exhibits HIs above 1 as a result of exposure to PCBs via floodplain soil. The adult, adolescent, and young child consuming fish from the creek exceeded an HI equal to 1, primarily due to PCBs.

Carcinogenic Risks

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 CSF 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 equation below, while the equation for inhalation exposures uses the IUR, rather than the CSF. **Table 7: Risk Characterization Summary - Cancer Risks**, provides the results.

Risk = LADD x SF

Where: Risk = a unitless probability (1×10^{-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 NCP, the acceptable risk range for site-related exposure is 10^{-6} to 10^{-4}.

Results of the BHHRA presented in **Tables 6 and 7** provide the Risk Characterization for Non-carcinogens and Carcinogens, respectively. The following bullet explains how PCBs and dioxin-like PCBs were evaluated:

The assessment evaluated potential cancer risks and non-cancer hazards from exposure to dioxin-like and non-dioxin-like PCB congeners. The evaluation did not identify enhancement of risks and hazards from exposures to PCBs. The Uncertainty Section describes these uncertainties.[6]

Table 7: Risk Characterization Summary – Carcinogens summarizes the calculated risks from exposure to PCBs based on Aroclors 1248, 1254, and 1260. The Young Child Resident in Transect 19 exhibits a risk of 1.2×10^{-4} that exceeds the risk range of 1×10^{-6} to 1×10^{-4} as a result of exposure to PCBs via floodplain soil. As shown in **Table 7**, cancer risks from ingestion of fish

[6] PCBs are a group of man-made organic chemicals consisting of carbon, hydrogen and chlorine atoms. The number of chlorine atoms and their location in a PCB molecule determine many of its physical and chemical properties. PCBs have a range of toxicity. Compounds that have chemical structures, physico-chemical properties, and toxic responses similar to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) are referred to as "dioxin-like" PCBs. These chemicals persist and bioaccumulate in fatty tissues of animals and humans. EPA evaluates PCBs as dioxin-like and non-dioxin-like compounds in the risk assessment based on sampling data results to ensure risks are appropriately captured.

caught also exceeded the risk range for the adult (3.7×10^{-3}), adolescent (2.3×10^{-3}), and young child (2.0×10^{-3}).

Lead

Lead was evaluated using the Integrated Exposure Uptake Biokinetic (IEUBK) and Adult Lead Model (ALM) models. The models evaluated potential blood lead levels and the percentage of individuals with blood lead levels (BLLs) greater than 5%. **Table 8** summarizes the Lead Model Results for the adult and child.

The mean lead concentration was used to calculate the probability of the maternal blood level exceeding the target blood level of 5 µg/dL in accordance with EPA guidance. Where risk from lead was evaluated for non-residential exposure, the probability of exceeding 5 µg/dL was less than 5%.

The IEUBK model results show that sediment exposures in Reaches 6 and 7 are associated with predicted elevated BLLs greater than the goal of 5% or less of the exposed population with BLLs greater than 5 µg/dL. Exposures to floodplain soil in the transects identified in **Table 8** are associated with predicted elevated BLLs above the goal of no more than 5% of the populations with BLLs above 5 µg/dL.

Section 8.1 details the remediation goals for lead in soil. Further detail on the non-cancer hazards and cancer risks from all COCs, as well as the evaluation of exposure to lead, can be found in the BHHRA.

7.2 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.

In July 2018, a screening level ecological risk assessment (SLERA) was completed for the full length of the Creek. The purpose of the SLERA was to assess risk posed to ecological receptors because of Site-related contaminants. The SLERA indicates that ecological risks may be present for benthic macroinvertebrates and wildlife that consume invertebrates from soil or sediment. A copy of the Final Screening Level Ecological Risk Assessment, dated July 2018, is available in the Administrative Record file for this Operable Unit.

In an effort to better define risks, in 2019 and 2020 additional sampling was conducted to investigate sediment toxicity and bioaccumulation of contaminants from soil and sediment into invertebrates that reside in those media. The results were incorporated in a baseline ecological risk assessment (BERA).

While the BERA evaluated the portion of the Creek beginning at the end of the Creek Corridor (Harwood Street) and continuing to where the Creek discharges into Lake Ontario in Olcott, the evaluation of potential ecological hazards and chemical of potential ecological concerns (COPECs) was separated into three distinct areas of the Creek. The three areas are: (1) Downstream from Burt Dam, (2) Between Burt Dam and Newfane Dam, and (3) Upstream from Newfane Dam. For the purposes of this Proposed Plan, the results presented below are for the area upstream of Newfane Dam, including the STA.

<u>Surface Soil</u>

Terrestrial invertivores wildlife (*e.g.,* American robin and shrew) are highly at risk to surface soil exposure. Through direct exposure, incidental ingestion of contaminated soil and consumption of contaminated food items it was determined that several contaminants of concern (COCs) pose a risk to terrestrial invertivores that feed and dwell within the flood plain soils (*i.e.*, HQs exceeded 1.0 for one or more contaminants). COCs, including PCBs and lead, can accumulate in soil fauna and subsequently put American robin and shrew at risk to COCs exposures.

<u>Sediment</u>

Insectivorous aquatic-dependent wildlife (*e.g.*, tree swallow and little brown bat) and fish-eating wildlife (*e.g.*, great blue heron and mink) are highly at risk to sediment exposure. Through direct exposure, incidental ingestion of contaminated sediment and consumption of contaminated food items it was determined that several COCs, including PCBs and lead, pose a risk to insectivorous aquatic-dependent life and fish-eating wildlife that feed and dwell within the contaminated sediment (*i.e.*, HQs exceeded 1.0 for one or more contaminants). COCs accumulated in benthic macroinvertebrates and forage fish population can put tree swallow, little brown bat, blue heron and mink at risk to COCs exposures.

Overall, the BERA results revealed a wide range of contaminants that present risks to various ecological receptors. The major source of risk from Site-related contaminants are PCBs and metals. The affected ecological receptors are insectivorous aquatic dependent wildlife (*e.g.*, tree swallow and little brown bat), terrestrial insectivorous wildlife (*e.g.*, American robin and shrew), and fish-eating wildlife (*e.g.*, great blue heron and mink). Based on the results of the BERA, ecological receptors in areas upstream from Newfane Dam are greatly affected by contaminants.

7.3 Summary of Human Health and Ecological Risks

The results of the HHRA indicate that contamination present in the STA poses unacceptable cancer risks and non-cancer health hazards. In addition, concentrations of lead in soil at adjacent floodplain properties exceed EPA's goal of protection, no more than 5% of the population with BLLs above 5 µg/dL. The consumption of fish from the STA within OU3 of the Site also presents an unacceptable human health exposure risk (cancer risks and non-cancer hazards). Overall, the

BHHRA found cancer risks and non-cancer hazards for various receptors including the current/future recreational user; current and future visitor/trespasser; were within the risk range and below the goal of protection of a Hazard Quotient (HQ)/HI of 1. Surface water exposure did not pose a risk or hazard above EPA's thresholds. Details of all the exposure pathways evaluated but not included in the ROD can be found in the BHHRA for the sites. The BERA results also caused EPA to conclude that PCBs, copper, lead, and PAHs pose a potential risk to terrestrial plants, soil invertebrates, benthos, and terrestrial and aquatic dependent wildlife.

7.4 Uncertainties in the Risk Assessment

The procedures and inputs used to assess risks in these evaluations, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include:

- environmental chemistry sampling and analysis
- environmental parameter measurement
- fate and transport modeling
- exposure parameter estimation
- toxicological data.

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry-analysis error can stem from several sources including the errors inherent in the analytical methods and characteristics of the matrix being sampled.

Uncertainties in the exposure assessment are related to estimates of how often an individual would come in contact with the COCs, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the chemicals at the point of exposure. Exposure Point Concentrations (EPCs) for fish tissue were based on tissue samples including both skinless and skin-on fillet samples, consistent with EPA guidance. EPCs derived for organic COCs in fish may be overestimated for those individuals consuming only skinless fillets since fatty tissues concentrate many organic compounds. Conversely, the EPC derived for methyl mercury in fish may be underestimated for those individuals consuming only skinless fillets (mercury concentrates in muscle tissue).

EPCs for all COCs may be underestimated for those individuals consuming whole fish. In addition, PCBs, dioxins, furans, and dioxin-like PCBs were evaluated in the HHRA. In the environment, PCBs occur as mixtures whose compositions differ from the commercial mixtures (Aroclors). This is because after release into the environment, the mixture composition changes over time through partitioning, chemical transformation, and preferential bioaccumulation discussed in EPA's publication: "PCBs: Cancer Dose-Response Assessment and Application to Environmental Mixtures" published in 1996.

PCB congener data are useful for assessing potential risks and hazards from environmental PCB contamination when PCB patterns from Aroclors are weathered or degraded and for comparison with available historical tissue data. The HHRA did not find enhancement of dioxin-like PCBs. All of the receptors and exposure scenario combinations are considered possible under current/future conditions for the different exposure areas and were quantitatively evaluated.

Uncertainties in toxicological data occur in extrapolating both from studies in animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the risk assessment provides upper-bound estimates of the risks to populations near OU3 of the Site, and it is highly unlikely to underestimate actual risks related to the Site.

Non-cancer hazards and cancer risks were quantified only for a selected subset (the COPCs) of chemicals detected in environmental media. While omission of other chemicals based on screening or lack of toxicity information may underestimate total non-cancer hazards and cancer risks, this is not considered a significant source of uncertainty because the chemicals that were excluded were present at low concentrations. 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 HHRA.

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.

7.5 Basis for Taking Action

Based on the results of the OU3 RI/FS, HHRA, and BERA, actual or threatened releases of hazardous substances from OU3, if not addressed by implementing the response action selected in the ROD, may present an imminent and substantial endangerment to the public health, welfare, or the environment.

8.0 REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are specific media-specific goals to protect human health and the environment; they specify the contaminant(s) of concern, 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.

Interim and final remedial action objectives have been established for OU3:

Sediment Interim RAOs:

- Reduce the mass, transport, and exposure to PCBs in sediment throughout the Creek channel by remediating areas that serve as sources of COCs to the Creek system.

Floodplain Soil Final RAOs:

- Minimize human exposure risk from contact with contaminated floodplain soil by reducing COC concentrations in soil to remedial goals.
- Minimize risks to ecological receptors from contact with contaminated floodplain soil by reducing the COC concentrations in soil to remedial goals.
- Minimize the transport of floodplain soil containing COCs by reducing the potential for interaction with adjacent areas and the Creek.

8.1 Remediation Goals

Achieving RAOs relies on the remedial alternative's ability to meet remediation goals/ cleanup levels derived from remediation goals (RGs), which are generally chemical-specific goals for each medium and/or exposure route that are established to protect human health and the environment. They can be based on such factors as ARARs, risk, and from comparison to background levels of contaminants in the environment that occur naturally or are from other industrial sources.

To achieve the floodplain soil RAOs, EPA has identified a soil cleanup goal, or RG, for contaminated soil to attain a degree of cleanup that ensures the protection of human health and the environment. The two-tiered RG for lead in soils described below is based on the New York State's 6 NYCRR Part 375 Residential Soil Cleanup Objectives and EPA Region 2's lead approach consistent with OLEM Directive 9200.2-167. The remediation goal is also consistent with the 2024 "OLEM Updated Residential Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities," which establishes a regional screening level (RSL) of 200 ppm where there are no additional sources of lead (*e.g.*, lead water service lines, lead-based paint non-attainment areas where lead concentrations exceed the National Ambient Air Quality Standards) are present.[7]

The following remediation goals have been identified for adjacent floodplain residential, including agricultural, properties within the STA:

- Lead: 400 ppm[8,9]
- PCBs: 1 ppm

The following remediation goals have been identified for adjacent surface (0 to 2 ft) floodplain commercial properties within the STA:

- Lead: 1,000 ppm
- PCBs: 1 ppm

The RGs for surface commercial soils are consistent with the RGs established in the OU2 remedy.

It is EPA's expectation that by targeting PCBs and lead, risks posed by other contaminants found in floodplain soil, such as mercury, would also be addressed. The remedy to be selected for floodplain soils in the STA is intended to be a final remedy. However, the proposed interim remedy for sediments in the STA is not intended to attain acceptable COC levels in all media throughout the Creek. A future, final remedy will establish acceptable COC levels in sediments that are protective of human health and the environment. An interim remedy should be consistent with and

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[7] Updated Scientific Considerations for Lead in Soil Cleanups, December 22, 2016 https://semspub.epa.gov/work/08/1884174.pdf and Updated Residential Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities https://www.epa.gov/system/files/documents/2024-01/olem-residential-lead-soil-guidance-2024_signed_508.pdf

[8] In addition to targeting detections of lead above 400 ppm, the average soil concentration across each residential property will be at or below 200 ppm.

[9] By remediating floodplain soils to an average concentration at or below 200 ppm, the goal of protection (target blood lead level of 5 ug/dL) outlined in the 2024 Updated Residential Soil Lead Guidance will be met. These levels would also be protective of recreational users and ecological receptors.

not preclude a final protective remedy. Interim action remediation goals are associated with the interim actions and reflect the limited scope of the interim action.

To achieve the interim sediment remedy RAOs, a remedial action level (RAL) of 1 ppm for PCBs will be used to delineate PCB source sediments within the STA for remediation. The RAL of 1 ppm is consistent with other sediment cleanups in New York State. This RAL is not a final RG for the Creek sediments, however, and the practical outcome of this RAL is that a large mass of source material that is acting as a continuing source to the rest of Eighteen Mile Creek will be addressed. The RAL of 1 ppm for PCBs satisfies the interim RAO of source control and PCB migration reduction. In addition, given the widespread presence of PCBs, addressing PCBs above the RAL in the STA is also expected to address other potential co-located contaminants, such as lead and mercury.

As indicated in the Scope and Role of Action section above, a separate comprehensive evaluation would be conducted for the full length of the Creek. A subsequent or final remedy will identify the final RAOs and remediation goals for sediment along the entire length of the Creek.

9.0 SUMMARY OF REMEDIAL ALTERNATIVES

Section 121(b)(1) of CERCLA, 42 U.S.C. §9621(b)(1), requires that a remedial action be protective of human health and the environment, be cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) also 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. Section 121(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).

To address the RAOs, the FS identified three primary areas that have the greatest potential for transporting significant contamination downstream based upon transport modeling and data identifying the areas with the highest levels of contamination. The three primary areas identified in the FS Report are the STA and two sediment depositional areas (SDAs) located immediately upstream of Newfane Dam and Burt Dam (represented by Reaches 2 and 5, respectively). While the STA was identified as the primary source of continuing contamination related to elevated contaminant concentrations that occur with sediment erosion and surface water flow from the East Branch, contaminated sediments have accumulated and are present behind the impoundment areas of both Newfane Dam and Burt Dam. While the FS Report included remedial alternatives for the two SDAs and floodplain soil adjacent to the SDAs, for the purposes of this ROD, alternatives for the two SDAs and floodplain soil not adjacent to the STA are not being addressed at this time. As indicated in the Scope and Role of Action section, above, further evaluations and long-term monitoring of these areas is needed before a cleanup plan for these remaining portions of the Creek can be developed.

Potential technologies applicable to sediment contamination within the STA as well as contaminated floodplain soil at properties adjacent to the STA 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 eight remedial alternatives for addressing the contamination associated with the Site. The time to implement a remedial alternative reflects only the time required to construct or implement the remedy and does not include the time required to negotiate with the 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 FS Report.

9.1 Description of Common Elements of Sediment Alternatives

All of the sediment alternatives, with the exception of STA1 (No Action) and STA2 (Monitored Natural Recovery, Long-Term Monitoring, and Institutional Controls), would include the following common components:

Sediment Delineation and Cultural Resource Evaluation: Based on data collected to date, an estimated 80% of the STA Creek bed area exceeds the RAL. During the remedial design, additional sampling would be conducted to refine the areas requiring remediation. In addition, a Phase 1B cultural resource investigation would be performed to assess the presence or absence of archaeological deposits.

During implementation of the remedial action, temporary cofferdams or other barriers would be installed to divert water around active work areas to allow for excavation in dry conditions. Diversion piping would be used to divert water around the work area. Excavated sediment would be transferred from the Creek to the staging area. Confirmation samples would be collected at the bottom of excavation to verify the RAL has been met. Confirmation samples would be analyzed for PCBs, and additional excavation and sampling may be required to demonstrate the RAL has been met.

Access Roads: Access roads and staging areas would be constructed in upland areas to allow equipment access and facilitate implementation of the proposed remedial activities along the Creek. A staging area for contaminated material storage and dewatering, wastewater treatment, and clean fill material storage would be established. Construction would require clearing and grubbing of vegetation. Following remediation of the Creek, the access roads and staging areas would be removed, and the areas restored in accordance with the habitat reconstruction plan.

Off-Site Disposal of Contaminated Sediment: Excavated sediment exceeding RALs would be transported off-Site for disposal at a Resource Conservation and Recovery Act (RCRA) or a Toxic Substances Control Act (TSCA) regulated landfill, as appropriate, based on the concentrations of contaminants in the excavated sediment. If necessary to meet the requirements of the disposal facilities, contaminated material would be treated prior to land disposal.

Construction Monitoring*:* Water quality downstream of the work areas would be monitored during construction activities. Air quality would be monitored throughout construction activities to protect workers and the public.

Long Term Monitoring: A monitoring plan would be developed during the remedial design to track PCB concentrations in sediment, surface water and fish tissue to monitor aquatic media. The monitoring plan would evaluate remaining residual soil contamination in the floodplain soil, the potential for bank erosion, and an assessment of the fate and transport mechanisms of the remaining contamination to contaminate sediments in the Creek. Results would be used to assess the effectiveness of the remedial alternative in reducing PCB concentrations in fish tissue and to develop a final remedy for the Creek.

Institutional Controls: Institutional controls refer to non-engineering measures intended to ensure the protectiveness of a remedy and to restrict human activities so as to prevent or reduce the potential for exposure to contaminated media. Institutional controls in the form of informational devices, such as NYSDOH fish consumption advisories, would continue to be implemented to limit exposure to PCBs. NYSDOH periodically reviews fish PCB data to ensure the advisories are up to date and considers whether the fish consumption advisories need modification.

9.2 Description of Sediment Transition Area (STA) Remedial Alternatives

Alternative STA1: No Action

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.

Total Capital Cost:	$0
Total O&M:	$0
Total Present Net Worth:	$0
Construction Timeframe:	0 years

Alternative STA2: Monitored Natural Recovery, Long-Term Monitoring, and Institutional Controls

The Monitored Natural Recovery (MNR) alternative for sediments relies on the naturally occurring transport and deposition of cleaner upstream material to reduce exposure to contaminant concentrations over time through burial.

A MNR monitoring program would be developed to document and evaluate the performance of natural recovery, including the evaluation of changes in PCB concentrations over time as clean sediment from upstream areas is deposited within the STA. This alternative also includes institutional controls and long-term monitoring, as described in the Common Elements of the Sediment Alternatives Section, above.

Total Capital Cost:	$0
Total O&M:	$337,000
Total Present Net Worth:	$1,999,000
Construction Timeframe:	0 years

Alternative STA3: Excavation, Long-Term Monitoring, and Institutional Controls

Alternative STA3 includes the excavation of all sediment within the STA, consistent with the response selected in the OU2 remedy of bank-to-bank excavation down to native material, followed by backfilling with up to two feet of clean sand and covered with a suitable habitat layer to create conditions for the reestablishment of natural conditions in the Creek. The RI investigation found that PCBs above the RAL are present in sediments in Reach 7 down to 4 feet below the sediment surface. In addition to targeting deeper sediments that exceed the RAL, this alternative would include removal of PCBs at concentrations lower than the RAL of 1 ppm.

For the conceptual design, it is estimated that the average depth of sediment to native material is less than two feet, resulting in the removal of an estimated 96,000 cubic yards of sediment. Contaminated material would be sent for off-Site disposal.

Total Capital Cost:	$102,273,000
Total O&M:	$268,000
Total Present Net Worth:	$82,440,000
Construction Timeframe:	16 months

Alternative STA4: Pre-Dredge to Accommodate Cap, Capping, Long-Term Monitoring, and Institutional Controls

Alternative STA4 includes the excavation of approximately one foot of contaminated sediment in areas within the STA that exceed the RAL followed by the placement of clean sand and suitable habitat material to create a cap over the remaining contaminated sediment.

For the conceptual design, it is estimated that the removal of approximately one foot of existing sediment is needed to support the placement of a cap that would minimize the potential for mobilization of contaminated sediment without creating adverse impacts associated with flooding.

In addition, contaminated sediment with PCB concentrations greater than 50 ppm would be removed regardless of the depth. Under this alternative, an estimated 41,000 cubic yards of contaminated sediment would be excavated and sent for off-Site disposal.

Total Capital Cost:	$61,940,000
Total O&M:	$296,000
Total Present Net Worth:	$53,025,000
Construction Timeframe:	12 months

Alternative STA5: Excavation to RAL, Long-Term Monitoring, and Institutional Controls

Alternative STA5 includes the excavation of contaminated sediment above the RAL within the STA followed by backfilling with clean sand and covering with a suitable habitat layer to create conditions for the reestablishment of natural conditions in the Creek.

For the conceptual design, it is estimated that the average depth of the excavation to meet the RAL would be approximately 1.3 feet, resulting in the removal of an estimated 54,000 cubic yards of contaminated sediment. Contaminated material would be sent for off-Site disposal. While estimated excavation depths across the STA were calculated in the FS, the estimated excavation depth was based on the average depths of samples exceeding the RAL. Post-excavation sampling would be performed prior to backfilling to confirm that the RAL has been met.

Total Capital Cost:	$75,104,000
Total O&M:	$237,000
Total Present Net Worth:	$60,769,000
Construction Timeframe:	9 months

9.3 Description of Common Elements of Floodplain Soil Alternatives

Each of the floodplain soil alternatives, with the exception of Soil1 (No Action), include the following common components:

Remediation Areas: Sampling in flood-prone areas conducted as part of the RI revealed 17 areas adjacent to the STA that are impacted by Site-related contamination requiring remediation. The FS Report divides remediation areas into the following two categories.

- Adjacent floodplain soil areas (not farmland or developed residential areas); and
- Adjacent farmland and developed residential floodplain soil areas.

The purple-colored sections within the STA on **Figure 2** represent the floodplain soil remediation areas. Refer to Figures 5-18 through 5-22 in the FS Report for the specific areas targeted for remediation depicted by creek reach.

During the remedial design, additional sampling of floodplain soil adjacent to the STA would be conducted to further delineate nature and extent and refine volume estimates. The additional sampling would also provide a better estimate of the residual contamination remaining in the floodplain soil, thereby providing data needed to conduct the assessment of the fate and transport mechanisms of the remaining contamination in the floodplain, as outlined in the discussion on future operable units and the long-term monitoring plan as outlined in the common elements section for the sediment alternatives. EPA conservatively assumed that contaminated soil extends to 2 feet deep although samples in the remedial investigation only went to a depth of 1 foot.

Floodplain soils that were not sampled during the RI but are prone to river flooding would also be sampled as part of the remedial design. This additional data would be used for risk evaluations to determine if, based on land use designations or the potential for floodplain soil to re-contaminate sediments in the Creek, additional properties or areas require remediation. EPA has conservatively estimated, for cost estimation purposes, that additional sampling may identify up to 11 additional acres that would require remediation as part of this OU. In addition, floodplain soil sampling would also be conducted downstream of the STA as part of a separate investigation. Separate response actions or a future operable unit would address risks identified in floodplain soil downstream of the STA.

Excavation and Soil Management: Construction of the active floodplain soil alternatives would require clearing and grubbing of vegetation. Temporary access roads from the remediation areas to nearby public roads and the staging area would be constructed. Excavated contaminated floodplain soil would be transported to a staging area for storage and dewatering prior to off-Site disposal. Erosion and sediment controls at each remediation area would be installed to prevent the migration of floodplain soil to the Creek. Water and air quality would be monitored during construction. In areas requiring excavation, verification samples would be collected to confirm that contaminated soil in excess of the RGs has been removed and the remedial action objectives have been met. Excavated areas would be backfilled by placing clean fill material and topsoil.

Following remediation of the Creek, access roads and staging areas would be removed, and impacted areas would be restored in accordance with the habitat reconstruction plan.

Site Management Plan (SMP): Development of a SMP to provide for management of floodplain soil postconstruction, including the use of institutional controls and periodic reviews for those alternatives where contamination is left in place above levels that allow for unrestricted use.

9.4 Description of Floodplain Soil (Soil) Remedial Alternatives

Alternative Soil1: No Action

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.

Total Capital Cost:	$0
Total O&M:	$0
Total Present Net Worth:	$0
Construction Timeframe:	0 years

Alternative Soil2: Limited Floodplain Soil Excavation, Soil Cover, and Institutional Controls

Under this alternative, lead and PCB-contaminated floodplain soil would be addressed through a combination of excavation and/or installation of a cover system based on land use. While floodplain soil areas in residential and farmland areas would be excavated to remove all contaminated soil above the RGs and backfilled with clean topsoil, non-developed areas including commercial areas would have a soil cover system installed. The cover system, with an estimated thickness of two to three feet, would be vegetated and constructed to isolate floodplain soil exceeding the RGs from erosion, transport, and/or migration to surrounding areas. In areas with steep slopes, riprap would be placed as the top layer to prevent erosion. During the remedial design, investigations would be conducted to determine the need for the addition of amendments, such as activated carbon, as well as to evaluate the impact of the cover system on wetlands.

Because contaminated soil would remain at the impacted properties adjacent to the STA above levels that would otherwise allow for unrestricted use following remediation, institutional controls would be implemented. Institutional controls may include environmental easements/ restrictive covenants, deed notices, and/or zoning restrictions to limit future use of the properties and would require maintenance of the cover material and impose restrictions on excavation of these properties.

Because this alternative would result in contaminants remaining at the Site that are above levels that would otherwise allow for unrestricted use and unlimited exposure, CERCLA requires that the Site be reviewed at least once every five years. If justified by the review, additional response actions may be implemented.

Total Capital Cost:	$42,941,000
Total O&M:	$51,000
Total Present Net Worth:	$39,363,000
Construction Timeframe:	2 years

Alternative Soil3: Floodplain Soil Excavation and Off-Site Disposal

This alternative includes the excavation and off-Site disposal of PCB- and lead-contaminated floodplain soil exceeding the RGs adjacent to the STA regardless of the land use designation. These areas would be backfilled with clean fill and topsoil.

Because contaminated soil would remain at the impacted commercial properties adjacent to the STA above levels that would otherwise allow for unrestricted use following remediation, institutional controls would be implemented. Institutional controls may include environmental easements/ restrictive covenants, deed notices, and/or zoning restrictions to limit future use of the commercial properties and impose restrictions on excavation.

Total Capital Cost:	$149,125,000
Total O&M:	$0
Total Present Net Worth:	$131,307,000
Construction Timeframe:	2 years

10.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting a remedy for a site, EPA considers the factors set out in Section 121(b)(1) of CERCLA, 42 U.S.C. §9621(b)(1), by conducting a detailed analysis of the viable remedial alternatives pursuant to the NCP, 40 C.F.R. Section 300.430(e)(9), EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies*, 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 consists 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:

1. *Overall protection of human health and the environment* addresses whether or not 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, or institutional controls.

2. *Compliance with ARARs* addresses whether or not 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 "five 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 of time 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, administrative feasibility, and coordination with other governmental entities.

7. *Cost* includes estimated capital and operation and maintenance costs, and the net present-worth costs calculated using a 7% discount rate.

The following "modifying" criteria are used in the final evaluation of the remedial alternatives after the formal comment period, and they may prompt modification of the preferred remedy that was presented in the Proposed Plan:

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 preferred alternative.

9. *Community acceptance* refers to the public's general response to the 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 considered in this OU3 ROD, based upon the evaluation criteria noted above, follows.

10.1 Overall Protection of Human Health and the Environment

Overall protection of human health and the environment determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.

Sediment Alternatives

Alternative STA1 (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. STA2 relies on natural processes, such as sedimentation to cover the surface sediment with cleaner sediment from upstream, in order to reduce the PCB concentration at the sediment surface and reduce risk. While sedimentation of clean backfill material from the cleanup of upstream Creek Corridor as part of OU2 is expected to result in some reduction of contaminant concentrations within the STA over time, because sediment within the STA is prone to resuspension, the redistribution and redeposition of contaminated sediment to downstream areas is likely. As a result, Alternative STA2 would not achieve the RAOs.

While Alternatives STA3, STA4, and STA5 each include removal of contaminated sediments, under Alternative STA4, only contaminants within the top one foot would be removed followed by the installation of a cap to prevent mobilization or exposure to underlying contaminated sediment. Therefore, while Alternatives STA3, STA4, and TA5 would achieve the RAOs, under Alternative STA4 monitoring and maintenance of the cap would be required to ensure protection over the long term.

Floodplain Soil Alternatives

Alternative Soil1 (No Action) is not protective of human health and the environment because it does not eliminate, reduce, or control risk of exposure to contaminated floodplain soil. Alternative Soil2 and Alternative Soil3 would be protective of human health and the environment as contaminated material would either be removed from the Site or capped. Under Alternative Soil2, contaminated soils would remain in place above the RGs in non-developed areas or areas not used as farmland, and protection would be achieved through the placement of cover material and implementation of institutional controls.

10.2 Compliance with ARARs

Compliance with ARARs addresses whether a remedy will meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes or provides a basis for invoking a waiver.

Sediment Alternatives

There are currently no federal or state promulgated standards for contaminant levels in sediments. There are, however, other federal or state advisories, criteria, or guidance (which are used as TBC criteria). Specifically, NYSDEC's "Screening and Assessment of Contaminated Sediment Guidance" (2014) sediment screening values are a TBC criterion. The RAL of 1 ppm for PCBs is consistently evaluated and often applied at contaminated sediment sites in New York State. This value is also supported by NYSDEC's "Technical Guidance for Screening Contaminated Sediments."

Because the contaminated sediments would not be addressed under Alternative STA1, the RAL for PCBs would not be achieved. Under Alternative STA2, a long-term monitoring program would track if there were progress toward achieving the RAL over the long term. Alternative STA3 would achieve the RAL through the full removal of sediment. Alternative STA4 would achieve the RAL through a combination of isolation and removal of sediment. STA5 would achieve the RAL through the removal of sediments that exceed the RAL.

Because there is no active remediation associated with the sediment for Alternative STA1 or STA2, action-specific and location-specific ARARs do not apply. Alternatives STA3 through STA5 are expected to comply with action-specific and location-specific ARARs for water quality monitoring during excavation of sediments and wastewater discharge resulting from sediment dewatering. Mitigation may be required to address location-specific ARARs in relation to the construction of access roads through the floodplains and wetlands.

Pursuant to Section 106 of the National Historic Preservation Act, a Stage 1B Cultural Resource Investigation would be performed during the design phase to evaluate the existence of cultural and archaeological resources within the STA that could be impacted by the implementation of this alternative.

RCRA and TSCA are federal laws that mandate procedures for managing, treating, transporting, storing, and disposing of hazardous wastes and PCBs, respectively. All portions of RCRA that are applicable or relevant and appropriate to the proposed remedy for the Site would be met by Alternatives STA1 through STA5, and all portions of TSCA would be met by Alternatives STA1 through STA5 as well.

It should be noted that 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 the STA portion of OU3 is an interim remedy, identification of ARARs is not necessary at this time. It is nonetheless expected that each of the selected remedies will be designed in such a way that attains location- and action-specific ARARs. Chemical-specific ARARs would be addressed by the eventual, final remedy selected for the full length of the Creek.

Floodplain Soil Alternatives

EPA has identified NYSDEC's 6 NYCRR Part 375 soil cleanup objectives as an ARAR, a TBC, or an 'other guidance' to consider in addressing contaminated soil at OU3. Alternative Soil1 would not achieve RGs for soil because no measures would be implemented and contaminated soil would remain in place. Alternative Soil2 would prevent direct contact with PCB- and lead-contaminated soil exceeding the RGs through a combination of removal and capping. Under Alternative Soil2, in order to comply with location-specific ARARs related to the protection of wetlands and floodplains, mitigative measures or modification to the conceptual design of the cover system may need to be evaluated during the design for areas that receive a cap because of the impacts to wetlands and floodplain soils. Areas receiving a cover system would require long-term monitoring and maintenance to verify continued compliance with ARARs. Soil3 complies with ARARs through the removal of PCB- and lead-contaminated soil exceeding the RGs. RCRA and TSCA are federal laws that mandate procedures for managing, treating, transporting, storing and disposing of hazardous wastes and PCBs. All portions of RCRA and TSCA that are applicable or relevant and appropriate to the proposed remedy for OU3 would be required to be met with Alternatives Soil2 and Soil3.

10.3 Long-Term Effectiveness and Permanence

Long-term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time.

Sediment Alternatives

Alternatives STA1 and STA2 remove no PCBs from the Creek and include no active measures to reduce residual risk at the Site. Neither option would prevent mobilization of PCBs in sediment that are vulnerable to erosional forces. Each of these alternatives therefore would allow for the continued exposure of PCBs over the long-term and thus do not promote long-term effectiveness and permanence.

Alternative STA3 and Alternative STA5 reduce residual risk through excavation of PCB-contaminated sediment. Alternative STA3 and Alternative STA5 are considered more permanent than Alternative STA4. Alternative STA4 includes limited excavation of sediment followed by capping to isolate the contaminated sediment, and long-term monitoring of the cap.

Low-lying areas within the City of Lockport are subject to flooding. The Resilient New York Flood Mitigation Initiative Report for Eighteen Mile Creek, dated November 2020, states that more frequent and intense precipitation events are expected because of climate change, resulting in a higher likelihood of flooding along the Creek. The increased flooding may reduce the lifespan of capping and backfill material through increased erosional forces from faster flow. If Alternative STA4 is selected, an evaluation of the need for additional armoring would need to be performed during the remedial design to ensure that the cap would withstand such events. In addition, inspections of the cap would be conducted periodically, including after major storm events, and any necessary maintenance of the cover system would be performed.

Floodplain Soil Alternatives

Alternative Soil1 would not provide a permanent or long-term effective solution to contaminated floodplain soil as no remediation would occur. Under Alternative Soil2, long-term risks at the residential and farming properties would be permanently removed since contaminated floodplain soil would be permanently removed and disposed of off-Site. At the commercial properties, Alternative Soil2 provides long-term effectiveness through effective maintenance of a cover system and institutional controls such as land-use restrictions. Under Alternative Soil3, long-term risks would be permanently removed since contaminated floodplain soil would be excavated and disposed of off-Site.

10.4 Reduction in Toxicity, Mobility, or Volume via Treatment

Reduction in 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 and the amount of contamination present.

Sediment Alternatives

For Alternatives STA1 and STA2, the only possible way to reduce contaminant concentrations in sediment would be natural recovery processes. Under these alternatives, there would be no reduction of toxicity, mobility, or volume through treatment. Alternatives STA3, STA4, and STA5 would permanently remove various volumes of sediment from the Creek through excavation, although not through treatment. Off-Site treatment, if required, would reduce the toxicity of the contaminated sediment prior to disposal. Placement of a cap, which is a component of Alternative STA4, would provide reduction of mobility of the contaminated sediment through isolation of contaminants, but would not reduce mobility through treatment.

Floodplain Soil Alternatives

Alternative Soil1 would not achieve any reduction in the mobility, toxicity, or volume because contaminated soil would remain in place as is. Alternative Soil2 would use a combination of capping and removal to achieve a reduction in mobility, volume, and exposure to contaminants, but not through treatment. Alternative Soil2 would not reduce the toxicity of the contaminants at properties that are capped. Under Alternative Soil3, the mobility, volume, and exposure to contaminants would be reduced but not through treatment. Furthermore, off-Site treatment, if required, would reduce the toxicity of the contaminated soil prior to disposal.

10.5 Short-term Effectiveness

Short-term Effectiveness considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents and the environment during implementation.

Sediment Alternatives

Alternatives STA1 would not create new, adverse short-term impacts because no remediation activities would take place. Alternative STA2 would have few adverse short-term impacts since the only activities would be monitoring of conditions in the Creek to assess changes in site conditions. Alternatives STA3, STA4, and STA5 involve active remediation, similar in size and scope, and have the potential for similar short-term risks. Based on the higher volume of sediment that would be removed, Alternative STA3 would have the greatest duration of impacts given the longer project schedule. No time is required for construction of Alternative STA1 or Alternative STA2. Alternatives STA3, STA4, and STA5 are estimated to take 16, 12, and 9 months, respectively.

The risks to remediation workers and nearby residents under all of the active alternatives would be mitigated by following appropriate health and safety protocols, by exercising sound engineering practices, and by utilizing proper protective equipment.

Floodplain Soil Alternatives

Alternative Soil1 would have no adverse short-term impacts or risks since no remediation activities would take place. Both Alternatives Soil2 and Soil3 would have similar adverse short-term risks associated with construction activities. Similar to the sediment alternatives, the risks to remediation workers and nearby residents under all of the active alternatives would be mitigated by following appropriate health and safety protocols, by exercising sound engineering practices, and by utilizing proper protective equipment.

No time is required for construction of Alternative Soil1. Time required for implementation of Alternative Soil2 is estimated to take two years. Alternative Soil3 is also estimated to take two years.

10.6 Implementability

Implementability addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental entities are also considered.

Sediment Alternatives

There are no implementability issues with Alternative STA1 and STA2, which do not involve any active remediation. The technologies and methods to perform the active alternatives, STA3, STA4, and STA5, are well established. Given the topography, steep slopes, presence of heavy woods or wetlands, and in water structures (*e.g.*, bridges and culverts) in some sections of the STA, some of the remediation areas may be difficult to access. Construction of temporary access roads for multiple access points in addition to siting of the material stockpile and processing area for excavated material may be logistically, but not necessarily technically, challenging because this work would likely require use of a large area of private land in the vicinity of the STA. Under Alternative STA4, one foot of contaminated sediment would be removed to facilitate the installation of a cap. The design of this cap would need to take into consideration that the total thickness of the cap should not impact the depth of open water or increase the potential for flooding, both while ensuring that the cap would weather erosional forces resulting from storm events. The cap specifications would be evaluated further during the remedial design. In addition, in order to perform excavation activities under Alternatives STA3, STA4, and STA5, temporary cofferdams or other barriers would be installed to divert water around active work areas to allow for excavation in dry conditions. Because the release of water from the upstream Canal impacts water flow in the Creek, coordination with the Canal Corporation regarding these releases is essential. As it relates to the design and implementation of the OU2 selected remedy, EPA has already been coordinating closely with the Canal Corporation on this matter.

Floodplain Soil Alternatives

Alternative Soil1 would be the easiest to implement as there are no construction activities to implement. Both Alternatives Soil2 and Soil3 use common construction technologies and are technically feasible to implement. Alternative Soil2 may be slightly more difficult to implement as the areas receiving the cover system would require long-term monitoring and maintenance.

10.7 Cost

Cost includes estimated capital and operation and maintenance (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, operation and maintenance costs, and present worth costs assuming a 7% discount rate over a period of 30 years are discussed in detail in the FS Report. The cost estimate summary for the selected remedy is presented in **Table 9** and **Table 10**, which can be found in **Appendix II**. The cost estimates are based on the best available information. Alternative STA1 and SOIL1 have no cost because no activities are implemented. The estimated capital, annual O&M, and total present-worth costs are presented below:

Alternative	Capital Cost	Annual O&M Costs	Present Worth
Sediment			
STA1	$0	$0	$0
STA2	$0	$337,000	$1,999,000
STA3	$102,273,000	$268,000	$82,440,000
STA4	$61,940,000	$296,000	$53,025,000
STA5	$75,104,000	$237,000	$60,769,000
Floodplain Soil			
Soil1	$0	$0	$0
Soil2	$42,941,000	$51,000	$39,363,000
Soil3	$149,125,000	$0	$131,307,000

10.8 State/Support Agency & Tribal Acceptance

State/Support Agency acceptance considers whether the State and/or Support Agency agrees with the EPA 's analyses and recommendations.

10.8.1 State Acceptance

NYSDEC concurs with the selected remedy. A letter of concurrence is attached in **Appendix IV**.

10.8.2 Tribal Acceptance

EPA provided the Proposed Plan and notification of the public meeting to the Tuscarora Nation. The Tuscarora Nation provided no comments for the Proposed Plan. EPA will maintain its consultation with the Tuscarora Nation for all future response actions planned for the Site.

10.9 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 proposed for OU3 at the Site. Verbal comments were received from community members at the August 1, 2024 public meeting and were generally related to the nature and extent of contamination at the Site. A copy of the public meeting transcript is provided as **Attachment D** to **Appendix V**. During the comment period from July 19, 2024 through August 19, 2024, six comment letters were received via e-mail or regular mail. Copies of the comment letters are provided as **Attachment A** to **Appendix V**. Comments were generally positive and supportive of the preferred alternatives. Responses to the questions and comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary (**Appendix V**).

11.0 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 act as a source for direct exposure. Principal threat wastes are 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 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.

Based upon EPA's guidance, principal threats at commercial properties include soils contaminated at concentrations greater than or equal to 500 ppm PCBs. For residential areas, principal threats will generally include soils contaminated with PCBs at concentrations greater than 100 ppm. EPA's findings to date have not revealed the presence of principal threat wastes in floodplain soil or elsewhere in OU3.

12.0 SELECTED REMEDY

Based upon the requirements of CERCLA, the results of OU3 investigations, the detailed analysis of the alternatives, and public comments, EPA has determined that Alternative STA5: Excavation to RAL, Long-Term Monitoring, and Institutional Controls and Alternative Soil3: Floodplain Soil Excavation and Off-Site Disposal best satisfy the requirements of CERCLA Section 121, 42 U.S.C. §9621, and provides the best balance of tradeoffs among the remedial alternatives with respect to the NCP's nine evaluation criteria, 40 CFR §300.430(e)(9).

12.1 Description of the Selected Remedy

The major components of the selected sediment interim remedy include the following:

- Excavation of contaminated sediment that exceeds the RAL of 1 ppm for PCBs within the STA followed by backfilling with clean sand and covering with a suitable habitat layer to create conditions for the re-establishment of natural conditions in the Creek.

- Construction of access roads and staging areas in upland areas. Following remediation of the Creek, removal of the access roads and staging areas in accordance with the habitat reconstruction plan.
- Water and air quality monitoring during construction.
- Development of a monitoring plan to track PCB concentrations in sediment, surface water, and fish tissue over time in the STA.
- Institutional controls in the form of informational devices to limit exposure to PCBs. EPA is relying on existing NYSDOH fish consumption advisories. NYSDOH periodically reviews fish PCB data to ensure the advisories are up to date and considers whether the fish consumption advisories need modification. Other informational devices could include outreach programs to inform the public to promote knowledge of and voluntary compliance with the fish consumption advisories.

The major components of the selected floodplain soil final remedy include the following:

- Excavation and off-Site disposal of PCB- and lead-contaminated floodplain soil exceeding the remediation goals adjacent to the STA regardless of the land use designation. Backfill of excavated areas with clean fill material and topsoil.
- Construction of temporary access roads from the remediation areas to the closest public roads and the staging area.
- Implementation of erosion and sediment controls at each remediation area to prevent the migration of floodplain soil to the Creek.
- Water and air quality monitoring during construction.
- Following remediation of the Creek, removal of the access roads and staging areas, and restoration of the impacted areas in accordance with the habitat reconstruction plan.
- Development of a SMP to provide for management of floodplain soil post-construction, including the use of institutional controls to limit future use of the commercial properties and impose restrictions on excavation, and periodic reviews.

During the remedial design, additional sampling of floodplain soil adjacent to the STA will be conducted. Risk evaluations, based on land use designations, will be performed to determine if additional properties or areas require remediation. The Creek banks will be a particular area of attention due to their high potential for use and COC exposure by human and ecologic receptors and their potential to be a source of COC release and transport and to re-contaminate the OU3 sediment remedy if unaddressed. Design sampling will ensure that Creek banks that exceed RALs are delineated for remediation. The selected remedy is a final remedy for addressing floodplain soil in the STA.

In addition, EPA's investigations of groundwater within the Creek Corridor have not revealed a source of the generally low-level VOCs concentrations detected in groundwater. As a result, no action will be taken to address Creek Corridor groundwater.

The remaining areas of the Creek (commencing immediately downstream of the STA to the Creek's discharge at Lake Ontario) that are not addressed by this ROD would be addressed under separate, future action(s). The impoundment areas upstream of Newfane Dam and Burt Dam have historically acted as sinks for contaminated sediment, and, as such, these areas have been identified as potential sources of downstream contamination in the event of a change in the flow regime of the Creek. These remaining areas require additional evaluation to establish a final remedy for the full length of the Creek. This evaluation will identify and address the following:

- data gaps including the nature and extent of contamination within these remaining areas;
- the characteristics of the sediment bed behind the Newfane and Burt dams;
- a study of the impacts from having addressed the source areas;
- an assessment of the fate and transport mechanisms of the remaining contamination in the Creek, including residual soil contamination following excavation of floodplain soil in the STA;
- bathymetry monitoring of sediment to evaluate recovery, accumulation and/or erosion; and
- a long-term monitoring program.

After a comprehensive evaluation of the full length of the Creek is conducted, a final remedy for the entire length of the Creek will be determined. The final remedy would include final remediation goals for contaminated sediment, including the Creek Corridor (OU2) and the STA (OU3), as well as any additional remedial action objectives that are determined necessary, including for additional media such as surface water. In addition, floodplain soil sampling will be conducted downstream of the STA as part of a separate investigation. Separate response actions or a future operable unit(s) would address risks identified in floodplain soil downstream of the STA.

12.2 Summary of the Rationale for the Selected Remedy

While Alternative STA5 is more expensive than Alternatives STA2 and STA4, Alternative STA5 permanently removes contaminated sediment exceeding the RAL and would not require the maintenance of a cover system over large areas required under STA4, or the monitoring of elevated PCB concentrations in sediment prone to erosional forces required under STA2. Although Alternative STA3 removes the greatest volume of sediment, the additional sediment excavation results in a substantial cost increase while providing comparable risk reduction to Alternative STA5. Similarly, Alternative Soil3 would permanently remove the contaminated floodplain soil from the banks of the Creek, thereby eliminating the potential for contaminated floodplain soil to find its way into the Creek and allows the properties to be used without restrictions. EPA has conservatively estimated, for cost estimation purposes, that additional sampling may identify up to 11 additional acres that would require remediation as part of this OU.

12.3 Expected Outcomes of the Selected Remedy

The results of the HHRA indicate that the contaminated floodplain soil present current and/or potential future unacceptable exposure risks. Under the selected remedy, remediation of contaminated floodplain soil will address these current and potential future risks. Additionally, the selected remedy would permanently remove the contaminated floodplain soil from the banks of the Creek, thereby eliminating the potential for contaminated floodplain soil to find its way into the Creek and allow the properties to be used without restrictions.

In addition, the consumption of fish from the Creek presents an unacceptable human health risk. The selected interim remedy for PCB-contaminated sediments in the Creek Channel will result in the excavation of sediment above the RAL in the STA. The excavation of these sediments will eliminate the exposures to these contaminants in the aquatic system and their potential for downstream transport. The lower PCB concentrations in sediments in this portion of the Creek, are anticipated to reduce PCB levels in the water column and fish and other biota, thereby reducing the level of risk to human and ecological receptors.

Final remedial goals for contaminated sediment will be developed as part of a comprehensive evaluation that will be conducted as part of a future operable unit.

12.4 Green Remediation

The EPA Region 2 Clean and Green Policy[10] provides guidance for the implementation of green remediation for response actions in the region. The goal of this policy is to enhance the environmental benefits of federal cleanup programs by promoting technologies and practices that are sustainable, while complying with all applicable laws and regulations. The objectives of green remediation are to: protect human health and the environment by achieving remedial action goals; support human and ecological use and reuse of remediated land; minimize impacts to water quality and water resources; reduce air emissions and greenhouse gas production; minimize material use and waste production; and conserve natural resources and energy.

This policy establishes touchstone practices that are both quantifiable and reportable. The region uses reporting requirements in enforcement instruments, grants, and contracts to collect and report metrics annually. Examples of touchstone practices that may be used during the implementation of the selected remedy are:

- Use of renewable energy, and energy conservation and efficiency approaches including EnergyStar equipment
- Cleaner fuels and clean diesel technologies and strategies
- Water conservation and efficiency approaches including WaterSense products
- Sustainable site design
- Industrial material reuse or recycling within regulatory requirements
- Recycling applications for materials generated at or removed from the site
- Environmentally Preferable Purchasing
- Greenhouse gas emission reduction technologies

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

13.0 STATUTORY DETERMINATIONS

As previously noted, CERCLA Section 121(b)(1), 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) also 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

[10] See www.epa.gov/sites/default/files/2016-01/documents/r2_clean_and_green_update.pdf

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:

13.1 Protection of Human Health and the Environment

The selected interim remedy for sediment in the STA will protect human health by reducing the future health risks and hazards associated with the consumption of fish through reducing the concentration of contaminants in fish in the Creek until a comprehensive evaluation is completed for the entire Creek as part of separate response actions or a future operable unit(s) downstream of the STA. In the interim, EPA is relying on existing NYSDOH fish consumption advisories. NYSDOH periodically reviews fish PCB data to ensure the advisories are up to date and considers whether the fish consumption advisories need modification. This institutional control will assist in the protecting human health over both the short- and long-term at this operable unit by helping to control and limit exposure to hazardous substances.

The selected remedy for floodplain soil in the STA will protect human health and the environment because it reduces or eliminates human exposure to contamination in soil through the excavation of contaminated material.

13.2 Compliance with ARARs

Because the remedy for the STA portion of OU3 is an interim remedy, identification of ARARs is not necessary at this time. It is nonetheless expected that each of the selected remedies will be designed in such a way that attains location- and action-specific ARARs. Chemical-specific ARARs would be addressed by the eventual, final remedy selected for the full length of the Creek. The selected remedy for the floodplains complies with chemical-specific, location-specific, and action-specific ARARs. A complete list of the ARARs, TBCs, and other guidance are presented in **Table 11, Table 12, and Table 13**, which can be found in **Appendix II**.

13.3 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 $192,076,000.

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 and is thus cost effective.

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

The selected remedy complies with the statutory mandate to utilize permanent solutions, alternative treatment technologies, and resource recovery alternatives to the maximum extent practicable. Of those alternatives that are protective of human health and the environment and comply with ARARs (or provide a basis for invoking an ARAR waiver), EPA has determined that the selected floodplain soil remedy provides the best balance of trade-offs among the alternatives with respect to the balancing criteria, while also considering the statutory preference for treatment as a principal element, the bias against off-Site disposal without treatment, and State/support agency and community acceptance. Implementation of the selected remedy will remove contaminated floodplain soil from residential and commercial properties thereby eliminating and/or preventing the risk to human receptors in the future. Implementation of the selected remedy will additionally permanently remove sediment in the STA above the sediment RAL, which in turn will reduce PCB levels in fish, thereby reducing the level of risk to humans and ecological receptors.

13.5 Preference for Treatment as a Principal Element

The selected remedy results in the removal of approximately 93,000 cubic yards of contaminated sediment and soil from OU3. The soil and sediment excavation will provide for an immediate reduction in the mobility of contaminated media from OU3. Although treatment is not a principal element of the remedy, based on sampling performed to date, some of the contaminated soil may require treatment prior to land disposal at an off-Site facility. Off-site treatment, if required would reduce the toxicity of the contaminated soil prior to land disposal. This remedy only addresses a portion of the Site. Subsequent actions that are planned to identify and address fully the remaining threats posed by the Site may include treatment.

13.6 Five-Year Review Requirements

This remedy will result in hazardous substances, pollutants, or contaminants remaining in floodplain soils at commercial properties above levels that would otherwise allow for unlimited use and unrestricted exposure. Pursuant to CERCLA Section 121(c), 42 U.S.C. §9621(c), statutory reviews will be conducted five years after the completion of the remedial action to ensure that the remedy continues to provide adequate protection to human health and the environment.

14.0 DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for OU3 of the Site was released on July 19, 2024. The Proposed Plan identified Alternative STA5: Excavation to RAL, Long-Term Monitoring, and Institutional Controls as the preferred alternative for remediating the STA, and Alternative Soil3: Floodplain Soil Excavation and Off-Site Disposal as the preferred alternative for remediating floodplain soil in the STA.

EPA reviewed all written (including electronic formats such as e-mail) and verbal comments received during the public comment period and has determined that no significant changes to the remedy, as originally proposed in the Proposed Plan, are necessary or appropriate.

APPENDIX I

FIGURES

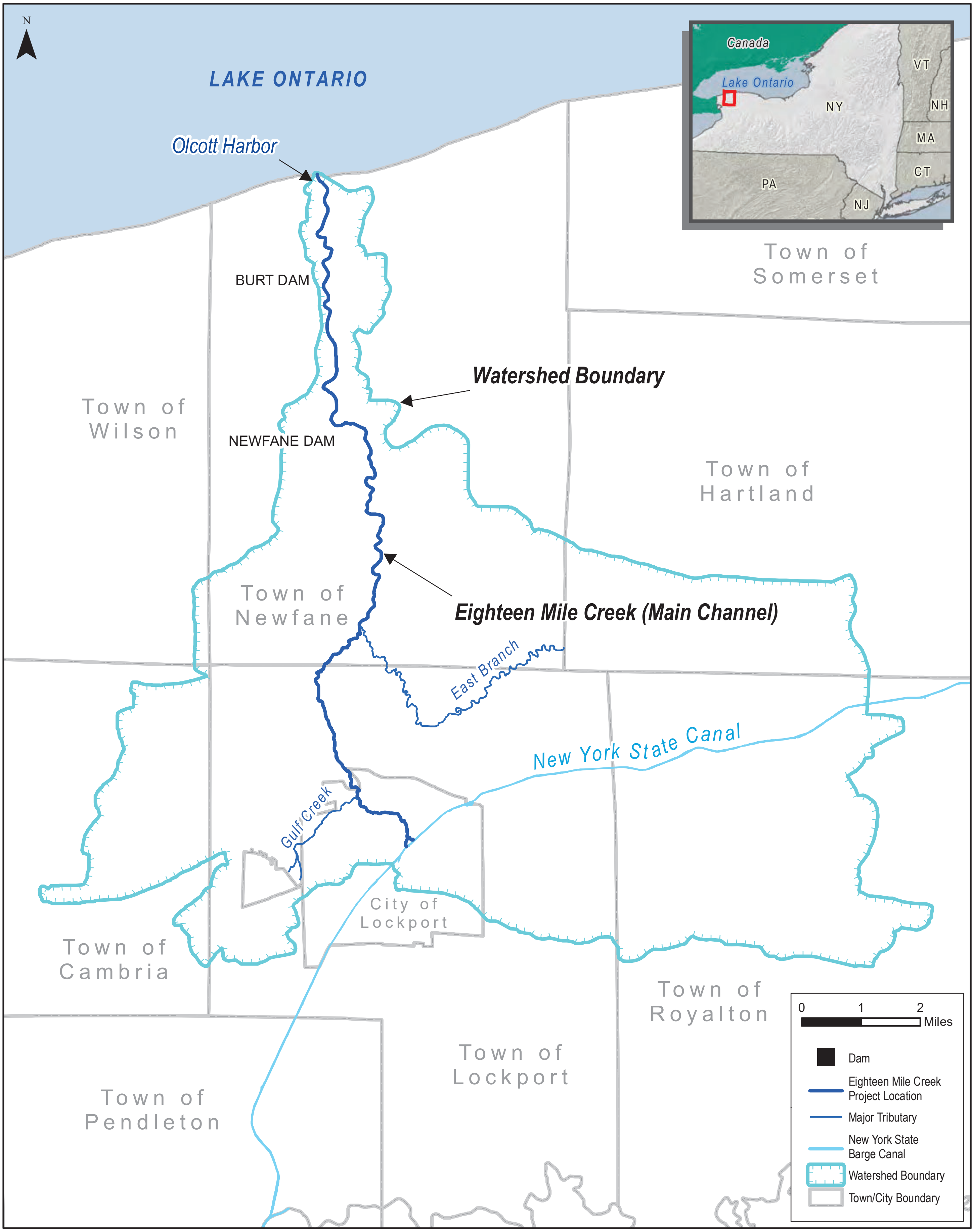

Figure 1 - Site Location Map

Eighteen Mile Creek Superfund Site OU3 Record of Decision

Niagara County, New York

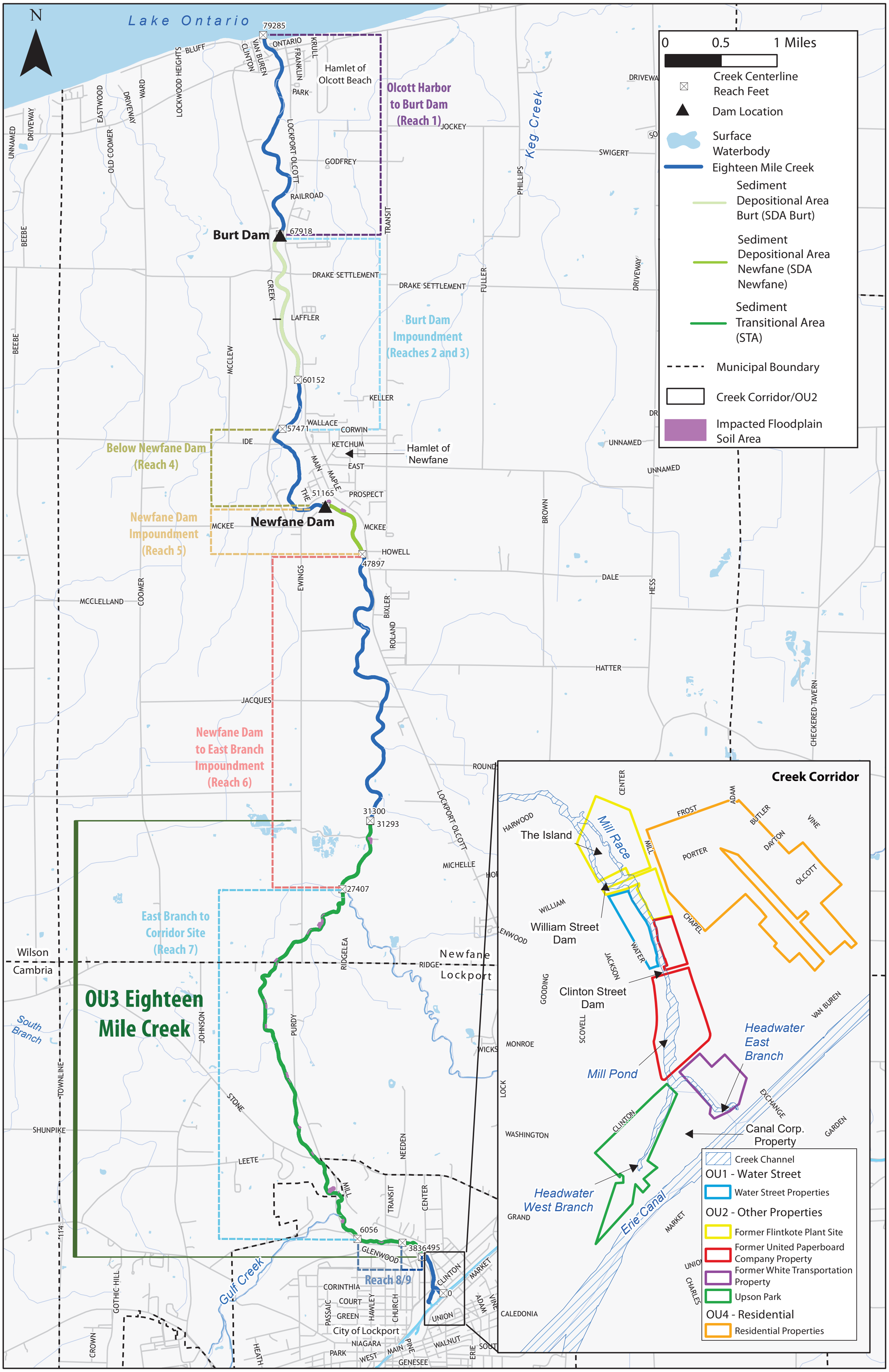

Figure 2 - Site Overview Map

Eighteen Mile Creek Superfund Site OU3 Record of Decision

Niagara County, New York

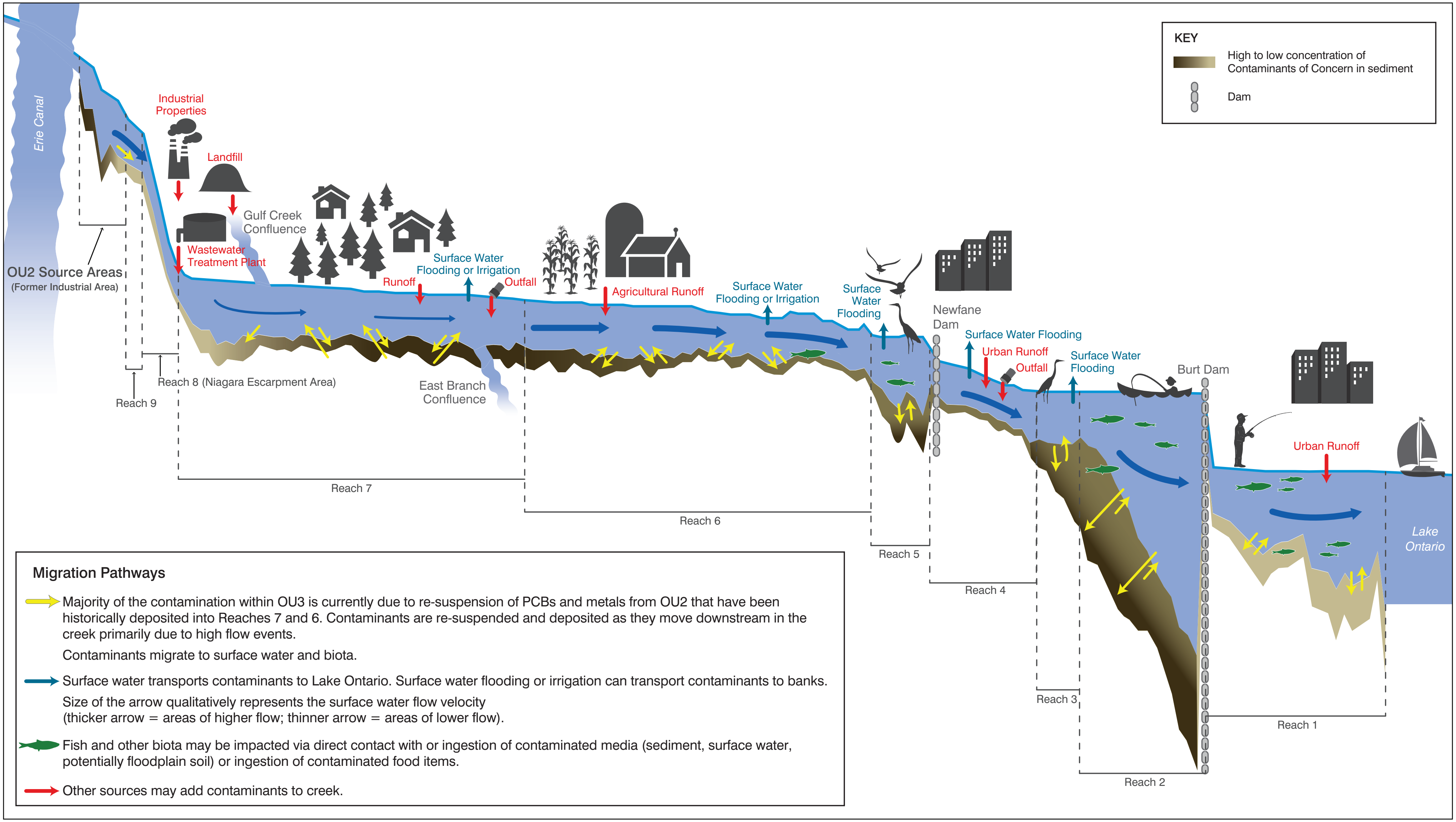

Figure 3- Conceptual Site Model

Eighteen Mile Creek Superfund Site OU3 Record of Decision

Niagara County, New York

APPENDIX II

TABLES

Table 1 Selection of Exposure Pathways								
Scenario Timeframe	**Medium**	**Exposure Medium**	**Exposure Point**	**Receptor Population**	**Receptor Age**	**Exposure Route**	**Type of Analysis**	**Rationale for Selection or Exclusion of Exposure Pathway**
Current/ Future	Sediment	Surface Sediment (Starting Depth: 0 to 0.5 feet)	Reaches 6 & 7	Recreational User	Child Adolescent Adult	Ingestion Dermal Inhalation	Quantitative	Recreational users may contact surface sediment during recreational activities such as swimming, wading, and kayaking. Exposures to sediment include incidental ingestion, dermal contact, and inhalation. The assessment will quantify exposures to adults, adolescents, and young children. The recreational user will also come into contact with floodplain soil and surface water while accessing the creek. This is a complete pathway for adults, adolescents, and young children.
	Sediment	Surface Sediment (Starting Depth: 0 to 0.5 feet)	Reaches 6 & 7	Angler	Adolescent Adult	Ingestion Dermal Inhalation	Quantitative	Anglers may contact surface sediment during fishing activities. Exposures to sediment include incidental ingestion, dermal contact, and inhalation. This is a complete pathway for adults and adolescents. Exposure to young children (younger than 6 years) are not quantified based on safety considerations; however, it is expected that they will consume fish caught by adults and adolescents. The angler will also come into contact with floodplain soil and surface water while accessing the creek.
	Floodplain Soil	Surface Soil (0 to 1 feet)	Reaches 6 & 7	Recreational User	Child Adolescent Adult	Ingestion Dermal Inhalation	Quantitative	Recreational users may contact surface soil during recreational activities such as swimming, wading, and kayaking. Exposures to soil include incidental ingestion, dermal contact, and inhalation. The assessment will quantify exposures to adults, adolescents, and young children. The recreational user will also come into contact with sediment and surface water while accessing the creek. This is a complete pathway for adults, adolescents, and young children.

Table 1
Selection of Exposure Pathways

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/ Future	Floodplain Soil	Surface Soil (0 to 1 feet)	Reaches 6 & 7	Angler	Adolescent Adult	Ingestion Dermal Inhalation	Quantitative	Anglers may contact surface soil during fishing activities. Exposures to soil include incidental ingestion, dermal contact, and inhalation. This is a complete pathway for adults and adolescents. Exposure to young children (younger than 6 years) are not quantified based on safety considerations; however, it is expected that they will consume fish caught by adults and adolescents. The angler will also come into contact with sediment and surface water while accessing the creek.
	Floodplain Soil	Surface Soil (0 to 1 feet)	Reaches 6 & 7	Resident	Child Adult	Ingestion Dermal Inhalation	Quantitative	Residents who live along the creek may contact surface soil during activities such as yard maintenance and general access to floodplain areas along the creek. Exposures to soil include incidental ingestion, dermal contact, and inhalation. This is a potentially complete pathway for current and future adults and young children.
	Floodplain Soil	Surface Soil (0 to 1 feet)	Reaches 6 & 7	Visitor/ Trespasser	Child Adolescent Adult	Ingestion Dermal Inhalation	Quantitative	Site visitors and trespassers may contact surface soil during access to creek properties. Exposures to soil include incidental ingestion, dermal contact, and inhalation. This is a complete pathway for adults, adolescents, and young children.
	Surface Water	Surface Water	Reaches 6 & 7	Recreational User	Child Adolescent Adult	Ingestion Dermal	Quantitative	Recreational users may contact surface water during recreational activities such as swimming, wading, and kayaking. Exposures to surface water include incidental ingestion of surface water and dermal contact. This is a complete pathway for adults, adolescents, and young children. The recreational user will also come into contact with sediment and floodplain soil while accessing the creek.

Table 1
Selection of Exposure Pathways

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/ Future	Surface Water	Surface Water	Reaches 6 & 7	Angler	Adolescent Adult	Ingestion Dermal	Quantitative	Anglers may contact surface water during fishing activities. Exposures to surface water include incidental ingestion and dermal contact. This is a complete pathway for adults and adolescents. Exposure to young children (younger than 6 years) are not quantified based on safety considerations; however, it is expected that they will consume fish caught by adults and adolescents. The angler will also come into contact with floodplain soils and sediment while accessing the creek.
	Fish Tissue	Fish Tissue	Reaches 6 & 7	Angler	Child Adolescent Adult	Ingestion	Quantitative	Anglers are known to fish throughout the creek. Anglers are assumed to consume the fish caught within the creek; therefore, ingestion of fish tissue is a potential exposure route. It is also assumed that anglers will share fish with younger individuals. This is a complete pathway for adults, adolescents, and young children.
	Floodplain Soil	Surface Soil (0 to 1 feet)	Reaches 8 & 9	Onsite Worker	Adult	Ingestion Dermal Inhalation	Qualitative	Areas along Reaches 8 and 9 are zoned industrial; therefore, site workers may be present on properties abutting the creek. However, due to the steep banks and poor access to areas along the creek workers are not expected to have contact to the bank areas; therefore, this an incomplete pathway and will be discussed in the Uncertainty Section.

Table 1 Selection of Exposure Pathways								
Scenario Timeframe	**Medium**	**Exposure Medium**	**Exposure Point**	**Receptor Population**	**Receptor Age**	**Exposure Route**	**Type of Analysis**	**Rationale for Selection or Exclusion of Exposure Pathway**
Current/ Future	Floodplain Soil	Surface Soil (0 to 1 feet)	Reach 6	Outdoor Worker	Adult	Ingestion Dermal Inhalation	Qualitative	A commercial topsoil business operates within Reach 6 along the floodplains of the creek. Outdoor workers may contact contaminated soil during daily activities. Exposures include incidental ingestion, dermal contact, and inhalation. Interviews with the business owner indicates that soil near the creek bank has never been excavated and the business only operates on a limited, as-needed basis. This is an incomplete pathway will be discussed in the Uncertainty Section.
	Agricultural Products	Agricultural Products	Reaches 6 & 7	Consumer of Agricultural Products	Child Adolescent Adult	Ingestion	Qualitative	Orchards and farms are observed to abut the creek, and historically farmers have irrigated produce fields with creek water. The irrigated fields were sampled for PCB Aroclors and approximately 20% of the samples were analyzed for PCB congeners. All of the soil results for PCB Aroclors were non-detect; however, there were low-level detections for PCB congeners found within the disturbed portion of the soils. The individual PCB congeners were evaluated against the residential soil RSLs and none of the soil concentrations were found to exceed the RSL values. Therefore, PCB concentrations in the irrigated soil are not likely to result in a risk, and this is an incomplete pathway that will be discussed in the Uncertainty Section.

Table 2
Contaminants of Concern

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Surface Sediment (Starting Depth: 0 to 0.5 feet)

Exposure Point	Contaminant of Concern	CASRN	Units	Minimum Concentration and Qualifier (1)		Maximum Concentration and Qualifier (1)		Detection Frequency	Location of Maximum Concentration	Concentration Used for Screening	Screening Toxicity Value	Basis for Toxicity Value (C/NC) (2)	COPC Flag (Y/N)	Rationale for Selection of Deletion (2)
Reach 6	Lead	7439-92-1	mg/kg	28.9	J	4500	J	90/90	OU3-R6-SD02-Z1-OCT20	4500	200	IEUBK Model	Yes	ASL
Reach 7	Lead	7439-92-1	mg/kg	57.3		2940	J	106/106	R7-103-C	2940	200	IEUBK Model	Yes	ASL
Reach 7	Aroclor 1248	12672-29-6	mg/kg	0.039	J	41	J	54/105	R7-187-C-COMP	41	0.12	NC	Yes	ASL
Reach 7	Aroclor 1254	11097-69-1	mg/kg	0.022	J	97		91/106	R7-089-C	97	0.12	NC	Yes	ASL

Key at end of table.

Table 2
Contaminants of Concern

Scenario Timeframe: Current/Future
Medium: Floodplain Soil
Exposure Medium: Surface Soil (0 to 1 feet)

Exposure Point	Contaminant of Concern	CASRN	Units	Minimum Concentration and Qualifier (1)		Maximum Concentration and Qualifier (1)		Detection Frequency	Location of Maximum Concentration	Concentration Used for Screening	Screening Toxicity Value	Basis for Toxicity Value (C/NC) (2)	COPC Flag (Y/N)	Rationale for Selection of Deletion (2)
Reach 6	Lead	7439-92-1	mg/kg	1370		1370		66/66	OU3-R6-T06E-S03-Z2	1370	200	IEUBK Model	Yes	ASL
Reach 7	Lead	7439-92-1	mg/kg	6.5		2630	J	200/200	OU3-R7-T12E-S03-Z2	2630	200	IEUBK Model	Yes	ASL
Resident Transect 10	Cobalt	7440-48-4	mg/kg	6.6		10.6		13/13	OU3-R7-T10W-S02-Z2	10.6	2.3	NC	Yes	ASL
Resident Transect 10	Iron	7439-89-6	mg/kg	16300		22700		13/13	OU3-R7-T10W-S02-Z2	22700	5500	NC	Yes	ASL, EN
Resident Transect 10	Manganese	7439-96-5	mg/kg	366		827		13/13	OU3-R7-T10W-S04-Z2	827	180	NC	Yes	ASL
Resident Transect 10	Aroclor 1248	12672-29-6	mg/kg	0.45	JN	13	J+	4/13	OU3-R7-T10W-S01-Z1	13	0.12	NC	Yes	ASL
Resident Transect 10	Aroclor 1254	11097-69-1	mg/kg	0.061	JN	8	J+	7/13	OU3-R7-T10W-S01-Z1	8	0.12	NC	Yes	ASL
Resident Transect 13	Arsenic	7440-38-2	mg/kg	5.1		39.8		10/10	OU3-R7-T13E-S02-Z1	39.8	0.68	C	Yes	ASL, KHC
Resident Transect 13	Cobalt	7440-48-4	mg/kg	8		42.5		10/10	OU3-R7-T13E-S02-Z1	42.5	2.3	NC	Yes	ASL
Resident Transect 13	Iron	7439-89-6	mg/kg	17800		35300		10/10	OU3-R7-T13E-S02-Z1	35300	5500	NC	Yes	ASL, EN
Resident Transect 13	Aroclor 1248	12672-29-6	mg/kg	0.054		3.7		4/10	OU3-R7-T13E-S01-Z1	3.7	0.12	NC	Yes	ASL
Resident Transect 13	Aroclor 1254	11097-69-1	mg/kg	0.0075	J	2		6/10	OU3-R7-T13E-S01-Z1	2	0.12	NC	Yes	ASL

Key at end of table.

Table 2
Contaminants of Concern

Scenario Timeframe: Current/Future
Medium: Floodplain Soil
Exposure Medium: Surface Soil (0 to 1 feet)

Exposure Point	Contaminant of Concern	CASRN	Units	Minimum Concentration and Qualifier (1)		Maximum Concentration and Qualifier (1)		Detection Frequency	Location of Maximum Concentration	Concentration Used for Screening	Screening Toxicity Value	Basis for Toxicity Value (C/NC) (2)	COPC Flag (Y/N)	Rationale for Selection of Deletion (2)
Resident Transect 15	Cobalt	7440-48-4	mg/kg	7.7		20		10/10	OU3-R7-T15E-S01-Z2	20	2.3	NC	Yes	ASL
Resident Transect 15	Lead	7439-92-1	mg/kg	16.7		1780		10/10	OU3-R7-T15E-S01-Z2	1780	200	IEUBK Model	Yes	ASL
Resident Transect 15	Manganese	7439-96-5	mg/kg	306		877		10/10	OU3-R7-T15E-S01-Z1	877	180	NC	Yes	ASL
Resident Transect 15	Aroclor 1248	12672-29-6	mg/kg	0.79		4.2		4/10	OU3-R7-T15E-S03-Z2	4.2	0.12	NC	Yes	ASL
Resident Transect 15	Aroclor 1254	11097-69-1	mg/kg	0.94		6.3		4/10	OU3-R7-T15E-S03-Z2	6.3	0.12	NC	Yes	ASL
Resident Transect 15	Aroclor 1260	11096-82-5	mg/kg	0.54	J	0.54	J	1/10	OU3-R7-T15E-S03-Z1	0.54	0.12	NC	Yes	ASL
Resident Transect 17	Lead	7439-92-1	mg/kg	9.8		556		12/12	OU3-R7-T17W-S05-Z2	556	200	IEUBK Model	Yes	ASL
Resident Transect 18	Lead	7439-92-1	mg/kg	22.8		527		12/12	OU3-R7-T18W-S01-Z2	527	200	IEUBK Model	Yes	ASL
Resident Transect 19	Cobalt	7440-48-4	mg/kg	3.9		10.4		14/14	OU3-R7-T19W-S04-Z2	10.4	2.3	NC	Yes	ASL
Resident Transect 19	Lead	7439-92-1	mg/kg	11.9		594		14/14	OU3-R7-T19W-S05-Z2	594	200	IEUBK Model	Yes	ASL
Resident Transect 19	Manganese	7439-96-5	mg/kg	248	J	880		14/14	OU3-R7-T19W-S04-Z1	880	180	NC	Yes	ASL
Resident Transect 19	Aroclor 1248	12672-29-6	mg/kg	0.025	J	25		10/14	OU3-R7-T19W-S01-Z1	25	0.12	NC	Yes	ASL
Resident Transect 19	Aroclor 1254	11097-69-1	mg/kg	0.047	J	17		8/14	OU3-R7-T19W-S01-Z1	17	0.12	NC	Yes	ASL
Resident Transect 19	Aroclor 1260	11096-82-5	mg/kg	0.031	J	0.13		4/14	OU3-R7-T19W-S02-Z2	0.13	0.12	NC	Yes	ASL
Resident Transect 20	Cobalt	7440-48-4	mg/kg	4.8		12.1		10/10	OU3-R7-T20W-S01-Z2	12.1	2.3	NC	Yes	ASL
Resident Transect 20	Manganese	7439-96-5	mg/kg	274		887		10/10	OU3-R7-T20W-S01-Z2	887	180	NC	Yes	ASL
Resident Transect 20	Aroclor 1248	12672-29-6	mg/kg	0.011	J-	0.79		6/10	OU3-R7-T20W-S04-Z2	0.79	0.12	NC	Yes	ASL
Resident Transect 20	Aroclor 1254	11097-69-1	mg/kg	0.011	J-	0.81	J	6/10	OU3-R7-T20W-S04-Z2	0.81	0.12	NC	Yes	ASL

Key at end of table.

Table 2
Contaminants of Concern

Scenario Timeframe: Current/Future
Medium: Floodplain Soil
Exposure Medium: Surface Soil (0 to 1 feet)

Exposure Point	Contaminant of Concern	CASRN	Units	Minimum Concentration and Qualifier (1)		Maximum Concentration and Qualifier (1)		Detection Frequency	Location of Maximum Concentration	Concentration Used for Screening	Screening Toxicity Value	Basis for Toxicity Value (C/NC) (2)	COPC Flag (Y/N)	Rationale for Selection of Deletion (2)
Resident Transect 22	Cobalt	7440-48-4	mg/kg	6.8		12.8		8/8	OU3-R7-T22E-S04-Z1	12.8	2.3	NC	Yes	ASL
Resident Transect 22	Lead	7439-92-1	mg/kg	58		841		8/8	OU3-R7-T22E-S04-Z1	841	200	IEUBK Model	Yes	ASL
Resident Transect 22	Manganese	7439-96-5	mg/kg	479		812		8/8	OU3-R7-T22E-S03-Z2	81.2	180	NC	Yes	ASL
Resident Transect 22	Mercury	7439-97-6	mg/kg	0.092	J	6.7		8/8	OU3-R7-T22E-S04-Z1	6.7	1.1	NC	Yes	ASL
Resident Transect 22	Aroclor 1248	12672-29-6	mg/kg	0.0069	J	1	J	3/8	OU3-R7-T22E-S04-Z2	1	0.12	NC	Yes	ASL
Resident Transect 22	Aroclor 1254	11097-69-1	mg/kg	0.0086	J	1		5/8	OU3-R7-T22E-S04-Z1	1	0.12	NC	Yes	ASL
Resident Transect 23	Cobalt	7440-48-4	mg/kg	6.9		14.3		10/10	OU3-R7-T23E-S03-Z1	14.3	2.3	NC	Yes	ASL
Resident Transect 23	Manganese	7439-96-5	mg/kg	397		906		10/10	OU3-R7-T23E-S03-Z2	906	180	NC	Yes	ASL
Resident Transect 23	Aroclor 1248	12672-29-6	mg/kg	0.064	J	5		4/10	OU3-R7-T23E-S03-Z1	5	0.12	NC	Yes	ASL
Resident Transect 23	Aroclor 1254	11097-69-1	mg/kg	0.13		7.6		4/10	OU3-R7-T23E-S03-Z1	7.6	0.12	NC	Yes	ASL
Resident Transect 25	Cobalt	7440-48-4	mg/kg	9.3		15.5		10/10	OU3-R7-T25E-S04-Z2	15.5	2.3	NC	Yes	ASL
Resident Transect 25	Lead	7439-92-1	mg/kg	6.5		933		10/10	OU3-R7-T25E-S04-Z2	933	200	IEUBK Model	Yes	ASL
Resident Transect 25	Manganese	7439-96-5	mg/kg	588		2440		10/10	OU3-R7-T25E-S01-Z2	2440	180	NC	Yes	ASL
Resident Transect 25	Mercury	7439-97-6	mg/kg	0.019	J	6.9		10/10	OU3-R7-T25E-S01-Z1	6.9	1.1	NC	Yes	ASL
Resident Transect 25	Aroclor 1248	12672-29-6	mg/kg	0.072		0.94	J-	4/10	OU3-R7-T25E-S04-Z1	0.94	0.12	NC	Yes	ASL
Resident Transect 25	Aroclor 1254	11097-69-1	mg/kg	0.064		1.5	J-	4/10	OU3-R7-T25E-S04-Z1	1.5	0.12	NC	Yes	ASL

Key at end of table.

Table 2
Contaminants of Concern

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Fish Tissue

Exposure Point	Contaminant of Concern	CASRN	Units	Minimum Concentration and Qualifier (1)		Maximum Concentration and Qualifier (1)		Detection Frequency	Location of Maximum Concentration	Concentration Used for Screening	Screening Toxicity Value	Basis for Toxicity Value (C/NC) (2)	COPC Flag	Rationale for Selection of Deletion (3)
Zone 3 (4)	Mercury	7439-97-6	mg/kg	0.026	J-	0.3	J-	20/20	OU3-P3-FISH05L-OCT18	0.3	0.0154	NC	Yes	ASL
Zone 3 (4)	Aroclor 1248	12672-29-6	mg/kg	0.231		12.9		20/20	OU3-P3-FISH16L-OCT18	4.87	0.00208	C	Yes	ASL
Zone 3 (4)	Aroclor 1254	11097-69-1	mg/kg	0.459		12.6		20/20	OU3-P3-FISH16L-OCT18	11.6	0.00208	C	Yes	ASL
Zone 3 (4)	Aroclor 1260	11096-82-5	mg/kg	0.0982	J-	1.71		17/20	OU3-P3-FISH05L-OCT18	1.71	0.00208	C	Yes	ASL

Acronyms:
CASRN = Chemical Abstract Service Registry Number; mg/kg = milligrams per kilogram

Notes:
(1) Minimum and Maximum Qualifiers used in the Tables include: J = estimated; J+ = estimated high; J- = estimated low.
(2) C = Cancer; NC = Non-Cancer; IEUBK = Integrated Exposure Uptake Biokinetic
(3) The Rationale for Selecting or not Selecting Chemicals of Potential Concern included:
ASL - Above Screening Levels; BSL - Below Screening Levels; KHC - Known Human Carcinogen; NSL - No Screening Level; EN - Essential Nutrient; and IFD - Infrequent Detection (<5% of samples).
(4) For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of the reaches that are included in OU3.

Table 3
Summary of Contaminants of Concern and Medium-Specific Exposure Point Concentrations

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Surface Sediment (Starting Depth: 0 to 0.5 feet)

Exposure Point	Contaminant of Concern	Minimum Concentration and Qualifier (1)		Maximum Concentration and Qualifier (1)		Concentration Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure
Reach 6	Lead	28.9	J	4500	J	mg/kg	90/90	623	mg/kg	Mean
Reach 7	Lead	57.3		2940	J	mg/kg	106/106	613	mg/kg	Mean
Reach 7	Aroclor 1248	0.039	J	41	J	mg/kg	54/105	4.58	mg/kg	95% UCL
Reach 7	Aroclor 1254	0.022	J	97		mg/kg	91/106	8.28	mg/kg	95% UCL

Key at end of table.

Table 3
Summary of Contaminants of Concern and Medium-Specific Exposure Point Concentrations

Scenario Timeframe: Current/Future
Medium: Floodplain Soil
Exposure Medium: Surface Soil (0 to 1 feet)

Exposure Point	Contaminant of Concern	Minimum Concentration and Qualifier (1)		Maximum Concentration and Qualifier (1)		Concentration Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure
Reach 6	Lead	1370		1370		mg/kg	66/66	254	mg/kg	Mean
Reach 7	Lead	6.5		2630	J	mg/kg	200/200	341	mg/kg	Mean
Resident Transect 10	Cobalt	6.6		10.6		mg/kg	13/13	9.47	mg/kg	95% UCL
Resident Transect 10	Iron	16300		22700		mg/kg	13/13	20700	mg/kg	95% UCL
Resident Transect 10	Manganese	366		827		mg/kg	13/13	675	mg/kg	95% UCL
Resident Transect 10	Aroclor 1248	0.45	JN	13	J+	mg/kg	4/13	3.93	mg/kg	95% UCL
Resident Transect 10	Aroclor 1254	0.061	JN	8	J+	mg/kg	7/13	2.56	mg/kg	95% UCL
Resident Transect 13	Arsenic	5.1		39.8		mg/kg	10/10	25.2	mg/kg	95% UCL
Resident Transect 13	Cobalt	8		42.5		mg/kg	10/10	28	mg/kg	95% UCL
Resident Transect 13	Iron	17800		35300		mg/kg	10/10	24800	mg/kg	95% UCL
Resident Transect 13	Aroclor 1248	0.054		3.7		mg/kg	4/10	1.46	mg/kg	95% UCL
Resident Transect 13	Aroclor 1254	0.0075	J	2		mg/kg	6/10	2	mg/kg	Max Detect
Resident Transect 15	Cobalt	7.7		20		mg/kg	10/10	14	mg/kg	95% UCL
Resident Transect 15	Lead	16.7		1780		mg/kg	10/10	450	mg/kg	Mean
Resident Transect 15	Manganese	306		877		mg/kg	10/10	667	mg/kg	95% UCL
Resident Transect 15	Aroclor 1248	0.79		4.2		mg/kg	4/10	4.2	mg/kg	Max Detect
Resident Transect 15	Aroclor 1254	0.94		6.3		mg/kg	4/10	5.13	mg/kg	95% UCL
Resident Transect 15	Aroclor 1260	0.54	J	0.54	J	mg/kg	1/10	0.54	mg/kg	Max Detect
Resident Transect 17	Lead	9.8		556		mg/kg	12/12	208	mg/kg	Mean
Resident Transect 18	Lead	22.8		527		mg/kg	12/12	242	mg/kg	Mean
Resident Transect 19	Cobalt	3.9		10.4		mg/kg	14/14	7.84	mg/kg	95% UCL
Resident Transect 19	Lead	11.9		594		mg/kg	14/14	256	mg/kg	Mean
Resident Transect 19	Manganese	248	J	880		mg/kg	14/14	705	mg/kg	95% UCL
Resident Transect 19	Aroclor 1248	0.025	J	25		mg/kg	10/14	20	mg/kg	95% UCL
Resident Transect 19	Aroclor 1254	0.047	J	17		mg/kg	8/14	17	mg/kg	Max Detect
Resident Transect 19	Aroclor 1260	0.031	J	13		mg/kg	4/14	0.0609	mg/kg	95% UCL

Key at end of table.

Table 3
Summary of Contaminants of Concern and Medium-Specific Exposure Point Concentrations

Scenario Timeframe: Current/Future
Medium: Floodplain Soil
Exposure Medium: Surface Soil (0 to 1 feet)

Exposure Point	Contaminant of Concern	Minimum Concentration and Qualifier (1)		Maximum Concentration and Qualifier (1)		Concentration Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure
Resident Transect 20	Cobalt	4.80		12.10		mg/kg	10/10	10.4	mg/kg	95% UCL
Resident Transect 20	Manganese	274.00		887.00		mg/kg	10/10	644	mg/kg	95% UCL
Resident Transect 20	Aroclor 1248	0.01	J-	0.79		mg/kg	6/10	0.79	mg/kg	Max Detect
Resident Transect 20	Aroclor 1254	0.01	J-	0.81	J	mg/kg	6/10	0.81	mg/kg	Max Detect
Resident Transect 22	Cobalt	6.8		12.8		mg/kg	8/8	10.7	mg/kg	95% UCL
Resident Transect 22	Lead	58		841		mg/kg	8/8	291	mg/kg	Mean
Resident Transect 22	Manganese	479		81.2		mg/kg	8/8	677	mg/kg	95% UCL
Resident Transect 22	Mercury	0.092	J	6.7		mg/kg	8/8	6.7	mg/kg	Max Detect
Resident Transect 22	Aroclor 1248	0.0069	J	1	J	mg/kg	3/8	0.561	mg/kg	95% UCL
Resident Transect 22	Aroclor 1254	0.0086	J	1		mg/kg	5/8	1	mg/kg	Max Detect
Resident Transect 23	Cobalt	6.9		14.3		mg/kg	10/10	11.8	mg/kg	95% UCL
Resident Transect 23	Manganese	397		906		mg/kg	10/10	804	mg/kg	95% UCL
Resident Transect 23	Aroclor 1248	0.064	J	5		mg/kg	4/10	5	mg/kg	Max Detect
Resident Transect 23	Aroclor 1254	0.13		7.6		mg/kg	4/10	5.98	mg/kg	95% UCL
Resident Transect 25	Cobalt	9.3		15.5		mg/kg	10/10	13.9	mg/kg	95% UCL
Resident Transect 25	Lead	6.5		933		mg/kg	10/10	287	mg/kg	Mean
Resident Transect 25	Manganese	588		2440		mg/kg	10/10	1230	mg/kg	95% UCL
Resident Transect 25	Mercury	0.019	J	6.9		mg/kg	10/10	4.21	mg/kg	95% UCL
Resident Transect 25	Aroclor 1248	0.072		0.94	J-	mg/kg	4/10	0.332	mg/kg	95% UCL
Resident Transect 25	Aroclor 1254	0.064		1.5	J-	mg/kg	4/10	1.33	mg/kg	95% UCL

Key at end of table.

Table 3
Summary of Contaminants of Concern and Medium-Specific Exposure Point Concentrations

Scenario Timeframe: Current/Future
Medium: Fish Tissue
Exposure Medium: Fish Tissue

Exposure Point	Contaminant of Concern	Minimum Concentration and Qualifier (1)		Maximum Concentration and Qualifier (1)		Concentration Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure
Zone 3 (2)	Aroclor 1248	0.026	J-	0.3	J-	mg/kg	20/20	7.37	mg/kg	95% UCL
Zone 3 (2)	Aroclor 1254	0.231		12.9		mg/kg	20/20	7.95	mg/kg	95% UCL
Zone 3 (2)	Aroclor 1260	0.459		12.6		mg/kg	17/20	0.685	mg/kg	95% UCL
Zone 3 (2)	Mercury	0.0982	J-	1.71		mg/kg	20/20	0.16	mg/kg	95% UCL

Acronyms:
mg/kg = milligrams per kilogram; UCL = upper confidence limit

Notes:
(1) Minimum and Maximum Qualifiers used in the Tables include: J = estimated; J+ = estimated high; J- = estimated low.
(2) For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of reaches 6 and 7.

Table 4
Non-Cancer Toxicity Data Summary

Pathway: Ingestion/Dermal

Contaminant 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
Aroclor 1248 (1)	Chronic	2.00E-05	mg/kg-day	1	2.00E-05	mg/kg-day	Immune, dermal, ocular	300	IRIS	10/1/1994
Aroclor 1254	Chronic	2.00E-05	mg/kg-day	1	2.00E-05	mg/kg-day	Immune, dermal, ocular	300	IRIS	10/1/1994
Aroclor 1260 (1)	Chronic	2.00E-05	mg/kg-day	1	2.00E-05	mg/kg-day	Immune, dermal, ocular	300	IRIS	10/1/1994
Aluminum	Chronic	1	mg/kg-day	1	1	mg/kg-day	Neurological	100	PPRTV	10/29/2006
Arsenic, Inorganic	Chronic	0.0003	mg/kg-day	1	0.0003	mg/kg-day	Skin and cardiovascular system	3	IRIS	9/1/1991
Cobalt	Chronic	0.0003	mg/kg-day	1	0.0003	mg/kg-day	Thyroid	3000	PPRTV	8/25/2008
Iron	Chronic	0.7	mg/kg-day	1	0.7	mg/kg-day	GI Tract	1.5	PPRTV	9/11/2006
Lead	Chronic	Calculated using the Adult Lead and the Integrated Exposure Uptake Biokinetic Models, consistent with guidance.								
Manganese	Chronic	0.14	mg/kg-day	1	0.14	mg/kg-day	Nervous	1	IRIS	11/1/1995
Mercury (elemental)	Chronic	0.00016	mg/kg-day	1	0.00016	mg/kg-day	NA	NA	CALEPA	NA

Pathway: Inhalation

Contaminant of Concern	Chronic/ Subchronic	Inhalation RfC	Inhalation RfC Units	Inhalation RfD (If available)	Inhalation RfD Units (If available)	Primary Target Organ	Combined Uncertainty /Modifying Factors	Sources of RfD Target Organ	Dates of RfC
Aroclor 1248	Chronic	--	--	No RfD	--	--	--	--	--
Aroclor 1254	Chronic	--	--	No RfD	--	--	--	--	--
Aroclor 1260	Chronic	--	--	No RfD	--	--	--	--	--
Aluminum	Chronic	0.005	mg/m³	No RfD	--	Neurological	300	PPRTV	10/29/2006
Arsenic, Inorganic	Chronic	0.000015	mg/m³	No RfD	--	NA	NA	CALEPA	NA
Cobalt	Chronic	0.000006	mg/m³	No RfD	--	Respiratory Tract; Lung	300	PPRTV	8/25/2008
Iron	Chronic	--	--	No RfD	--	--	--	--	--
Lead	Chronic	Calculated using the Adult Lead and the Integrated Exposure Uptake Biokinetic Models, consistent with guidance.							
Manganese	Chronic	0.00005	mg/m³	No RfD	--	Nervous	1000	IRIS	12/1/1993
Mercury (elemental)	Chronic	0.0003	mg/m³	No RfD	--	Nervous	30	IRIS	6/1/1995

Notes:
GI = gastrointestinal
mg/kg-day = milligrams per kilogram-day
mg/m³ = milligrams per cubic meter
NA = not applicable
RfC = reference concentration
RfD = reference dose

Sources:
CALEPA = California Environmental Protection Agency
IRIS = Integrated Risk Information System
PPRTV = Provisional Peer-Reviewed Toxicity Values

(1) The toxicity values from Aroclor 1254 were applied to Aroclor 1248 and Aroclor 1260.

Table 5
Cancer Toxicity Data Summary

Pathway: Ingestion/ Dermal

Contaminant of Concern	Oral Cancer	Units	Adjusted Cancer	Slope Factor	Weight of Evidence/	Source	Date
Aroclor 1248	2	$(mg/kg\text{-}day)^{-1}$	2	$(mg/kg\text{-}day)^{-1}$	B2	(1) IRIS	1996
Aroclor 1254	2	$(mg/kg\text{-}day)^{-1}$	2	$(mg/kg\text{-}day)^{-1}$	B2	(1) IRIS	1996
Aroclor 1260	2	$(mg/kg\text{-}day)^{-1}$	2	$(mg/kg\text{-}day)^{-1}$	B2	(1) IRIS	1996
Aluminum	--	--	--	--	--	--	--
Arsenic, Inorganic	1.5	$(mg/kg\text{-}day)^{-1}$	1.5	$(mg/kg\text{-}day)^{-1}$	A	IRIS	6/1/1995
Cobalt	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--
Lead	Addressed using the Integrated Exposure Uptake Biokinetic and Adult Lead Models						
Manganese	--	--	--	--	D	IRIS	9/26/1988
Mercury (elemental)	--	--	--	--	D	IRIS	5/1/1995

Pathway: Inhalation

Contaminant of Concern	Unit Risk	Units	Inhalation Cancer	Slope Factor	Weight of Evidence/	Source	Date
Aroclor 1248	0.000571429	$(\mu g/m^3)^{-1}$	No Slope Factor	--	B2	(2) IRIS	1996
Aroclor 1254	0.000571429	$(\mu g/m^3)^{-1}$	No Slope Factor	--	B2	(2) IRIS	1996
Aroclor 1260	0.000571429	$(\mu g/m^3)^{-1}$	No Slope Factor	--	B2	(2) IRIS	1996
Aluminum	--	--	--	--	--	--	--
Arsenic, Inorganic	0.0043	$(\mu g/m^3)^{-1}$	No Slope Factor	--	A	IRIS	6/1/1995
Cobalt	0.009	$(\mu g/m^3)^{-1}$	No Slope Factor	--	LI	PPRTV	8/25/2008
Iron	--	--	--	--	--	--	--
Lead	Addressed using the Integrated Exposure Uptake Biokinetic and Adult Lead Models						
Manganese	--	--	--	--	D	IRIS	9/26/1988
Mercury (elemental)	--	--	--	--	D	IRIS	5/1/1995

Weight of Evidence for Cancer Classifications:
A: Human carcinogen
B2: Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
D: Not classifiable as to human carcinogenicity
LI: Likely to be carcinogenic to humans by inhalation route

Sources:
IRIS = Integrated Risk Information System
PPRTV = Provisional Peer-Reviewed Toxicity Values

Notes:
(1) SURROGATE. See Polychlorinated Biphenyls.
(2) SURROGATE. See Polychlorinated Biphenyls (derived from oral slope factor).
NA = not applicable
$(\mu g/m^3)^{-1}$ = (micrograms per cubic meter)$^{-1}$
$(mg/kg\text{-}day)^{-1}$ = (milligrams per kilogram-day)$^{-1}$

Table 6
Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Exposure Medium: Transect 10
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Residential
Receptor Age Young Child

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Floodplain Soil	Soil	Transect 10	Cobalt	Endocrine	0.4	0.0011	NA	0.4
			Iron	Gastrointestinal	0.38	NA	NA	0.38
			Manganese	Nervous	0.36	0.0095	NA	0.37
			Aroclor 1248	Immune	2.5	NA	0.83	3.3
			Aroclor 1254	Immune	1.6	NA	0.54	2.2
See BHHRA Table 9.63-RME for full results.				Chemical Total	5.6	0.013	1.4	7
				Exposure Point Total				7
				Exposure Medium Total				7
				Medium Total				7
						Receptor HI Total		**7**
						Total Endocrine HI Across All Media =		0.4
						Total Gastrointestinal HI Across All Media =		0.38
						Total Immune HI Across All Media =		5.5
						Total Nervous HI Across All Media =		0.56

Scenario Timeframe: Current/Future
Exposure Medium: Transect 13
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Residential
Receptor Age Young Child

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Floodplain Soil	Soil	Transect 13	Arsenic	Dermal	0.64	0.0012	0.076	0.72
			Cobalt	Endocrine	1.2	0.0033	NA	1.2
			Iron	Gastrointestinal	0.45	NA	NA	0.45
			Aroclor 1248	Immune	0.93	NA	0.31	1.2
			Aroclor 1254	Immune	1.3	NA	0.42	1.7
See BHHRA Table 9.67-RME for full results.				Chemical Total	5.2	0.015	0.82	6
				Exposure Point Total				6
				Exposure Medium Total				6
				Medium Total				6
						Receptor HI Total		**6**
						Total Dermal HI Across All Media =		0.72
						Total Endocrine HI Across All Media =		1.2
						Total Gastrointestinal HI Across All Media =		0.59
						Total Immune HI Across All Media =		2.9

Table 6
Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Exposure Medium: Transect 15
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Residential
Receptor Age Young Child

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Floodplain Soil	Soil	Transect 15	Cobalt	Endocrine	0.6	0.0016	NA	0.6
			Manganese	Nervous	0.36	0.0094	NA	0.36
			Aroclor 1248	Immune	2.7	NA	0.89	3.6
			Aroclor 1254	Immune	3.3	NA	1.1	4.4
			Aroclor 1260	Immune	0.35	NA	0.11	0.46
See BHHRA Table 9.69-RME for full results.				Chemical Total	8.3	0.16	2.2	11
				Exposure Point Total				11
				Exposure Medium Total				11
				Medium Total				11
				Receptor HI Total				**11**
				Total Endocrine HI Across All Media =				0.6
				Total Immune HI Across All Media =				8.4
				Total Nervous HI Across All Media =				0.64

Scenario Timeframe: Current/Future
Exposure Medium: Transect 19
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Residential
Receptor Age Young Child

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Floodplain Soil	Soil	Transect 19	Cobalt	Endocrine	0.33	0.00092	NA	0.33
			Manganese	Nervous	0.38	0.0099	NA	0.39
			Aroclor 1248	Immune	13	NA	4.2	17
			Aroclor 1254	Immune	11	NA	3.6	14
			Aroclor 1260	Immune	0.039	NA	0.013	0.052
See BHHRA Table 9.77-RME for full results.				Chemical Total	25	0.11	7.9	33
				Exposure Point Total				33
				Exposure Medium Total				33
				Medium Total				33
				Receptor HI Total				**33**
				Total Endocrine HI Across All Media =				0.33
				Total Immune HI Across All Media =				32
				Total Nervous HI Across All Media =				0.57

Table 6
Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Exposure Medium: Transect 20
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Residential
Receptor Age Young Child

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Floodplain Soil	Soil	Transect 20	Cobalt	Endocrine	0.44	0.0012	NA	0.44
			Manganese	Nervous	0.34	0.0091	NA	0.35
			Aroclor 1248	Immune	0.51	NA	0.17	0.67
			Aroclor 1254	Immune	0.52	NA	0.17	0.69
See BHHRA Table 9.79-RME for full results.				Chemical Total	2	0.011	0.36	2.3
				Exposure Point Total				2.3
				Exposure Medium Total				2.3
				Medium Total				2.3
							Receptor HI Total	**2.3**
							Total Endocrine HI Across All Media =	0.44
							Total Immune HI Across All Media =	1.4
							Total Nervous HI Across All Media =	0.35

Scenario Timeframe: Current/Future
Exposure Medium: Transect 22
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Residential
Receptor Age Young Child

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Floodplain Soil	Soil	Transect 22	Cobalt	Endocrine	0.45	0.0013	NA	0.46
			Manganese	Nervous	0.36	0.0095	NA	0.37
			Mercury	Nervous	0.54	0.62	NA	1.2
			Aroclor 1248	Immune	0.36	NA	0.12	0.48
			Aroclor 1254	Immune	0.64	NA	0.21	0.85
See BHHRA Table 9.83-RME for full results.				Chemical Total	2.8	0.63	0.38	3.8
				Exposure Point Total				3.8
				Exposure Medium Total				3.8
				Medium Total				3.8
							Receptor HI Total	**3.8**
							Total Endocrine HI Across All Media =	0.46
							Total Immune HI Across All Media =	1.3
							Total Nervous HI Across All Media =	1.5

Table 6
Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Exposure Medium: Transect 23
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Residential
Receptor Age Young Child

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Floodplain Soil	Soil	Transect 23	Cobalt	Endocrine	0.5	0.0014	NA	0.51
			Manganese	Nervous	0.43	0.011	NA	0.44
			Aroclor 1248	Immune	3.2	NA	1.1	4.3
			Aroclor 1254	Immune	3.8	NA	1.3	5.1
See BHHRA Table 9.85-RME for full results.				Chemical Total	8.4	0.11	2.4	11
				Exposure Point Total				11
				Exposure Medium Total				11
				Medium Total				11
				Receptor HI Total				**11**
				Total Endocrine HI Across All Media =				0.51
				Total Immune HI Across All Media =				9.4
				Total Nervous HI Across All Media =				0.61

Scenario Timeframe: Current/Future
Exposure Medium: Transect 25
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Residential
Receptor Age Young Child

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Floodplain Soil	Soil	Transect 25	Cobalt	Endocrine	0.59	0.0016	NA	0.6
			Manganese	Nervous	0.66	0.017	NA	0.67
			Mercury	Nervous	0.34	0.39	NA	0.72
			Aroclor 1248	Immune	0.21	NA	0.071	0.28
			Aroclor 1254	Immune	0.85	NA	0.28	1.1
See BHHRA Table 9.89-RME for full results.				Chemical Total	3.1	0.41	0.38	3.9
				Exposure Point Total				3.9
				Exposure Medium Total				3.9
				Medium Total				3.9
				Receptor HI Total				**3.9**
				Total Endocrine HI Across All Media =				0.6
				Total Immune HI Across All Media =				1.4
				Total Nervous HI Across All Media =				1.4

Table 6
Risk Characterization Summary - Non-Carcinogens

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

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue Fillets	Zone 3 (1)	Aroclor 1248	Immune	150	--	--	150
			Aroclor 1254	Immune	160	--	--	160
			Aroclor 1260	Immune	14	--	--	14
See BHHRA Table 9.41-RME for full results. (1) For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of the reaches that are included in OU3.				Chemical Total	320	--	--	320
				Exposure Point Total				320
				Exposure Medium Total				320
				Medium Total				320
							Receptor HI Total	**320**
							Total Immune HI Across All Media =	320

Scenario Timeframe: Current/Future
Exposure Medium: Fish Tissue
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Angler
Receptor Age Adolescent

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue Fillets	Zone 3 (1)	Aroclor 1248	Immune	150	--	--	150
			Aroclor 1254	Immune	160	--	--	160
			Aroclor 1260	Immune	14	--	--	14
See BHHRA Table 9.42-RME for full results. (1) For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of the reaches that are included in OU3.				Chemical Total	328	--	--	328
				Exposure Point Total				328
				Exposure Medium Total				328
				Medium Total				328
							Receptor HI Total	**328**
							Total Immune HI Across All Media =	326.9

Table 6
Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Exposure Medium: Fish Tissue
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Angler
Receptor Age Young Child

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue Fillets	Zone 3 (1)	Mercury	Nervous	1.1	--	--	1.1
			Aroclor 1248	Immune	260	--	--	260
			Aroclor 1254	Immune	280	--	--	280
			Aroclor 1260	Immune	24	--	--	24
See BHHRA Table 9.43-RME for full results. (1) For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of the reaches that are included in OU3.				Chemical Total	567	--	--	567
				Exposure Point Total				567
				Exposure Medium Total				567
				Medium Total				567
				Receptor HI Total				**567**
				Total Immune HI Across All Media =				567
				Total Nervous HI Across All Media =				1.1

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

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue Fillets	Zone 3 (1)	Aroclor 1248	Immune	150	--	--	150
			Aroclor 1254	Immune	160	--	--	160
			Aroclor 1260	Immune	14	--	--	14
See BHHRA Table 9.56-RME for full results. (1) For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of the reaches that are included in OU3.				Chemical Total	319	--	--	319
				Exposure Point Total				319
				Exposure Medium Total				319
				Medium Total				319
				Receptor HI Total				**319**
				Total Immune HI Across All Media =				319

Table 6
Risk Characterization Summary - Non-Carcinogens

Scenario Timeframe: Current/Future
Exposure Medium: Fish Tissue
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Angler
Receptor Age Adolescent

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue Fillets	Zone 3 (1)	Aroclor 1248	Immune	150	--	--	150
			Aroclor 1254	Immune	160	--	--	160
			Aroclor 1260	Immune	14	--	--	14
				Chemical Total	327	--	--	327
				Exposure Point Total				327
				Exposure Medium Total				327
				Medium Total				327
				Receptor HI Total				**327**
				Total Immune HI Across All Media =				327

See BHHRA Table 9.57-RME for full results.
(1) For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of the reaches that are included in OU3.

Scenario Timeframe: Current/Future
Exposure Medium: Fish Tissue
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Angler
Receptor Age Young Child

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Primary target Organ	Non-Carcinogenic Hazard Quotient			
					Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue Fillets	Zone 3 (1)	Mercury	Nervous	1.1	--	--	1.1
			Aroclor 1248	Immune	260	--	--	260
			Aroclor 1254	Immune	280	--	--	280
			Aroclor 1260	Immune	24	--	--	24
				Chemical Total	566	--	--	566
				Exposure Point Total				566
				Exposure Medium Total				566
				Medium Total				566
				Receptor HI Total				**566**
				Total Immune HI Across All Media =				566
				Total Nervous HI Across All Media =				1.1

See BHHRA Table 9.58-RME for full results.
(1) For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of the reaches that are included in OU3.

Table 7
Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Exposure Medium: Transect 19
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Residential
Receptor Age Young Child

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Floodplain Soil	Soil	Transect 19	Cobalt	NA	(1)	NA	(1)
			Manganese	NA	NA	NA	NA
			Aroclor 1248	4.40E-05	1.80E-06	1.50E-05	6.00E-05
			Aroclor 1254	3.70E-05	(1)	1.20E-05	5.10E-05
			Aroclor 1260	(1)	(1)	(1)	(1)
			Chemical Total	9.10E-05	2.80E-06	2.90E-05	1.20E-04
			Exposure Point Total				1.20E-04
			Exposure Medium Total				1.20E-04
			Medium Total				1.20E-04
					Receptor Risk Total		1.20E-04

See BHHRA Table 9.77-RME for full results.
(1) Results were not presented because they represent a risk below 1E-06.

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

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue Fillets	Zone 3 (1)	Aroclor 1248	1.70E-03	--	--	1.70E-03
			Aroclor 1254	1.80E-03	--	--	1.80E-03
			Aroclor 1260	1.60E-04	--	--	1.60E-04
			Chemical Total	3.70E-03	--	--	3.70E-03
			Exposure Point Total				3.70E-03
			Exposure Medium Total				3.70E-03
			Medium Total				3.70E-03
					Receptor Risk Total		**3.70E-03**

See BHHRA Table 9.41-RME for full results.
(1) For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of the reaches that are included in OU3.

Table 7
Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Exposure Medium: Fish Tissue
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Angler
Receptor Age Adolescent

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue Fillets	Zone 3 (1)	Aroclor 1248	1.00E-03	--	--	1.00E-03
			Aroclor 1254	1.10E-03	--	--	1.10E-03
			Aroclor 1260	9.60E-05	--	--	9.60E-05
See BHHRA Table 9.42-RME for full results. (1) For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of the reaches that are included in OU3.			Chemical Total	2.30E-03	--	--	2.30E-03
			Exposure Point Total				2.30E-03
			Exposure Medium Total				2.30E-03
			Medium Total				2.30E-03
					Receptor Risk Total		**2.30E-03**

Scenario Timeframe: Current/Future
Exposure Medium: Fish Tissue
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Angler
Receptor Age Young Child

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue Fillets	Zone 3 (1)	Mercury	NA	--	--	NA
			Aroclor 1248	8.90E-04	--	--	8.90E-04
			Aroclor 1254	9.60E-04	--	--	9.60E-04
			Aroclor 1260	8.30E-05	--	--	8.30E-05
See BHHRA Table 9.43-RME for full results. (1) For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of the reaches that are included in OU3.			Chemical Total	2.00E-03	--	--	2.00E-03
			Exposure Point Total				2.00E-03
			Exposure Medium Total				2.00E-03
			Medium Total				2.00E-03
					Receptor Risk Total		**2.00E-03**

Table 7
Risk Characterization Summary - Carcinogens

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

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue Fillets	Zone 3 (1)	Aroclor 1248	1.70E-03	--	--	1.70E-03
			Aroclor 1254	1.80E-03	--	--	1.80E-03
			Aroclor 1260	1.60E-04	--	--	1.60E-04
See BHHRA Table 9.56-RME for full results. (1) For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of the reaches that are included in OU3.			Chemical Total	3.70E-03	--	--	3.70E-03
			Exposure Point Total				3.70E-03
			Exposure Medium Total				3.70E-03
			Medium Total				3.70E-03
					Receptor Risk Total		**3.70E-03**

Scenario Timeframe: Current/Future
Exposure Medium: Fish Tissue
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Angler
Receptor Age Adolescent

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue Fillets	Zone 3 (1)	Aroclor 1248	1.00E-03	--	--	1.00E-03
			Aroclor 1254	1.10E-03	--	--	1.10E-03
			Aroclor 1260	9.60E-05	--	--	9.60E-05
See BHHRA Table 9.57-RME for full results. (1) For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of the reaches that are included in OU3.			Chemical Total	2.30E-03	--	--	2.30E-03
			Exposure Point Total				2.30E-03
			Exposure Medium Total				2.30E-03
			Medium Total				2.30E-03
					Receptor Risk Total		**2.30E-03**

Table 7
Risk Characterization Summary - Carcinogens

Scenario Timeframe: Current/Future
Exposure Medium: Fish Tissue
Exposure Type: Reasonable Maximum Exposure (RME)
Receptor Population: Angler
Receptor Age Young Child

Medium	Exposure Medium	Exposure Point	Contaminant of Concern	Carcinogenic Risk			
				Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish Tissue	Fish Tissue Fillets	Zone 3 (1)	Mercury	NA	--	--	NA
			Aroclor 1248	8.90E-04	--	--	8.90E-04
			Aroclor 1254	9.60E-04	--	--	9.60E-04
			Aroclor 1260	8.30E-05	--	--	8.30E-05
			Chemical Total	2.00E-03	--	--	2.00E-03
			Exposure Point Total				2.00E-03
			Exposure Medium Total				2.00E-03
			Medium Total				2.00E-03
					Receptor Risk Total		**2.00E-03**

See BHHRA Table 9.58-RME for full results.
(1) For purposes of the BHHRA, fish consumption in the Creek was broken into zones. Zone 3 is inclusive of the reaches that are included in OU3.

Table 8
Summary of Lead Model Results

Scenario Timeframe	Exposure Area	Exposure Medium	Receptor	Lead Model Used	Maximum Lead Concentration (mg/kg)	Exposure Point Concentration Used in Model (mg/kg)	Percent (%) of Individuals with BLLs > 5 µg/dL
Current/ Future	Reach 6	Sediment	Adult	ALM	4383	623	0.07
	Reach 7	Sediment	Adult	ALM	2940	613	0.07
	Reach 6	Floodplain Soil	Adult	ALM	1370	254	NA
	Reach 7	Floodplain Soil	Adult	ALM	2630	341	NA
	Reach 6	Sediment	Child Recreational User	IEUBK	4383	623	100 (1)
	Reach 7	Sediment	Child Recreational User	IEUBK	2940	613	99 (2)
	Transect 15	Floodplain Soil	Child Resident	IEUBK	1780	450	27
	Transect 17	Floodplain Soil	Child Resident	IEUBK	556	208	5.4
	Transect 18	Floodplain Soil	Child Resident	IEUBK	527	242	7.6
	Transect 19	Floodplain Soil	Child Resident	IEUBK	594	256	8.7
	Transect 22	Floodplain Soil	Child Resident	IEUBK	841	291	11
	Transect 25	Floodplain Soil	Child Resident	IEUBK	933	287	11

Notes:
(1) The probability of exceeding 5 µg/dL was rounded from 99.8% to 100%.
(2) The probability of exceeding 5 µg/dL was rounded from 98.8% to 99%.
Sediment ALM data was obtained from text table located in BHHRA section 7.5.1.
Soil ALM data was obtained from text table located in BHHRA section 7.5.3 and Appendix B Tables 2.10 and 2.14.
Sediment IEUBK data was obtained from text table located in BHHRA section 7.5.2.
Soil IEUBK data was obtained from text table located in BHHRA section 7.5.4. and the following Appendix B Tables: 2.9, 2.11, 2.13, 2.24, 2.26, 2.27, 2.28, 2.31, and 2.34.

Acronyms:
ALM = adult lead model; BLL = blood lead level; IEUBK = Integrated Exposure Uptake Biokinetic;
µg/dL = micrograms per deciliter; mg/kg = milligrams per kilogram; NA = not applicable

Table 9: Cost Estimate Summary for the Selected Remedy for Sediment
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost
PDI				**Total**	**$256,000**
PDI costs	Lump sum covering all associated sampling and analysis for a PDI	1	LS	$256,000	$256,000
General Requirements				**Total**	**$6,801,100**
Institutional Controls					
Fish consumption	Addressed by state agency			NA	
Bonds and Insurance					
Performance and Payment Bond	Assumed 1% of project cost	1	LS	$375,254	$375,300
Insurance	Assumed 2% of project cost	1	LS	$750,508	$750,600
Mobilization					
General mobilization	Assumed 5% of project cost. includes items such as trailers, toilets, utilities, incidentals, etc.	1	LS	$1,876,271	$1,876,300
Excavator	hydraulic excavator, unknown quantity	1	LS	$13,048	$13,100
Other mobile equipment	Generator, skid steer, material transfer equipment, etc.	1	LS	$65,239	$65,300
Backfill equipment	Placement equipment, etc.	1	LS	$105,034	$105,100
Mechanical dredge	Dredge mob/demob, maximum	1	LS	$75,749	$75,800
Programmatic and General Labor					
Program Management/Oversight/QA	Project Manager, maximum cost x1.25, assumed working 2 days/week assuming a 5-day work week	40	Week	$1,425	$57,000
Project Manager	Project Manager, maximum cost, full time	40	Week	$2,850	$114,000
Administrative assistance	Clerk, average cost, full time	40	Week	$495	$19,800
Job Superintendent	Job Superintendent, maximum cost, full time	40	Week	$2,650	$106,000
SSHS Officer	Job Superintendent, maximum cost x.75, full time	40	Week	$1,988	$79,500
Foreman	General purpose laborer, average x1.5, full time, 2 personnel	40	Week	$5,524	$221,000
General laborers	General purpose laborer, average, full time, 14 personnel	40	Week	$25,780	$1,031,300
OH and benefits	35% of personnel cost	1	LS	$570,010	$570,100
Per diem	Hotel, car/gas, and food. Assumed 20 people - proj mngr, admin assistant, job super, SSHS officer, 2 foremen, 14 laborers (unit cost *20)	200	day	$5,480	$1,096,000
General Mobile Equipment and Operators					
Water truck	6000 gal capacity, weekly rental	40	Week	$3,480	$139,200
Street sweeper	Vacuum assisted, 4 CY, 220 gal, weekly rental	40	Week	$2,640	$105,700
Site Work				**Total**	**$7,240,700**
Silt fence (out of water)	Install and removal, stakes every 10ft, assumed sum of perimeter of processing facility, and 2x length of access roads	15,831	LF	$2	$35,200
Silt curtain (in water)	50ft long, 1ft wide, 5ft deep turbidity curtain, assumed 500ft	500	LF	$14	$7,100
Vegetation clearing	For installation of access roads and excavation work (if needed)	14	Acre	$4,636	$62,900
Temporary fencing	Orange safety fence, re-used as work moves to different areas, 20% replacement	2,640	LF	$4	$9,600
Temporary Access Roads					
Geotextile fabric	Mirafi FW 500 for base, assume additional 25% for overlap	145,125	SF	$0.3	$44,100
2" crusher run stone	2" crusher run stone, material cost (12" thick)	8,708	Ton	$11	$98,000
Transport cost	Assume 2 moves - source to staging and staging to access	4,300	LCY	$8	$35,700
Placement cost	Dozer 80 HP, 300' haul from stockpile, sand and gravel	4,300	LCY	$3	$12,100

Key at end of table.

Table 9: Cost Estimate Summary for the Selected Remedy for Sediment
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost
Water Diversion System	Assume removal would occur in the dry and water would be diverted around work areas. Assume 2000ft work section at a time				
Coffer dams - 8ft (including filling equipment)	Flexible structure filled with water to form barrier between the work area and the creek	250	LF	$215	$53,900
Side dams - 4ft (as necessary)	Assumed 10% of the coffer dam length	25	LF	$100	$2,500
Pipelines (3, 36" HDPE pipes)	Water transfer around active work area	6,000	LF	$130	$782,900
Tributary flow controls - small	As needed depending on work area	1	LS	$20,000	$20,000
Pumping systems (including generator)	Assumed one needed per 100 LF of dam	3	Each	$70,000	$210,000
Initial installation		1	LS	$200,000	$200,000
Segment relocation/reset	Length of remedial area/ work section length	14	Each	$130,000	$1,820,000
Excavation					
Excavation	Hydraulic excavator, crawler mounted, 1-1/2 CY bucket, +15% for soft soil/sand, +15% for loading into trucks, +100% for wet excavation. Cost converted to weekly unit based on production rate.	50	Week	$15,850	$792,500
Transport to processing facility	16.5 CY truck, 45 mph avg, 20min load/unload, cycle 8 miles	61,541	LCY	$3	$193,900
Backfill					
Sand					
Material cost	Assumed bank run sand	81,414	Ton	$15	$1,200,900
Transport cost	Assume 2 moves - source to staging and staging to access	59,426	LCY	$10	$608,000
Placement cost	Excavator, crawler mounted, 1-1/2 CY bucket, +15% for soft soil/sand	52	Day	$1,587	$82,100
Source analytical testing	DER-10 testing, including PFAS and 1,4 Dioxane	52	Each	$1,408	$73,300
Gravel					
Material cost	Assume bank run gravel	19,001	Ton	$11	$206,200
Transport cost	(assume 2 trips - source to staging and staging to access)	9,383	LCY	$8	$77,700
Placement cost	Excavator, crawler mounted, 1-1/2 CY bucket	8	Day	$1,380	$11,300
Source analytical testing	DER-10 testing, including PFAS and 1,4 Dioxane	9	Each	$1,408	$12,700
Habitat Layer Material	Add 3 inches of topsoil for organic content for habitat restoration				
Material cost	Assumed topsoil	8,570	Ton	$33	$282,900
Transport cost	Assume 2 moves - source to staging and staging to access	6,255	LCY	$8	$51,800
Placement cost	Hydraulic excavator, crawler mounted, 1-1/2 CY bucket, +15% for soft soil/sand	5	Day	$1,587	$8,700
Source analytical testing	DER-10 testing, including PFAS and 1,4 Dioxane	6	Each	$1,408	$8,500
Habitat restoration	Unit cost assumed same as wetland restoration cost. Includes seeding and planting	3	Acre	$33,000	$93,300
Water quality monitoring	Sampling analysis for TSS, TDS periodically	80	Each	$25	$2,000
Water quality equipment	Rental of equipment to periodically evaluate water conditions during work	40	Week	$172	$6,900
Air quality monitoring during construction	Assume 5 Dust-trac rentals with tripod/enclosure at a monthly rate	10	Month	$713	$7,200
Bathymetric/Topographic Surveys					
Pre-excavation		20	Acre	$839	$17,000
Post-excavation		20	Acre	$839	$17,000
Post-backfill		20	Acre	$839	$17,000
Post-dredging confirmatory sample collection (sediment)	30x30ft grids is EPA standard, so 1 per 900SF. Sampling for PCBs	980	Each	$77	$75,800

Key at end of table.

Table 9: Cost Estimate Summary for the Selected Remedy for Sediment
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost
Processing Facility				**Total**	**$18,556,900**
Clear vegetation and strip topsoil	Topsoil stripping and stockpiling, 6" deep, 200' haul	52,732	SY	$0.3	$15,300
Construct staging area		1	LS	$10,000	$10,000
Temporary fencing	6FT high 11 gauge chain link fencing	4,568	LF	$6	$28,100
Paving	Processing facility footprint not including storage pads. Plant-mix asphalt paving, binder course, 3" thick and wearing course, 1" thick	352,631	SF	$2	$746,500
Dewatering/Material Storage Pads					
Geocomposite Liner					
Decon pad/processing area		37,305	SF	$3	$97,400
Unprocessed material stockpile		49,398	SF	$3	$129,000
Hazardous material stockpile		11,302	SF	$3	$29,500
Clean backfill material stockpiles		23,951	SF	$3	$62,600
Jersey Barriers					
Decon pad/processing area		846	LF	$130	$110,400
Unprocessed material stockpile		903	LF	$130	$117,900
Hazardous material stockpile		437	LF	$130	$57,100
Clean backfill material stockpiles		645	LF	$130	$84,200
Base Coarse Aggregate					
Decon pad/processing area	Plant-mix asphalt paving, binder course, 3" thick	37,305	SF	$2	$58,500
Unprocessed material stockpile	Plant-mix asphalt paving, binder course, 3" thick	49,398	SF	$2	$77,400
Hazardous material stockpile	Plant-mix asphalt paving, binder course, 3" thick	11,302	SF	$2	$17,700
Clean backfill material stockpiles	Plant-mix asphalt paving, binder course, 3" thick	23,951	SF	$2	$37,500
Top Coarse Aggregate					
Decon pad/processing area	Plant-mix asphalt paving, wearing course, 1" thick	37,305	SF	$1	$20,600
Unprocessed material stockpile	Plant-mix asphalt paving, wearing course, 1" thick	49,398	SF	$1	$27,300
Hazardous material stockpile	Plant-mix asphalt paving, wearing course, 1" thick	11,302	SF	$1	$6,300
Clean backfill material stockpiles	Plant-mix asphalt paving, wearing course, 1" thick	23,951	SF	$1	$13,200
Stone Subbase					
Paved areas not stockpiles	2" crusher run stone, material cost (12" thick)	26,447	Ton	$11	$297,600
Decon pad/processing area	2" crusher run stone, material cost (12" thick)	2,798	Ton	$11	$31,500
Unprocessed material stockpile	2" crusher run stone, material cost (12" thick)	3,705	Ton	$11	$41,700
Hazardous material stockpile	2" crusher run stone, material cost (12" thick)	848	Ton	$11	$9,600
Clean backfill material stockpiles	2" crusher run stone, material cost (12" thick)	1,796	Ton	$11	$20,300
Stone transport	2" crusher run stone, material cost (12" thick)	20,214	LCY	$5	$103,700
Stone placement	Dozer 80 HP, 300' haul from stockpile, sand and gravel	20,214	LCY	$3	$56,600
Contact Water Management System					
Perforated pipe - dewatering cells, decon pad, 2 stockpiles	Assumed 1/2 of the combined perimeter of the unprocessed and hazardous material stockpile perimeter, and 1/4 of the processing area perimeter	882	LF	$17	$15,000
Straw bales - dewatering cell, decon pad, 2 stockpiles	Assumed perimeter of unprocessed and hazardous material stockpiles, and 1/4 of the processing area perimeter	1,552	LF	$9	$14,200
Contact water transfer pipe, valves, fittings, sand bags, etc.	Assumed 1/4 of the processing facility perimeter	1,142	LF	$7	$7,500
Pipe boots, pipe clamps	Assumed 1/100ft of transfer pipe	12	Each	$130	$1,600
Sumps	Assumed 1/stockpile needing water management	3	Each	$3,262	$9,800
Pumps	Assumed 2/stockpile needing water management	6	Each	$848	$5,100
Sump excavation	Assumed 4'x4'x3' sump	5	CY	$13	$100

Key at end of table.

Table 9: Cost Estimate Summary for the Selected Remedy for Sediment
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost
Pipe trench excavation	Assumed trench 1'x1'xlength of transfer pipe	42	CY	$13	$600
Pipe trench steel plating	Assumed 500ft/day	3	Day	$117	$400
Contact water storage tank - rental	21,000 gal frac tank rental - unit price based on quantity of tanks	40	week	$1,500	$60,000
Mob/demob of tank	21,000 gal frac tank rental, assumed 6 tanks - 3 treated, 3 untreated	6	Each	$1,500	$9,000
Asphalt Berms	12" wide, 4" tall, 60 LF/ton, laid with pavement				
Material stockpile	Assumed perimeter of material stockpiles	1,985	LF	$2	$4,100
Decon pad	Assumed 1/4 of the processing area perimeter	212	LF	$2	$500
Stormwater diversion	Assumed perimeter of processing facility	4,568	LF	$2	$9,400
Dredging Material Screening and Moisture Control					
Pug mill and screening plant		10	Month	$15,000	$150,000
Stabilization material	CKD, assumed 5-15% of tons of material excavated (10 lbs. CKD/Ton of material excavated with an average of 10% of material)	38	Ton	$3,000	$113,900
CKD storage		10	Month	$7,000	$70,000
Chemical stabilization (metals)	Assumed 10% of material will be considered hazardous and needs to be stabilized	5,351	CY	$20	$104,800
Haul and Disposal					
Subtitle D facility	excavated/dredged material	75,880	Ton	$97	$7,360,400
Transport	20 CY truck (20min load time) from staging area to disposal facility	55,387	LCY	$22	$1,193,600
Subtitle D facility	access road stone and processing facility stone	49,641	Ton	$97	$4,815,200
Transport	20 CY truck (20min load time) from staging area to disposal facility	24,514	LCY	$22	$528,300
Subtitle C/TSCA facility	Assumed 10% of material will be considered hazardous	8,431	Ton	$194	$1,635,700
Transport	20 CY truck (20min load time) from staging area to disposal facility	6,154	LCY	$22	$132,700
Waste profile sampling	1 sample per 5,000 CY	11	Each	$680	$7,500
Site Restoration				**Total**	**$1,661,610**
Site Decontamination at Processing Facility					
Remove and dispose of containment systems		1	LS	$6,524	$6,600
Remove and dispose of asphalt berms	Berms, bituminous, 4" or more in height	6,765	LF	$4	$29,400
Remove and dispose of paved areas	Pavement removal, bituminous roads, 4-6" thick	474,587	SF	$1	$367,100
Removal of stone subbase for paved areas	Wheeled front end loader, 3 CY bucket, select granular fill	17,577	BCY	$10	$174,400
Decon and remove equipment		1	LS	$19,572	$19,600
Remove contact water system		1	LS	$13,048	$13,100
Soil testing under containment areas	1/2000 SF of processing facility	237	Each	$77	$18,400
Soil Removal					
Excavation	Hydraulic excavator, crawler mounted, 1-1/2 CY bucket	1,830	BCY	$1	$2,600
Transport cost for disposal	20 CY truck (20min load time), 45mph avg, from staging area to disposal facility	2,104	LCY	$22	$45,400
Disposal cost	Subtitle D facility assumed	2,882	Ton	$97	$279,600
Site Restoration					
Soil preparation	Rough grade and scarify common earth to receive topsoil, 200HP dozer with scarifier.	590.7	MSF	$23	$13,610
Soil Restoration					
Placement cost	Dozer 80 HP, 300' haul from stockpile, sandy clay and loam	11	Day	$1,587	$17,400
Re-vegetation	Hydro seeding including seed and fertilizer	590,687	SF	$0.1	$65,700
Tree planting	Tree density 1 per 100SF, includes placement of bagged and burlapped 12" dia ball trees via backhoe/loader, 48HP. Assumed transport cost per tree to be $20	590,687	SF	$1	$515,400
Wetland restoration		3	Acre	$33,000	$93,300

Key at end of table.

Table 9: Cost Estimate Summary for the Selected Remedy for Sediment
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost
Special Construction				Total	$6,011,300
Dewatering plant operations	CY of excavated material	53,514	CY	$98	$5,236,800
Wetland mitigation activities		3	Acre	$58,715	$165,900
Wastewater Treatment Plant					
WWTP mobilization/demobilization		1	LS	$32,619	$32,700
WWTP rental		10	Month	$45,667	$456,700
WWTP operator		10	Month	$9,786	$97,900
WWTP residuals disposal		1	LS	$13,048	$13,100
Water discharge fees	Costs for sampling for COCs, TSS, TDS periodically in discharge water plus a base monthly cost. Assumed sampling happens bi-monthly.	10	Month	$818	$8,200
				Capital Costs Subtotal:	$40,527,700
				10% Legal, administrative, engineering fees, project management - not including sediment or soil disposal costs:	$2,643,700
				10% design - not including sediment or soil disposal costs:	$2,643,700
				15% construction management - not including sediment or soil disposal costs:	$3,965,600
				20% overhead and profit	$7,991,600
				30% Contingencies:	$17,331,700
				Capital Cost Total:	$75,104,000
Annual Sampling (Baseline and once per year for first 4 years)					
Annual Project Management and Oversight					
Project management		1	LS	$5,000	$5,000
Technical support		1	LS	$6,000	$6,000
Quality assurance		1	LS	$2,000	$2,000
Sampling Labor					
Sampling Labor	Event involves Sediment, surface water, and fish sampling: 1 day for mob, 1 day for demob = 16hrs, 2-person crew for mob/demob	32	Hour	$125	$4,000
Surface Water	Assumed $125 per person per hour, 2-person crew (for boat work) can get 15 samples locations per day in a 10 hr day collected. Another 2-person crew to process and package samples. 40hrs/day/15 samples is 2.67hrs per sample.	662	Hour	$125	$82,800
Fish	Assumed $125 per person per hour, 2-person crew (for boat work) can get 15 samples locations per day in a 10 hr day collected. Another 2-person crew to process and package samples. 40hrs/day/15 samples is 2.67hrs per sample.	80	Hour	$125	$10,100
Surface Water Sampling					
Equipment		4	Event	$744	$3,000
Analysis					
PCBs	Analysis cost includes bottles and quantity for QC	248	Each	$77	$19,200
Biological Sampling (Fish)	Game fish, feeder fish, and YOY fish				
Equipment		1	Event	$3,212	$3,300
Analysis					
PCBs	Analysis cost includes bottles and quantity for QC	30	Each	$134	$4,100
Annual Reporting					
Baseline/Annual reporting		1	LS	$15,000	$15,000
				Baseline and Years 1-4 Annual Cost Subtotal:	$154,500
				10% Legal, Administrative and Engineering Fees:	$15,500
				20% overhead and profit	$11,600
				30% Contingencies:	$54,500
				Baseline and Years 1-4 Annual Cost Total:	$237,000

Key at end of table.

Table 9: Cost Estimate Summary for the Selected Remedy for Sediment
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost
Periodic Costs (Every 5 Years)					
5-yr review, data evaluation, and reporting		1	LS	$30,000	$30,000
Maintain institutional controls	Addressed by State Agency			NA	
Periodic Sampling (Once every 5 years for Years 5-30, starting at Year 5)					
Annual Project Management and Oversight					
Project management		1	LS	$5,000	$5,000
Technical support		1	LS	$6,000	$6,000
Quality assurance		1	LS	$2,000	$2,000
Sampling Labor					
Sampling Labor	Event involves Sediment, surface water, and fish sampling: 1 day for mob, 1 day for demob = 16hrs, 2-person crew for mob/demob	32	Hour	$125	$4,000
Surface Water	Assumed $125 per person per hour, 2-person crew (for boat work) can get 15 samples locations per day in a 10 hr day collected. Another 2-person crew to process and package samples. 40hrs/day/15 samples is 2.67hrs per sample.	166	Hour	$125	$20,700
Fish	Assumed $125 per person per hour, 2-person crew (for boat work) can get 15 samples locations per day in a 10 hr day collected. Another 2-person crew to process and package samples. 40hrs/day/15 samples is 2.67hrs per sample.	80	Hour	$125	$10,100
Surface Water Sampling					
Equipment		1	Event	$744	$1,000
Analysis					
PCBs	Analysis cost includes bottles and quantity for QC	62	Each	$77	$4,800
Biological Sampling (Fish)	Game fish, feeder fish, and YOY fish				
Equipment		1	Event	$3,212	$3,300
Analysis					
PCBs	Analysis cost includes bottles and quantity for QC	30	Each	$134	$4,100
				Periodic Cost Subtotal:	$91,000
				10% Legal, Administrative and Engineering Fees:	$9,100
				20% Overhead and Profit:	$11,300
				30% Contingencies:	$33,500
				Periodic Cost Total:	$145,000

Key at end of table.

Table 9: Cost Estimate Summary for the Selected Remedy for Sediment
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost

Key

BCY = bank cubic yards	MS/MSD = matrix spike and spike duplicate
CKD = cement kiln dust	MSF = thousand square feet
COC = contaminant of concern	OTR = over the road
CY = cubic yards	OU = operable unit
DIA = diameter	NCP = National Contingency Plan
EA = each	OH = overhead
EPA = Environmental Protection Agency	PCB = polychlorinated biphenyl
FOB = freight on board	PDI = predesign investigations
FS = feasibility study	QA/QC = quality assurance/control
GPS = Global Positioning System	RAL = remedial action level
HR = hour	SSHS = site safety and health superintendent
H&S = health and safety	TDS = total dissolved solids
LCY = loose cubic yards	TSS = total suspended solids
LF = linear feet	YOY = young-of-year
LS = lump sum	

Basis of Cost

Costs based on a variety of sources including published and unpublished sources such as RS Means, communications with vendors (written and verbal), and internal databases of cost based on previous experience. Costs FOB Lockport, New York. RS Means costs were based on 2022 rates in Niagara Falls, New York.

Present worth calculations based on a 30-year operating period and a 7% annual interest rate per "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study" (EPA 540-R-00-002 August 2000), the preamble to the NCP (55 FR 8666).

Estimated schedule for completion of work based on 1 mg/kg PCB cleanup level - 9 months including removal and restoration. Schedule assumes that the excavation rate would be approximately 1,000 CY per day. Schedule assumes that the restoration rate would be approximately 1,000 CY per day. Schedule assumes that one working season would be 9 months and no work would occur over winter. Schedule assumes equipment and supplies are readily available.

Labor rates include overhead and profit and are not included in the overall overhead and profit markup

Predesign Investigations

Predesign investigations to be conducted prior to the Remedial Design to more thoroughly delineate excavation areas, determine contact water treatment requirements, investigate obstacles to construction, and other Site features.

Topographic survey conducted for the staging area and access points. Bathymetric survey conducted for the entire remedial area.

Additional sampling will include delineation of the area requiring removal by establishing additional sample transects along the STA.

Additional sediment samples will be collected based on a rate of: 1 transect per 200 feet of creek centerline in the remedial area (excluding the transects collected during the RI), 3 sample locations per transect, 3 samples per location (surface, 1ft, 2ft), and 1 MS/MSD and 1 QA/QC sample per 20 samples. Samples will be analyzed for PCBs.

Additional flow monitoring and modeling in the creek to assess variations in flow that will impact operations.

Equipment assumed for sediment sampling include: Petite Ponar, Macrocorer, Macro Core Liner, GPS, small work boat, and ancillary supplies.

Sample bottle shipping costs included in analytical costs

General Requirements

Contractor management and non specific labor costs include project management, QA/QC, Health and Safety. Equipment charges include operator.

Implementation of institutional controls are assumed to be conducted by the appropriate government agency

General costs associated with project implementation including project trailers, communications, sanitation, PPE and other H&S safety supplies, and various sundries required for project implementation as a percentage of project capital costs (5%).

Table 9: Cost Estimate Summary for the Selected Remedy for Sediment
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost

Site Work

Site work includes general preparation activities prior to construction as well as other Site-wide activities conducted throughout the construction period.

Vegetation clearing will be limited to areas necessary for access and areas impacted by removal operations includes removal of small, medium, and large size trees and grubbing of stumps.

Temporary safety fencing assumed to be around active access roads and work areas, will be salvaged and reused as access roads shifted.

Temporary access road construction - estimated total for project - 8 entrance areas of varying lengths depending on distance from the creek to the closest public road, 12 feet wide, aggregate covered.

Assumed one access road would be utilized at a time.

Coffer dams will be utilized to section off parts of the remedial area to allow for excavation work to occur in the dry. Diversion piping would allow for creek water to flow around the work area. It is assumed a 2,000ft stretch of the creek would be excavated at a time and the coffer dams would be shifted after each area is capped.

Excavated material will be loaded onto trucks to be transferred to the staging/processing area to be dewatered.

Confirmation sampling would be conducted following excavation to verify if contaminated material remains.

Following removal of sediment, backfill would be placed to meet pre-construction grades. Backfill would primarily consist of sand, with 2 inches of topsoil (to allow for habitat restoration), and mixing in approximately 3 inches of gravel.

Air quality monitoring will include VOCs, PCBs, and fugitive dust.

Distance from source to staging area for #2 run of crusher stone, topsoil, and gravel assumed to be 20 miles.

Distance from source to staging area for sand assumed to be 10 miles.

Distance from staging area to work area assumed to be an average of 8 miles.

Distance from staging area to disposal facility assumed to be 100 miles.

Clean material source sampling assumed to be 1 sample per 1000 CY of material

Processing Facility

Material staging areas will be constructed at the processing facility for temporary storage and dewatering of sediment prior to testing and processing, processed materials, hazardous /TSCA material requiring segregation, clean materials for backfill/cap, etc. The areas will be lined with a geocomposite liner material and jersey barriers to establish the perimeter of each area. Contact water from these areas will be collected and processed with other contact water generated at the Site.

A contact water collection system will be constructed around the perimeter of the material storage bins to collect runoff and divert it to the contact water treatment system. The collection system will consist of perforated pipes in the storage area draining to a sump. Water in the sump will be pumped to the frac tanks.

Frac tank(s) will be used to store water that has come into contact with contaminated materials generated at the Site. Wastewater from dewatering operations will also be stored in the frac tanks. Excess water will be treated and discharged to the creek. The estimated cost in this estimate assumes discharge to Eighteen Mile Creek.

Prior to off-site disposal, sediment will be moisture conditioned by the addition of CKD, or other approved materials. The reagent will be mixed with the sediment in a pug mill prior to shipment to the disposal facility.

Sediment will be stabilized as necessary in accordance with RCRA land disposal regulations. Additional processing may be required based on the final waste characteristics of the sediment and soil. For this FS, it was estimated that approximately 10% of sediment will require stabilization.

Following processing, the soil and sediment will be shipped off-site for disposal. If a beneficial use can be found for the material during the remedial design phase and the processed material meets the material specifications, it may reduce the overall cost of remediation. For this analysis it was assumed that approximately 90% of the material can be shipped to a Subtitle D landfill for disposal, with the remaining going to a Subtitle C landfill.

Site Restoration

It is anticipated that wetland disturbance would include the construction of access roads and other construction activities. Access roads will be removed and wetland areas will be restored and replanted following the completion of construction. Wetland disturbance is assumed to be 75% of the area of the access roads.

Disturbed areas will be regraded prior to restoration to blend with preconstruction conditions.

Site cleanup activities will include the removal of all equipment, cleaning and testing of paved surface, and restoration of paving to preconstruction conditions.

Assumed topsoil would be cleared from staging area and replaced during site restoration. Assume spreading to match pre-construction depths

Removal and disposal of silt fence included in costs for installation of silt fence

Sweeping and washing of roads included in cost of rental of cleaning equipment

Assumed that the contaminated material stockpile area would need to be excavated to 1ft in depth to remove residual contamination from the processing facility

Table 9: Cost Estimate Summary for the Selected Remedy for Sediment
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost

Special Construction

A contractor will be retained to provide equipment and operate an on-site dewatering facility.

Annual and Periodic Costs

Annual and periodic surface water sampling rates based on 1 sample/500ft of creek centerline within the remedial area, and 1 MS/MSD and 1 field duplicate sample per 20 samples.
Annual surface water sampling activities assumed to occur quarterly to account for seasonal variation.
Annual and periodic fish sampling rates based on 1 sample/1000ft of creek centerline within the remedial area, and 1 MS/MSD sample per 20 samples
Equipment assumed for surface water include: Peristaltic Pumps, Myron Ultrameter, Water quality meter, filters, silicone tubing, small work boat and ancillary supplies.
Equipment assumed for Biological sampling include: Electroshocker, Generator, small work boat and ancillary supplies.
In accordance with the USEPA requirements, a 5-year review will be completed at the site to evaluate site conditions as well as to recommend modifications to the selected remedy.
Sample bottle shipping costs included in analytical costs

Table 10: Cost Estimate Summary for the Selected Remedy for Floodplain Soil
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost
Predesign Investigations				**Total**	**$2,100,000**
PDI costs	Lump sum covering all associated sampling and analysis for a PDI	1	LS	$2,100,000	**$2,100,000**
General Requirements				**Total**	**$6,504,500**
Bonds and Insurance					
Performance and Payment Bond	Assumed 1% of project cost	1	LS	$743,072	$743,100
Insurance	Assumed 2% of project cost	1	LS	$1,486,143	$1,486,200
Mobilization					
General mobilization	Assumed 5% of project cost. includes items such as trailers, toilets, utilities, incidentals, etc.	1	LS	$3,538,433	$3,538,500
Excavator	Hydraulic excavator, quantity unknown	1	LS	$13,048	$13,100
Other mobile equipment	Generator, skid steer, etc.	1	LS	$65,239	$65,300
Backfill equipment	Dozer, front loader, etc.	1	LS	$105,034	$105,100
Programmatic and General Labor					
Program Management/Oversight/QA	Project Manager, maximum cost x1.25, assumed working 2 days/week assuming a 5-day work week	8	Week	$1,425	$11,400
Project Manager	Project Manager, maximum cost, full time	8	Week	$2,850	$22,800
Administrative assistance	Clerk, average cost, full time	8	Week	$495	$4,000
Job Superintendent	Job Superintendent, maximum cost, full time	8	Week	$2,650	$21,200
SSHS Officer	Job Superintendent, maximum cost x.75, full time	8	Week	$1,988	$15,900
Foreman	General purpose laborer, average x1.5, full time, 2 personnel	8	Week	$5,506	$44,100
General laborers	General purpose laborer, average, full time, 9 personnel	8	Week	$16,518	$132,200
OH and benefits	35% of personnel cost	1	LS	$88,060	$88,100
Per diem	Hotel, car/gas, and food. Assumed 15 people - proj mngr, admin assistant, job super, SSHS officer, 2 foremen, 9 laborers (unit cost *15)	40	day	$4,110	$164,400
General Mobile Equipment and Operators					
Water truck	6000 gal capacity, weekly rental	8	Week	$3,480	$27,900
Street sweeper	Vacuum assisted, 4 CY, 220 gal, weekly rental	8	Week	$2,640	$21,200
Site Work				**Total**	**$5,981,500**
Silt fence (out of water)	include install and removal, stakes every 10ft, assumed sum of perimeter of processing facility, 2x length of access roads, and perimeter of remedial areas excluding the creek edge	494,434	LF	$2	$865,300
Silt curtain (in water)	50ft long, 1ft wide, 5ft deep turbidity curtain, assumed installation rate at 50ft/hour. Assumed length of remedial area along the creek edge	3,871	LF	$14	$54,600
Vegetation clearing	Installation of access roads and excavation work (if needed)	14	Acre	$4,636	$64,300
Temporary fencing	Orange safety fence, assumed 50% of remedial area perimeter and re-used as work moves to different areas with 20% replacement	11,751	LF	$4	$42,400
Inspection of Dam condition	In area surrounding Newfane dam, in relation to soil excavation	1	Each	$5,000	$5,000

Key at end of table.

Table 10: Cost Estimate Summary for the Selected Remedy for Floodplain Soil
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost
Temporary Access Roads					
Geotextile fabric	Mirafi FW 500 for base, assume additional 25% for overlap	196,750	SF	$0.3	$59,700
2" crusher run stone	2" crusher run stone, material cost (12" thick)	13,576	Ton	$11	$152,800
Transport cost	Assume 2 moves - source to staging and staging to access	6,704	LCY	$8	$55,600
Placement cost	Dozer 80 HP, 300' haul from stockpile, sand and gravel	6,704	LCY	$3	$18,800
Water Diversion System					
Coffer dams - 8ft (including filling equipment)	Flexible structure filled with water to form barrier between the work area and the creek	1,200	LF	$215	$258,400
Side dams - 4ft (in low spots as necessary)	Assumed 10% of the coffer dam length	120	LF	$98	$11,800
Tributary controls - small	as needed depending on work area	1	LS	$19,572	$19,600
Pumping systems (including generator)	Assumed one needed per 1000 LF of dam	2	Each	$65,239	$130,500
Initial installation		1	LS	$195,716	$195,800
Segment relocation/reset	Assumed relocating to each remediation area	13	Each	$130,477	$1,696,300
Excavation					
Excavation	Hydraulic excavator, crawler mounted, 1-1/2 CY bucket, +15% for soft soil/sand, +15% for loading into trucks, +50% for wet excavation	33	Day	$1,105	$36,600
Transport to processing facility	16.5 CY truck, 45 mph avg, 20min load/unload, cycle 8 miles	38,004	LCY	$4	$143,300
Backfill Placement					
Common Fill					
Material cost		39,050	Ton	$7	$283,200
Transport cost	Assume 2 moves - source to staging and staging to access	28,503	LCY	$6	$184,800
Placement cost	Dozer 80 HP, 300' haul from stockpile, common earth	29	Day	$3,140	$89,600
Source analytical testing	DER-10 testing	25	Each	$1,408	$35,300
Topsoil					
Material cost		13,017	Ton	$33	$429,600
Transport cost	Assume 2 moves - source to staging and staging to access	9,501	LCY	$8	$78,700
Placement cost	Dozer 80 HP, 300' haul from stockpile, sandy clay and loam	10	Day	$2,890	$27,500
Source analytical testing	DER-10 testing	9	Each	$1,408	$12,700
Re-vegetation	Hydro seeding including seed and fertilizer	446,139	SF	$0.1	$49,600
Tree planting	Tree density 1 per 100SF, includes placement of bagged and burlapped 12" dia ball trees via backhoe/loader, 48HP. Assumed transport cost per tree to be $20	446,139	SF	$1	$401,700
Habitat restoration	Unit cost assumed same as wetland restoration. Includes seeding and planting	13	Acre	$33,000	$417,400
Water quality monitoring	Sampling analysis for TSS, TDS periodically	16	Each	$25	$400
Water quality equipment	Rental of equipment to periodically evaluate water conditions during work	8	Week	$172	$1,400
Air quality monitoring during construction	Assume 5 Dust-trac rentals with tripod/enclosure at a monthly rate	2	Month	$713	$1,500
Bathymetric/Topographic Surveys					
Pre-excavation		10	Acre	$839	$8,600
Post-excavation		10	Acre	$839	$8,600
Post-Backfill		10	Acre	$839	$8,600
Periodic		10	Acre	$839	$8,600
Post-excavation confirmatory sample collection (soil)	30x30ft grids is EPA standard, so 1 per 900SF plus sidewall samples. testing for PCBs, and lead	723	Each	$170	$122,900

Key at end of table.

Table 10: Cost Estimate Summary for the Selected Remedy for Floodplain Soil
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost
Processing Facility				**Total**	**$17,043,300**
Clear vegetation and strip topsoil	Topsoil stripping and stockpiling, 6" deep, 200' haul	52,242	SY	$0.3	$15,200
Construct staging area		1	LS	$10,000	$10,000
Temporary security fencing	6FT high 11 gauge chain link fencing	4,273	LF	$6	$26,300
Paving	Processing facility footprint not including storage pads. Plant-mix asphalt paving, binder course, 3" thick and wearing course, 1" thick	345,762	SF	$2	$731,900
Dewatering/Material Storage Pads					
Geocomposite Liner					
Decon pad/processing area		21,003	SF	$3	$54,900
Unprocessed material stockpile		60,971	SF	$3	$159,200
Hazardous material stockpile		14,204	SF	$3	$37,100
Clean backfill material stockpiles		28,239	SF	$3	$73,700
Jersey Barriers					
Decon pad/processing area		585	LF	$130	$76,400
Unprocessed material stockpile		1,136	LF	$130	$148,300
Hazardous material stockpile		479	LF	$130	$62,500
Clean backfill material stockpiles		754	LF	$130	$98,400
Coarse Aggregate					
Decon pad/processing area	Plant-mix asphalt paving, binder course, 3" thick	21,003	SF	$2	$32,900
Unprocessed material stockpile	Plant-mix asphalt paving, binder course, 3" thick	60,971	SF	$2	$95,500
Hazardous material stockpile	Plant-mix asphalt paving, binder course, 3" thick	14,204	SF	$2	$22,300
Clean backfill material stockpiles	Plant-mix asphalt paving, binder course, 3" thick	28,239	SF	$2	$44,300
Fine Aggregate					
Decon pad/processing area	Plant-mix asphalt paving, wearing course, 1" thick	21,003	SF	$1	$11,600
Unprocessed material stockpile	Plant-mix asphalt paving, wearing course, 1" thick	60,971	SF	$1	$33,700
Hazardous material stockpile	Plant-mix asphalt paving, wearing course, 1" thick	14,204	SF	$1	$7,900
Clean backfill material stockpiles	Plant-mix asphalt paving, wearing course, 1" thick	28,239	SF	$1	$15,600
Stone Subbase					
Paved areas not stockpiles	2" crusher run stone, material cost (12" thick)	25,932	Ton	$11	$291,800
Decon pad/processing area	2" crusher run stone, material cost (12" thick)	1,575	Ton	$11	$17,800
Unprocessed material stockpile	2" crusher run stone, material cost (12" thick)	4,573	Ton	$11	$51,500
Hazardous material stockpile	2" crusher run stone, material cost (12" thick)	1,065	Ton	$11	$12,000
Clean backfill material stockpiles	2" crusher run stone, material cost (12" thick)	2,118	Ton	$11	$23,900
Stone transport	2" crusher run stone, material cost (12" thick)	20,026	LCY	$5	$102,800
Stone placement	Dozer 80 HP, 300' haul from stockpile, sand and gravel	20,026	LCY	$3	$56,100
Contact Water Management System					
Perforated pipe - dewatering cells, decon pad, 2 stockpiles	Assumed 1/2 of the combined perimeter of the unprocessed and hazardous material stockpile perimeter, and 1/4 of the processing area perimeter	954	LF	$17	$16,200
Straw bales - dewatering cell, decon pad, 2 stockpiles	Assumed perimeter of unprocessed and hazardous material stockpiles, and 1/4 of the processing area perimeter	1,761	LF	$9	$16,100
Contact water transfer pipe, valves, fittings, sand bags, etc.	Assumed 1/4 of the processing facility perimeter	1,068	LF	$7	$7,000

Key at end of table.

Table 10: Cost Estimate Summary for the Selected Remedy for Floodplain Soil
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost
Pipe boots, pipe clamps	Assumed 1/100ft of transfer pipe	11	Each	$130	$1,500
Sumps	Assumed 1/stockpile needing water management	3	Each	$3,262	$9,800
Pumps	Assumed 2/stockpile needing water management	6	Each	$848	$5,100
Sump excavation	Assumed 4'x4'x3' sump	5	CY	$13	$100
Pipe trench excavation	Assumed trench 1'x1'xlength of transfer pipe	40	CY	$13	$600
Pipe trench steel plating	Assumed 500ft/day	3	Day	$117	$400
Contact water storage tank - rental	21,000 gal frac tank rental, assumed 6 tanks - 3 treated, 3 untreated	8	week	$9,000	$72,000
Mob/demob of tank	21,000 gal frac tank rental, assumed 6 tanks - 3 treated, 3 untreated	6	Each	$1,000	$6,000
Asphalt Berms	12" wide, 4" tall, 60 LF/ton, laid with pavement				
Material stockpile	Assumed perimeter of material stockpiles	2,369	LF	$2	$4,900
Decon pad	Assumed 1/4 of the processing area perimeter	146	LF	$2	$300
Stormwater diversion	Assumed perimeter of processing facility	4,273	LF	$2	$8,800
Material Screening					
Pug mill and screening plant		2	Month	$15,000	$30,000
Chemical stabilization (metals)	Assumed 10% of material will be considered hazardous and needs to be stabilized	29,743	CY	$100	$2,974,300
Haul and Disposal					
Subtitle D facility Disposal	excavated material	46,859	Ton	$97	$4,545,400
Transport	20 CY truck (20min load time) from staging area to disposal facility	34,204	LCY	$3	$107,800
Subtitle D facility Disposal	access road stone and processing facility stone	54,129	Ton	$97	$5,250,500
Transport	20 CY truck (20min load time) from staging area to disposal facility	26,730	LCY	$22	$576,100
Subtitle C/TSCA facility Disposal		5,207	Ton	$194	$1,010,100
Transport	20 CY truck (20min load time) from staging area to disposal facility	3,800	LCY	$22	$81,900
Waste profile sampling	1 sample per 5,000 CY	7	Each	$680	$4,800
Site Restoration				**Total**	**$40,768,560**
Site Decontamination at Processing Site					
Remove and dispose of containment systems		1	LS	$6,524	$6,600
Remove and dispose of asphalt berms	Berms, bituminous, 4" or more in height	6,788	LF	$4	$29,500
Remove and dispose of paved areas	Pavement removal, bituminous roads, 4-6" thick	470,179	SF	$1	$363,700
Removal of stone subbase for paved areas	Wheeled front end loader, 3 CY bucket, select granular fill	17,414	BCY	$10	$172,800
Decon and remove equipment		1	LS	$19,572	$19,600
Remove contact water system		1	LS	$13,048	$13,100
Soil testing under containment areas	1/2000 SF of processing facility	236	Each	$283	$66,900
Soil Removal					
Excavation	Hydraulic excavator, crawler mounted, 1-1/2 CY bucket	2,258	BCY	$1	$3,200
Transport cost for disposal	20 CY truck (20min load time), 45mph avg, from staging area to disposal facility	2,597	LCY	$22	$56,000
Disposal cost	Subtitle D facility assumed	3,558	Ton	$97	$345,200
Site Restoration					
Soil preparation	Rough grade and scarify common earth to receive topsoil, 200HP dozer with scarifier.	627.6	MSF	$23	$14,460

Key at end of table.

Table 10: Cost Estimate Summary for the Selected Remedy for Floodplain Soil
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost
Soil Restoration					
Placement cost	Dozer 80 HP, 300' haul from stockpile, sandy clay and loam	13,365	LCY	$2,890	$38,625,200
Re-vegetation	Hydro seeding including seed and fertilizer	627,579	SF	$0.1	$69,800
Tree planting	Tree density 1 per 100SF, includes placement of bagged and burlapped 12" dia ball trees via backhoe/loader, 48HP. Assumed transport cost per tree to be $20	627,579	SF	$1	$565,100
Wetland restoration		13	Acre	$33,000	$417,400
Special Construction					$4,138,600
Dewatering plant operations	CY of excavated material	33,047	CY	$98	$3,234,000
Wetland mitigation activities		13	Acre	$59,000	$746,100
Wastewater treatment plant					
WWTP mobilization/demobilization		1	LS	$32,619	$32,700
WWTP rental		2	Month	$45,667	$91,400
WWTP operator		2	Month	$9,786	$19,600
WWTP residuals disposal		1	LS	$13,048	$13,100
Water discharge permits	Costs for sampling for COCs, TSS, TDS periodically in discharge water plus a base monthly cost. Assumed sampling happens bi-monthly.	2	Month	$818	$1,700
				Capital Costs Subtotal:	$76,536,500
				10% Legal, administrative, engineering fees, project management - not including sediment or soil disposal costs:	$6,538,600
				10% design - not including sediment or soil disposal costs:	$6,538,600
				15% construction management - not including sediment or soil disposal costs:	$9,807,800
				20% Overhead and Profit:	$15,289,700
				30% Contingencies:	$34,413,400
				Capital Cost Total:	$149,125,000

Key

BCY = bank cubic yards
CKD = cement kiln dust
COC = contaminant of concern
CY = cubic yards
DIA = diameter
EA = each
EPA = Environmental Protection Agency
FOB = freight on board
FS = feasibility study
GPS = Global Positioning System
HR = hour
H&S = health and safety
LCY = loose cubic yards
LF = linear feet
LS = lump sum
MS/MSD = matrix spike and spike duplicate
MSF = thousand square feet
OTR = over the road
OU = operable unit
NCP = National Contingency Plan
OH = overhead
PCB = polychlorinated biphenyl
PDI = predesign investigations
QA/QC = quality assurance/control
RAL = remedial action level
SSHS = site safety and health superintendent
STA = sediment transitional area
TDS = total dissolved solids
TSS = total suspended solids
YOY = young-of-year

Table 10: Cost Estimate Summary for the Selected Remedy for Floodplain Soil
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost

Basis of Cost

Costs based on a variety of sources including published and unpublished sources such as RS Means, communications with vendors (written and verbal), and internal databases of cost based on previous experience. Costs FOB Lockport, New York. RS Means costs were based on 2022 rates in Niagara Falls, New York.

Present worth calculations based on a 30-year operating period and a 7% annual interest rate per "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study" (EPA 540-R-00-002 August 2000), the preamble to the NCP (55 FR 8666).

Estimated schedule for completion of work based on 1 mg/kg PCB and 200/400/1000 mg/kg lead cleanup level - 2 months including removal and restoration. Schedule assumes that the excavation rate would be approximately 1,000 CY per day. Schedule assumes that the restoration rate would be approximately 1,000 CY per day. Schedule assumes that one working season would be 9 months and no work would occur over winter. Schedule assumes equipment and supplies are readily available.

Labor rates include overhead and profit and are not included in the overall overhead and profit markup

In accordance with the USEPA requirements, as all contaminated material would be removed a 5-year review will not be required.

Predesign Investigations

Predesign investigations to be conducted prior to the Remedial Design to more thoroughly delineate excavation areas, determine contact water treatment requirements, investigate obstacles to construction, and other Site features.

Topographic survey conducted for the staging area and access points plus remediation areas.

Additional sampling will include further delineation of the depth and areal extent of the identified Adjacent floodplain soil remedial areas along with sampling of the remainder of the Adjacent floodplain soil areas to identify other potentially contaminated locations. The additional sampling will also include a focus on residential zoned properties in the Adjacent floodplains that did not have sampling done during previous investigations.

Additional floodplain soil samples will be collected based on a rate of: 4 samples per acre of creek floodplain outside of the current remedial areas; 10 additional samples per residential zoned properties within the floodplain; 1 sample per 250 ft of the perimeter of the remedial areas (excluding edge along the creek) to delineate the remedial areas; 2 samples per location (1ft, 2ft), and 1 MS/MSD and 1 QA/QC sample per 20 samples. The additional samples will be analyzed for lead and PCBs.

Equipment assumed for floodplain soil sampling include: bowls and spoons, hand augers, GPS, and ancillary supplies.

Sample bottle shipping costs included in analytical costs

Additional sampling for the Non-Adajcent floodplain soil areas was included in the PDI to evaluate the conditions of the Non-Adjacent floodplain soil areas. This additional sampling will also include a focus on residential zoned properties in the Non-Adjacent floodplains that did not have sampling done during previous investigations

The Non-Adjacent floodplain soil sampling includes samples being collected based on a rate of: 4 samples per acre of creek floodplain within the non-adjacent areas; 10 additional samples per residential zoned properties within the non-adjacent floodplain areas; 2 samples per location (1ft, 2ft), and 1 MS/MSD and 1 QA/QC sample per 20 samples. The additional samples will be analized for lead and PCBs.

General Requirements

Contractor management and non specific labor costs include project management, QA/QC, Health and Safety. Equipment charges include operator.

Implementation of institutional controls are assumed to be conducted by the appropriate government agency

General costs associated with project implementation including project trailers, communications, sanitation, PPE and other H&S safety supplies, and various sundries required for project implementation as a percentage of project capital costs (5%).

Table 10: Cost Estimate Summary for the Selected Remedy for Floodplain Soil
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost

Site Work

Site work includes general preparation activities prior to construction as well as other Site-wide activities conducted throughout the construction period.

Vegetation clearing will be limited to areas necessary for access and areas impacted by removal operations includes removal of small, medium, and large size trees and grubbing of stumps.

Temporary safety fencing assumed to be around active access roads and work areas, will be salvaged and reused as access roads shifted.

Temporary access road construction - estimated total for project - 14 entrance areas of varying lengths depending on distance from the remedial area to the closest public road, 12 feet wide, aggregate covered. Assumed one access road would be utilized at a time.

Coffer dams will be utilized to section off the shoreline of the remedial areas to allow for excavation work to occur in the dry. It is assumed that the coffer dams would be shifted after each area is excavated and restored.

Floodplain soils would be excavated using standard construction excavation equipment such as end loaders and excavators, and loaded into trucks for transport to the processing facility. Average depth of excavation assumed to be 2 feet over impacted areas.

Excavated material will be loaded onto trucks to be transferred to the staging/processing area to be dewatered and processed for disposal.

Confirmation sampling would be conducted following excavation to verify if contaminated material remains.

Following excavation, backfill would be placed to meet pre-construction grades. Backfill would primarily consist of common fill, with 6 inches of topsoil (to allow for habitat restoration).

Air quality monitoring will include VOCs, PCBs, and fugitive dust.

Distance from source to staging area for #2 run of crusher stone, topsoil assumed to be 20 miles.

Distance from source to staging area for common fill assumed to be 10 miles.

Distance from staging area to work area assumed to be an average of 8 miles.

Distance from staging area to disposal facility assumed to be 100 miles.

Clean material source sampling assumed to be 1 sample per 1000 CY of material

Processing Facility

Material staging areas will be constructed at the processing facility for temporary storage and dewatering of floodplain soil prior to testing and processing, processed materials, hazardous /TSCA material requiring segregation, clean materials for backfill/cover, etc. The areas will be lined with a geocomposite liner material and jersey barriers to establish the perimeter of each area. Contact water from these areas will be collected and processed with other contact water generated at the Site.

A contact water collection system will be constructed around the perimeter of the material storage bins to collect runoff and divert it to the contact water treatment system. The collection system will consist of perforated pipes in the storage area draining to a sump. Water in the sump will be pumped to the frac tanks.

Frac tank(s) will be used to store water that has come into contact with contaminated materials generated at the Site. Wastewater from dewatering operations will also be stored in the frac tanks. Excess water will be treated and discharged to the creek. The estimated cost in this estimate assumes discharge to Eighteen Mile Creek.

Floodplain soil will be stabilized as necessary in accordance with RCRA land disposal regulations. Additional processing may be required based on the final waste characteristics of the floodplain soil. For this FS, it was estimated that approximately 10% of floodplain will require stabilization.

Following processing, the floodplain soil will be shipped off-site for disposal. If a beneficial use can be found for the material during the remedial design phase and the processed material meets the material specifications, it may reduce the overall cost of remediation. For this analysis it was assumed that approximately 90% of the material can be shipped to a Subtitle D landfill for disposal following on-site treatment for lead, with the remaining going to a Subtitle C landfill.

Table 10: Cost Estimate Summary for the Selected Remedy for Floodplain Soil
Eighteen Mile Creek Superfund Site OU3, Niagara County, New York

Description	Comments	Quantity	Unit	Unit Cost	Cost

Site Restoration

It is anticipated that wetland disturbance would include the construction of access roads and other construction activities. Access roads will be removed and wetland areas will be restored and replanted following the completion of construction. Wetland disturbance is assumed to be 50% of the area of the access roads and 100% of the area of the remedial areas.

Disturbed areas will be regraded prior to restoration to blend with preconstruction conditions.

Site cleanup activities will include the removal of all equipment, cleaning and testing of paved surface, and restoration of paving to preconstruction conditions.

Assumed topsoil would be stripped from the staging area and replaced during site restoration. Assume spreading to match pre-construction depths

Removal and disposal of silt fence included in costs for installation of silt fence

Sweeping and washing of roads included in cost of rental of cleaning equipment

Assumed that the contaminated material stockpile area would need to be excavated to 1ft in depth to remove residual contamination from the processing facility

Special Construction

A contractor will be retained to provide equipment and operate an on-site dewatering facility.

Table 11: ARARs, TBCs, and other Guidelines Screening Table, Chemical Specific
Eighteen Mile Creek Superfund Site OU3
Niagara County, New York

Chemical-specific ARARs, TBCs, and other Guidelines		
Requirement	**Code/Citation**	**Regulatory Synopsis**
Federal		
Surface Water		
Federal Water Pollution Control Act (CWA)	CWA §304 40 CFR Part 131	Establishes criteria for setting water quality standards for surface water bodies based on the latest scientific data on impacts that a constituent concentration has on a particular aquatic species and/or human health; criteria used as guidance by states in setting water quality standards.
National Recommended Water Quality Criteria	63 Federal Register 68354	Established national recommended water quality criteria for a range of contaminants including PCBs in freshwater.
Toxic Pollutant Effluent Standards and Prohibitions	40 CFR Part 129.105(a)(4)	Establishes the ambient water criteria for PCBs in navigable waters as 0.001µg/L.
Soil		
USEPA Regional Screening Levels for Soils	Regional Screening Levels Generic Tables as of May 2021	Provides concentrations for compounds and analytes based on their most recent risk assessment data. Available online at: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables
Air		
No promulgated Chemical-Specific Federal ARARs for air were identified for this project		

Key at end of table.

Table 11: ARARs, TBCs, and other Guidelines Screening Table, Chemical Specific
Eighteen Mile Creek Superfund Site OU3
Niagara County, New York

Chemical-specific ARARs, TBCs, and other Guidelines		
Requirement	**Code/Citation**	**Regulatory Synopsis**
State		
Surface Water		
NYSDEC Water Quality Standards and Classifications	6 NYCRR Parts 700 – 701.14, 701.19 – 702.17, 702.22 – 703.5, 703.7 - 706	Establishes surface water quality standards and effluent limitations.
New York State Division of Water TOGS Ambient Water Quality Standards and Guidance Values	TOGS 1.1.1	Provides screening criteria for surface water.
NYSDOH - Sources of Water Supply – Standards of Raw Water Quality	10 NYCRR Part 170.4	Establishes quality standards for sources of water for public water supplies.
Soil		
NYSDEC – Environmental Remediation Programs, Soil Cleanup Objectives	6 NYCRR Part 375-6. Tables 375-6.8(a) and 375-6.8(b)	Establishes standards for soil cleanups.
NYSDEC Commissioner Policy 51/Soil Cleanup Guidance	CP-51 Section 5	Section 5 of CP-51 describes the process for selecting soil cleanup objectives based on 6 NYCRR Part 375 Section 6.8 and Appendix E of the Technical Support Document for Part 375. This regulation is not applicable for PAHs.
Air		
No promulgated chemical-specific State ARARs for air were identified for this project		

Key at end of table.

Table 11: ARARs, TBCs, and other Guidelines Screening Table, Chemical Specific
Eighteen Mile Creek Superfund Site OU3
Niagara County, New York

Requirement	Code/Citation	Regulatory Synopsis
Chemical-specific ARARs, TBCs, and other Guidelines		
Sediment		
NYSDEC Division of Water TOGS Sediment Quality Threshold Values	TOGS 5.1.9 In-Water and Riparian Management of Sediment and Dredged Material, Table 2	Establishes standards for dredged freshwater sediment to be placed in water or in riparian areas.
NYSDEC Screening and Assessment of Contaminated Sediment, Sediment Guidance Values	NYSDEC Division of Fish, Wildlife and Marine Resources, Table 5 – Freshwater Sediment Guidance Values	Establishes screening values for contaminated freshwater sediments.

Key:
ARAR = Applicable or Relevant and Appropriate Requirement
CFR = Code of Federal Regulations
CWA = Clean Water Act
MCL = maximum contaminant level
NYCRR = New York Codes, Rules, and Regulations
NYSDEC = New York Department of Environmental Conservation
NYSDOH = New York State Department of Health
OSWER = Office of Solid Waste and Emergency Response
PAH = polynuclear aromatic hydrocarbon
SDWA = Safe Drinking Water Act
TBC = To Be Considered
TOGS = Technical and Operational Guidance Series
USC = United States Code
USEPA = U.S. Environmental Protection Agency
VISL = Vapor Intrusion Screening Levels

Table 12: ARARs, TBCs, and other Guidelines Screening Table, Location Specific
Eighteen Mile Creek Superfund Site OU3
Niagara County, New York

Location-specific ARARs, TBCs, and other Guidelines		
Requirement	**Code/Citation**	**Requirement Synopsis**
Federal		
Waterways		
Rivers and Harbors Act Section 10	40 CFR Parts 322, 323m, and 329	Governs coordination of activities in navigable waters. Congressional approval required for any obstruction of the navigable capacity of the waters of the United States, and for construction of bridges, wharfs, piers, and other structures across navigable waters. USACE regulations in 33 CFR 322, 323 and 329 provide permitting authority for work in or affecting navigable waters, and discharge of dredged or fill material in the waters of the United States.
Coastal Zone Management Act	15 CFR Parts 923 and 930	Established that federal agencies that conduct or support activities that directly affect a coastal resource must undertake those activities in a manner that is consistent, to the maximum extent practicable, with State coastal zone management programs that have been approved by NOAA.
Floodplains and Wetlands		
USEPA Statement of Procedures on Floodplain Management and Wetlands Protection Executive Order 11988 (floodplain management) Executive Order 11990 (protection of wetlands)	40 CFR Part 6, Appendix A, Sections 3 and 4	Establishes requirements associated with actions that have impacts on wetlands or floodplains.
Clean Water Act Section 404	40 CFR Part 230 and 33 CFR Parts 320-330	Prohibits discharge into wetlands.

Key at end of table.

Table 12: ARARs, TBCs, and other Guidelines Screening Table, Location Specific
Eighteen Mile Creek Superfund Site OU3
Niagara County, New York

Location-specific ARARs, TBCs, and other Guidelines		
Requirement	**Code/Citation**	**Requirement Synopsis**
USEPA National Guidance, WQSW	Appendix B to Chapter 2 – General Program Guidance of the Water Quality Standards Handbook, December 1983 (updated July 1990)	Provides for the inclusion of wetlands in the definition of State waters. The WQSW guidance requires monitoring of wetlands for water quality management activities including the assessment and control of NPS pollution, and waste disposal activities (sewage sludge, CERCLA, RCRA).
National Environmental Policy Act; 40 CFR 6.302(b)(2005)	42 USC §§ 4321-4370h	Regulates activities within a floodplain.
RCRA Regulations – Location Standard	40 CFR Part 264.18	Regulates the design, construction, operation, and maintenance of hazardous waste management facilities within the 100-year floodplain.
General Requirements for Site Remediation		
Fish and Wildlife Coordination Act	16 USC § 661-666	Requires consideration of the effects of a proposed action on wetlands and areas affecting streams (including floodplains), as well as other protected habitats. Federal agencies must consult with the United States Fish and Wildlife Service and the appropriate State agency with jurisdiction over wildlife resources prior to issuing permits or undertaking actions involving the modification of any body of water (including impoundment, diversion, deepening, or otherwise controlled or modified for any purpose).
National Historic Preservation Act and Protection of Historic Properties	16 USC §470, et. seq. and 36 CFR Part 800	Establishes procedures to provide for preservation of historical and archeological data that might be destroyed through alteration of terrain as a result of a federal construction project or a federally licensed activity or program.
Endangered Species Act	16 USC §1531 et seq., 50 CFR Parts 17 and 424	Requires that the continued existence of any endangered or threatened species and/or its habitat not be impacted by a federal activity.

Key at end of table.

Table 12: ARARs, TBCs, and other Guidelines Screening Table, Location Specific
Eighteen Mile Creek Superfund Site OU3
Niagara County, New York

Location-specific ARARs, TBCs, and other Guidelines		
Requirement	**Code/Citation**	**Requirement Synopsis**
Magnuson-Stevens Fishery Conservation and Management Act	Public Law 94-265, as amended through October 11, 1996	Requires that federal agencies consult with National Marine Fisheries Services on actions that may adversely affect essential fish habitats, defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."
Migratory Bird Treaty Act	16 USC 703-712	Requires that federal agencies consult with USFWS during remedial design and remedial construction to ensure that the cleanup of the site does not unnecessarily impact migratory birds.
Bald and Gold Eagle Protection Act	16 USC 668-668c	Actions must be taken to conserve critical habitat in areas where species are present.
Farmland Protection Policy Act of 1981	7 CFR Part 658	Regulates the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses.
State		
Waterways		
New York State – Use and Protection of Waters	6 NYCRR Part 608	Establishes requirements with excavation or placement of fill in navigable waters.
Floodplains and Wetlands		
New York State Freshwater Wetlands Regulations	6 NYCRR Parts 662-665	Establishes permit requirement regulations, wetland maps and classifications. On-site CERCLA response actions are exempt from permit requirements pursuant to CERCLA Section 121(e), although such activities must comply with substantive requirements of these regulations.
New York State Floodplain Development Permits	6 NYCRR Part 500	Describes permitting requirements for development in floodplains. On-site CERCLA response actions are exempt from permit requirements pursuant to CERCLA Section 121(e), although such activities must comply with substantive requirements of these regulations.

Key at end of table.

Table 12: ARARs, TBCs, and other Guidelines Screening Table, Location Specific
Eighteen Mile Creek Superfund Site OU3
Niagara County, New York

Location-specific ARARs, TBCs, and other Guidelines		
Requirement	**Code/Citation**	**Requirement Synopsis**
New York State Floodplain Management Criteria for State Projects	6 NYCRR Part 502	Provides floodplain management criteria for State projects.
General Requirements for Site Remediation		
New York State Endangered and Threatened Species of Fish and Wildlife	6 NYCRR Part 182	Provides standards for the protection of threatened and endangered species.
New York State Wild, Scenic, and Recreational Rivers Permit Program	6 NYCRR Part 666	Provides regulations for the administration and management of the wild, scenic, and recreational rivers system in New York State.
New York State Protected Native Plant Species	ECL Section 9-1503 and 6 NYCRR Part 193.3	Lists the protection requirements and restrictions on removing identified endangered, threatened, rare, and exploitable native plant species.
New York State Waterfront Revitalization of Coastal Areas and Inland Waterways	Executive Article 42, Section 910-923	Policy on designation or use of 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.

Key:
ARAR = Applicable or Relevant and Appropriate Requirement
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
ECL = Environmental Conservation Law
NYCRR = New York Code of Rules and Regulations
NPS = Non-Point Source Pollution
NYSDEC = New York State Department of Environmental Conservation
RCRA = Resource Conservation and Recovery Act
TBC = To Be Considered
USACE = U.S. Army Corps of Engineers
USC = United States Code
USEPA = U.S. Environmental Protection Agency
USFWS = U.S. Fish and Wildlife Service
WQSW = Water Quality Standards for Wetlands

Table 13: ARARs, TBCs, and other Guidelines Screening Table, Action Specific
Eighteen Mile Creek Superfund Site OU3
Niagara County, New York

Action-specific ARARs, TBCs, and other Guidelines		
Requirement	**Code/Citation**	**Requirement Synopsis**
Federal		
Surface Water		
CWA – USEPA Administered Permit Programs: National Pollutant Discharge Elimination System (NPDES) and Criteria and Standards for the NPDES	40 CFR Part 401 40 CFR Parts 122 and 125	Provides NPDES permit requirements for point source discharges, including the NPDES Best Management Practice Program. These regulations include, but are not limited to, requirements for compliance with water quality standards, discharge monitoring system, and records maintenance. On-site CERCLA response actions are exempt from permit requirements pursuant to CERCLA Section 121(e), although such activities must comply with substantive requirements of these regulations.
Federal Water Pollution Control Act (CWA)	40 CFR Part 401 40 CFR Parts 121.2, 122-125	Requires federal license or permit applicants provide a certification that any discharges (e.g., dredged material dewatering effluent, placement of fill, discharges of decants water) will comply with the CWA, including water quality standard requirements (water quality certification). On-site CERCLA response actions are exempt from permit requirements pursuant to CERCLA Section 121(e), although such activities must comply with substantive requirements of these regulations.
Federal Water Pollution Control Act (CWA)	33 USC §1251 et seq. 33 USC §404 40 CFR Part 230	Requires assurance that action taken meets applicable federal/state water quality limitations. Regulates the discharge of dredged or fill material into navigable waters of the United States, also regulates the construction of any structure in navigable waters and provides guidelines for specification of disposal sites for dredged or fill material.

Key at end of table.

Table 13: ARARs, TBCs, and other Guidelines Screening Table, Action Specific
Eighteen Mile Creek Superfund Site OU3
Niagara County, New York

Action-specific ARARs, TBCs, and other Guidelines		
Requirement	**Code/Citation**	**Requirement Synopsis**
Soil		
RCRA Criteria for Municipal Solid Waste Landfills	40 CFR Part 258	Establishes criteria for use in determining which solid waste disposal facilities and practices pose a reasonable probability of adverse effects.
Area of Contamination Policy	55 FR 8758- 8760, March 8, 1990	This policy addresses consolidation of contiguous waste within an AOC. Movement of media contaminated with hazardous wastes within an AOC does not typically trigger RCRA requirements.
Corrective Action Management Units	40 CFR Part 264.552	These regulations provide exceptions to Land Disposal Restrictions requirements and establish rules for consolidation and treatment of noncontiguous waste within the Site.
Sediment		
RCRA Hazardous Waste, Non-Hazardous Waste and Other Wastes Management System	40 CFR Parts 239-299	Evaluate and control of material that contains a listed waste, or that displays a hazardous waste characteristic based on one of four criteria – reactivity, ignitability, flammability, and toxicity –as measured through the Toxicity Characteristic Leaching Procedure test. Regulates storage, treatment, and disposal of listed or characteristic waste unless an exemption applies.
RCRA Identification and Listing of Hazardous Waste	40 CFR Part 261 42 USC 6921 et seq.	Describes methods for identifying hazardous wastes and lists known hazardous wastes.
RCRA Standards Applicable to Generators of Hazardous Waste	40 CFR Part 262	Describes standards applicable to generators of hazardous wastes.
RCRA – Preparedness and Prevention – Applicability and Design and Operation of Facility	40 CFR Parts 264.30 – 264.37	Outlines the requirements for safety equipment and spill control.
RCRA – Contingency Plan and Emergency Procedures	40 CFR Parts 264.50 – 264.56	Outlines the requirements for emergency procedures to be used following explosions, fires, etc.
Toxic Substances Control Act (TSCA) PCBs Manufacturing, Processing,	15 USC §2601 et seq. 40 CFR Part 761.50 40 CFR Part 761.61	Regulates PCBs from manufacture to disposal, identifies cleanup and disposal requirements for PCB-contaminated sediments, storage requirements and decontamination

Key at end of table.

Table 13: ARARs, TBCs, and other Guidelines Screening Table, Action Specific
Eighteen Mile Creek Superfund Site OU3
Niagara County, New York

Requirement	Code/Citation	Requirement Synopsis
Action-specific ARARs, TBCs, and other Guidelines		
Distribution, Distribution in Commerce, and Use Prohibitions	40 CFR Part 761.65 40 CFR Part 761.79	standards and procedures for removing disposal requirements for various PCB waste types and provides cleanup and disposal options for PCB remediation waste.
Air		
CAA – National Primary and Secondary Ambient Air Quality Standards for PM_{10} and $PM_{2.5}$	40 CFR Parts 50.6 and 50.7	Establishes air quality standards for PM_{10} and $PM_{2.5}$.
Approval and Promulgation of Implementation Plans	40 CFR Part 52	Sets forth the requirements for the implementation plan approvals.
Standards for Performance for New Stationary Sources	40 CFR Part 60	Establishes the provisions for the owner or operator to meet for any new stationary source.
National Emission Standards for Hazardous Air Pollutants	40 CFR Part 61	Establishes the national air emissions standards for construction of facilities that emit or have the potential to emit one or more hazardous materials.
National Emission Standards for Hazardous Air Pollutants for Source Categories	40 CFR Part 63	Establishes the national emission standards for stationary sources that emit or have the potential to emit one or more hazardous air pollutants.
Clean Air Act	42 USC § 7401-7671 40 CFR Parts 50, 51, and 52	Identifies emission requirements for “major” sources of lead, NO_x, CO, PM_{10}, and SO_2 in attainment and non-attainment areas.
Waste Transportation and Disposal		
USDOT Rules for Transportation of Hazardous Materials	49 USC §1801-1819 49 CFR Parts 107, 171, 172, 177, 179	Outlines procedures for the packaging, labeling, manifesting, and transporting of hazardous materials.
RCRA Standards Applicable to Transporters of Hazardous Waste	40 CFR Part 263	Establishes standards for hazardous waste transporters.
RCRA Land Disposal Restrictions	40 CFR Section 6901 40 CFR Part 268	Identifies hazardous wastes restricted from land disposal and provides treatment standards under which an otherwise prohibited waste may be disposed of on land.

Key at end of table.

Table 13: ARARs, TBCs, and other Guidelines Screening Table, Action Specific
Eighteen Mile Creek Superfund Site OU3
Niagara County, New York

Action-specific ARARs, TBCs, and other Guidelines		
Requirement	**Code/Citation**	**Requirement Synopsis**
General Requirements for Site Remediation		
Federal Pretreatment Regulations for Existing and New Sources of Pollution	40 CFR Part 403	Provide pretreatment criteria that waste streams must meet prior to discharge to Publicly Owned Treatment Works.
State		
Surface Water		
Fish and Wildlife Management Practices Cooperative Program	NYS ECL §11-0513	Establishes that no deleterious or poisonous substances shall be thrown or allowed to run into any public or private waters in quantities injurious to fish life, protected wildlife, or waterfowl inhabiting those waters, or injurious to the propagation of fish, protected wildlife, or waterfowl therein.
Environmental Conservation Water Resources Permits	ECL Article 15, Title 5	Lists the permit requirements for working in or modifying protected creeks and streams. On-site CERCLA response actions are exempt from permit requirements pursuant to CERCLA Section 121(e), although such activities must comply with substantive requirements of these regulations.
Soil		
NYSDEC - Technical Guidance for Site Investigation and Remediation	DER-10 Chapters 1 and 5	Provides guidance on investigations and remediation within New York.
Air		
NYSDEC - Prevention and Control of Air Contaminants and Air Pollution: Air Pollution Prohibited and Visible Emissions Limited	6 NYCRR Parts 211.1 and 211.2	Prohibits air pollution and visible emissions.
NYSDEC Air Quality Classifications System – Classification Levels and Air Quality Standards - Particulates	6 NYCRR Part 256.1and Part 257.3	Establishes air quality classification levels based on land use and associated air quality standards.
NYSDOH - Generic Community Air Monitoring Plan	DER-10, Appendix 1A	Provides a generic plan for monitoring of air quality during remedial construction.

Key at end of table.

Table 13: ARARs, TBCs, and other Guidelines Screening Table, Action Specific
Eighteen Mile Creek Superfund Site OU3
Niagara County, New York

Action-specific ARARs, TBCs, and other Guidelines		
Requirement	**Code/Citation**	**Requirement Synopsis**
Noise		
New York State – Noise from Heavy Motor Vehicles – Scope and Allowable Noise Levels	6 NYCRR Parts 450.1 and 450.3.	Provides sound level limits during construction activities.
Waste Transportation and Disposal		
NYSDEC TOGS Industrial SPDES Permit Drafting Strategy for Surface Water	TOGS 1.2.1	Provides guidance for writing permits for discharges of wastewater from industrial facilities and for writing requirements equivalent to SPDES permits for discharges from remediation. On-site CERCLA response actions are exempt from permit requirements pursuant to CERCLA Section 121(e), although such activities must comply with substantive requirements of these regulations.
SPDES Permits	6 NYCRR Parts 750 – 758	Standards for stormwater runoff and surface water discharges. Governs the discharge of any wastes into or adjacent to State waters that may alter the physical, chemical, or biological properties of State waters, except as authorized pursuant to a NPDES or State permit.
Use and Protection of Waters	6 NYCRR Part 608	Permit requirements for discharge of chemicals to New York waters. On-site CERCLA response actions are exempt from permit requirements pursuant to CERCLA Section 121(e), although such activities must comply with substantive requirements of these regulations.
New York State Classifications of Surface Waters and Groundwaters	6 NYCRR Part 701	Establishes restrictions for discharge into surface waters.

Key at end of table.

Table 13: ARARs, TBCs, and other Guidelines Screening Table, Action Specific
Eighteen Mile Creek Superfund Site OU3
Niagara County, New York

Action-specific ARARs, TBCs, and other Guidelines		
Requirement	**Code/Citation**	**Requirement Synopsis**
New York Waste Transporter Permit Program	6 NYCRR Part 364	Establishes permit requirements for transportation of regulated waste. On-site CERCLA response actions are exempt from permit requirements pursuant to CERCLA Section 121(e), although such activities must comply with substantive requirements of these regulations.
New York State Standards for Universal Waste and Restrictions	6 NYCRR Part 374-3 and 6 NYCRR Part 376	Establishes standards for the treatment and disposal of hazardous wastes.
Environmental Conservation Industrial Hazardous Waste Management	ECL Article 27, Title 9	Identifies transport and disposal requirements for hazardous waste generated from and by industrial facilities.
General Requirements for Site Remediation		
New York Solid Waste Management Facilities General Requirements	6 NYCRR Part 360	Sets standards and criteria for all solid waste management facilities, including design, construction, operation, and closure requirements for municipal solid waste landfills.
New York State Standards for Waste Transportation	6 NYCRR Part 364	Regulates the collection, transport and delivery of regulated waste including hazardous wastes.
New York State Hazardous Waste Management System – General	6 NYCRR Part 370	Provides definition of terms and general standards applicable to hazardous waste management systems.
New York State Identification and Listing of Hazardous Waste	6 NYCRR Part 371	Describes methods for identifying hazardous wastes and lists known hazardous wastes.
New York State Hazardous Waste Manifest System and Related Standard for Generators, Transporters and Facilities	6 NYCRR Part 372	Establishes record keeping requirements and standards related to the manifest system for hazardous wastes.
New York State Hazardous Management Facilities	6 NYCRR Part 373	Regulates treatment, storage, and disposal of hazardous wastes.

Key at end of table.

Table 13: ARARs, TBCs, and other Guidelines Screening Table, Action Specific
Eighteen Mile Creek Superfund Site OU3
Niagara County, New York

Action-specific ARARs, TBCs, and other Guidelines		
Requirement	**Code/Citation**	**Requirement Synopsis**
New York State Management of Specific Hazardous Waste	6 NYCRR Part 374	Establishes standards for the management of specific hazardous wastes.
New York State Environmental Remediation Programs	6 NYCRR Part 375	Identifies processes for investigation and remedial action at state funded Registry site; provides exception from NYSDEC permits.

Key:
AOC = area of contamination
ARAR = Applicable or Relevant and Appropriate Requirement
CAA = Clean Air Act
CFR = Code of Federal Regulations
CO = Carbon monoxide
CWA = Clean Water Act
DER = Division of Environmental Remediation
ECL = Environmental Conservation Law
FR = Federal Register
LDR = Land Disposal Restrictions
NO_x = Nitric oxide
NPDES = National Pollutant Discharge Elimination System
NYCRR = New York Codes, Rules, and Regulations
NYSDEC = New York State Department of Environmental Conservation
NYSDOH = New York State Department of Health
NYSDOT = New York State Department of Transportation
NYSECL = New York State Environmental Conservation Law
PCB = polychlorinated biphenyl
$PM_{2.5}$ = particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10} = particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers
RCRA = Resource Conservation and Recovery Act
SO_2 = Sulfur dioxide
SPDES = State Pollution Discharge Elimination System
TBC = To Be Considered
TOGS = Technical and Operational Guidance Series
TSCA = Toxic Substances Control Act
USC = United States Code
USDOT = U.S. Department of Transportation
USEPA = U.S. Environmental Protection Agency

APPENDIX III

ADMINISTRATIVE RECORD INDEX

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

09/09/2024

REGION ID: 02

Site Name: EIGHTEENMILE CREEK
CERCLIS ID: NYN000206456
OUID: 03
SSID: A269
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
631145	09/09/2024	ADMINISTRATIVE RECORD INDEX FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	6	Administrative Record Index		(US ENVIRONMENTAL PROTECTION AGENCY)
677064	03/01/2004	SEDIMENT SAMPLING. BIOLOGICAL ANALYSES AND CHEMICAL ANALYSES VOLUME 1 - PROJECT REPORT OVERVIEW FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	63	Report		
676562	03/01/2004	SEDIMENT SAMPLING. BIOLOGICAL ANALYSES AND CHEMICAL ANALYSES VOLUME 2 - LABORATORY REPORTS FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	300	Report		
407751	01/01/2007	NYSDEC FINAL REPORT FOR EIGHTEENMILE CREEK PCB SOURCE TRACKDOWN PROJECT FOR THE EIGHTEENMILE CREEK SITE	48	Report	(NIAGARA COUNTY DEPARTMENT OF PLANNING, DEVELOPMENT AND TOURISM)	(ECOLOGY AND ENVIRONMENT INCORPORATED)
319202	04/01/2009	BENEFICIAL USE IMPAIRMENT INVESTIGATION FOR THE EIGHTEENMILE CREEK SITE	1657	Report	(NIAGARA COUNTY SOIL AND WATER CONSERVATION DISTRICT)	(ECOLOGY AND ENVIRONMENT INCORPORATED)
676547	01/20/2012	BIOACCUMULATION MODELING AND ECOLOGICAL RISK ASSESSMENT FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	140	Report		(US ARMY CORPS OF ENGINEERS)

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Site Name: EIGHTEENMILE CREEK
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DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
676549	04/10/2013	BASELINE BENTHIC COMMUNITY SAMPLING REPORT FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	39	Report		(ECOLOGY AND ENVIRONMENT INCORPORATED)
676561	01/15/2014	CORRESPONDENCE REGARDING THE OLCOTT HARBOR SEDIMENT SAMPLING RESULTS FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	9	Memorandum		
665817	03/30/2015	REMEDIAL INVESTIGATION REPORT MARCH 2015 FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	784	Report	(US ENVIRONMENTAL PROTECTION AGENCY)	(CH2M HILL)
436262	07/01/2016	FINAL SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT OU2 FOR THE EIGHTEENMILE CREEK SITE	463	Report	(US ARMY CORPS OF ENGINEERS)|(US ENVIRONMENTAL PROTECTION AGENCY)	(ECOLOGY AND ENVIRONMENT INCORPORATED)
719193	01/26/2017	JOURNAL OF GREAT LAKES RESEARCH ARTICLE - ASSESSING THE STATUS OF SEDIMENT TOXICITY AND MACROINVERTEBRATE COMMUNITIES IN THE EIGHTEENMILE CREEK AREA OF CONCERN FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	9	Publication		
707156	07/10/2019	REVISED PHASE 2 REMEDIAL INVESTIGATION/FEASIBILITY STUDY QUALITY ASSURANCE PROJECT PLAN FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	780	Work Plan	(US ARMY CORPS OF ENGINEERS)|(US ENVIRONMENTAL PROTECTION AGENCY)	(ECOLOGY AND ENVIRONMENT INCORPORATED)

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09/09/2024

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CERCLIS ID: NYN000206456
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Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
676546	09/01/2019	PHASE 1 DATA EVALUATION REPORT FOR FISH TISSUE FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	476	Report	(US ARMY CORPS OF ENGINEERS)|(US ENVIRONMENTAL PROTECTION AGENCY)	(ECOLOGY AND ENVIRONMENT INCORPORATED)
676557	09/01/2019	PHASE 1 DATA EVALUATION REPORT FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	2739	Report	(US ARMY CORPS OF ENGINEERS)|(US ENVIRONMENTAL PROTECTION AGENCY)	(ECOLOGY AND ENVIRONMENT INCORPORATED)
646825	09/01/2019	REDACTED - REVISED PHASE 2 REMEDIAL INVESTIGATION/FEASIBILITY STUDY QUALITY ASSURANCE PROJECT PLAN ADDENDUM FOR ADDITIONAL FLOODPLAIN PROPERTIES FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	12	Work Plan		
676558	01/21/2020	CORRESPONDENCE REGARDING THE REVIEW OF THE FISH CONSUMPTION RATES AS APPLICABLE TO THE HUMAN HEALTH RISK ASSESSMENT FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	3	Memorandum		(ECOLOGY AND ENVIRONMENT INCORPORATED)
676552	02/17/2020	DRAFT FINAL CONCEPTUAL SITE MODEL FOR SEDIMENT TRANSPORT FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	55	Report		(WSP)
719192	05/01/2020	SEDIMENT ANALYSIS AND ASSESSMENT OF BENEFICIAL USE IMPAIRMENTS FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	65	Report		(US ARMY CORPS OF ENGINEERS)

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

09/09/2024

REGION ID: 02

Site Name: EIGHTEENMILE CREEK
CERCLIS ID: NYN000206456
OUID: 03
SSID: A269
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
719195	10/24/2020	JOURNAL OF GREAT LAKES RESEARCH ARTICLE - CONDITION OF RESIDENT FISH COMMUNITIES IN THE EIGHTEENMILE CREEK AREA OF CONCERN FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	8	Publication		
676554	08/10/2021	PHASE 3 DATA EVALUATION REPORT FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	1168	Report	(US ARMY CORPS OF ENGINEERS)|(US ENVIRONMENTAL PROTECTION AGENCY)	(ECOLOGY AND ENVIRONMENT INCORPORATED)
707154	10/01/2021	PHASE 2 DATA EVALUATION REPORT FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	5053	Report	(US ARMY CORPS OF ENGINEERS)|(US ENVIRONMENTAL PROTECTION AGENCY)	(WSP USA SOLUTIONS INC.)
628475	02/18/2022	FINAL REMEDIAL INVESTIGATION REPORT FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	2854	Report	(US ARMY CORPS OF ENGINEERS KANSAS CITY DISTRICT)|(US ENVIRONMENTAL PROTECTION AGENCY)	
676556	04/27/2022	CORRESPONDENCE REGARDING THE ENVIRONMENTAL DATA RESOURCES REPORT FOR THE CREEK CORRIDOR NEAR NEWFANE FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	144	Memorandum	(US ARMY CORPS OF ENGINEERS)|(US ENVIRONMENTAL PROTECTION AGENCY)|DARPINIAN,AMY (US ARMY CORPS OF ENGINEERS)|KONDRK,JACLYN (US ENVIRONMENTAL PROTECTION AGENCY)	(WSP)

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

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REGION ID: 02

Site Name: EIGHTEENMILE CREEK
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Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
719191	05/16/2022	FINAL BASELINE HUMAN HEALTH RISK ASSESSMENT FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	2044	Report	(US ENVIRONMENTAL PROTECTION AGENCY)	(WSP USA SOLUTIONS INC.)
676551	07/15/2022	CORRESPONDENCE REGARDING THE CONTAMINANTS OF CONCERN EVALUATION FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	10	Memorandum	(US ARMY CORPS OF ENGINEERS)|(US ENVIRONMENTAL PROTECTION AGENCY)|DANIELS,TODD,A (US ARMY CORPS OF ENGINEERS)|KONDRK,JACLYN (US ENVIRONMENTAL PROTECTION AGENCY)	(WSP)
676555	07/21/2022	CORRESPONDENCE REGARDING THE ANALYSIS OF SEDIMENT EROSION AND DEPOSITION AND CONTAMINANT MOVEMENT FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	41	Memorandum	(WSP)	(LIMNOTECH INCORPORATED)
719190	07/21/2022	REVISED AREA OF CONCERN MINK PREY SURVEY AND OAK ORCHARD CREEK ADD-ON FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	57	Report		(STATE UNIVERSITY OF NEW YORK)
654446	12/08/2022	ANALYSIS OF SEDIMENT EROSION AND DEPOSITION AND CONTAMINANT MOVEMENT FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	41	Memorandum		(LIMNOTECH INCORPORATED)

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

09/09/2024

REGION ID: 02

Site Name: EIGHTEENMILE CREEK
CERCLIS ID: NYN000206456
OUID: 03
SSID: A269
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
665737	01/19/2023	FINAL FEASIBILITY STUDY FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	398	Report	(US ENVIRONMENTAL PROTECTION AGENCY)	(WSP USA SOLUTIONS INC.)
719194	09/01/2023	JOURNAL OF GREAT LAKES RESEARCH ARTICLE - COMPREHENSIVE ASSESSMENT OF MACROINVERTEBRATE COMMUNITY CONDITION AND SEDIMENT TOXICITY IN THE EIGHTEENMILE CREEK AREA OF CONCERN FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	10	Publication		
704651	07/19/2024	PROPOSED PLAN FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	25	Publication		(US ENVIRONMENTAL PROTECTION AGENCY)
744489	09/09/2024	MEMORANDUM TO FILE REGARDING THE PROPOSED PLAN FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	1	Memorandum		O'Leary,Christopher,J (U.S. ENVIRONMENTAL PROTECTION AGENCY)
744490	07/19/2024	REVISED PROPOSED PLAN FOR OU3 FOR THE EIGHTEENMILE CREEK SITE	25	Memorandum		O'Leary,Christopher,J (U.S. ENVIRONMENTAL PROTECTION AGENCY)

APPENDIX IV

STATE LETTER OF CONCURRENCE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Office of the Director
625 Broadway, 12th Floor, Albany, New York 12233-7011
P: (518) 402-9706 | F: (518) 402-9722
www.dec.ny.gov

September 10, 2024

Transmitted via Email

Mr. Pat Evangelista, Director
Emergency and Remedial Response Division
United States EPA, Region 2
290 Broadway, Floor 19
New York, New York 10007-1866
Evangelista.Pat@epa.gov

RE: Eighteen Mile Creek, Site No. 932156
OU3 Record of Decision - New York State Concurrence

Dear Pat:

The New York State Department of Environmental Conservation (Department) has reviewed the Record of Decision (dated September 2024). We understand the remedy selected addresses contaminated sediments in the portion of Eighteen Mile Creek (Creek) beginning from Harwood Street and extending downstream for approximately 5.3 miles, referred to as the sediment transitional area (STA), as well as certain floodplain soil adjacent to the STA, designated as EPA Operable Unit 3 (OU3). The portion of this remedy addressing sediments is an interim remedy, and the portion addressing floodplain soils is a final remedy.

The major components of the selected interim remedy for sediment include the following:

- Excavation of contaminated sediment that exceeds the remedial action level (RAL) of 1 part per million (ppm) for PCBs within the STA followed by backfilling with clean sand and covering with a suitable habitat layer to create conditions for the re-establishment of natural conditions in the Creek.

- Construction of access roads and staging areas in upland areas. Following remediation of the Creek, removal of the access roads and staging areas in accordance with the habitat reconstruction plan.

- Water and air quality monitoring during construction.
- Development of a monitoring plan to track PCB concentrations in surface water and fish tissue.

- Institutional controls in the form of informational devices to limit exposure to PCBs. EPA is relying on existing New York State Department of Health (NYSDOH) fish consumption advisories. NYSDOH periodically reviews fish PCB data to ensure the advisories are up to date and considers whether the fish consumption advisories need modification. Other informational devices could include outreach programs to inform the public to promote knowledge of and voluntary compliance with the fish consumption advisories.

The major components of the selected final remedy for floodplain soil include the following:

- Excavation and off-Site disposal of PCB- and lead-contaminated floodplain soil exceeding the remediation goals adjacent to the STA regardless of the land use designation. Backfill of excavated areas with clean fill material and topsoil.

- Construction of temporary access roads from the remediation areas to the closest public roads and the staging area.

- Implementation of erosion and sediment controls at each remediation area to prevent the migration of floodplain soil to the Creek.

- Water and air quality monitoring during construction.

- Following remediation of the Creek, removal of the access roads and staging areas, and restoration of the impacted areas in accordance with the habitat reconstruction plan.

- Development of a Site Management Plan (SMP) to provide for management of floodplain soil post-construction, including the use of institutional controls to limit future use of the commercial properties and impose restrictions on excavation, and periodic reviews.

During the remedial design, additional sampling of floodplain soil adjacent to the STA will be conducted. Risk evaluations, based on land use designations, will be performed to determine if additional properties or areas require remediation. The selected remedy is a final remedy for addressing floodplain soil in the STA.

In addition, EPA's investigations of groundwater within the OU2 Creek Corridor have not revealed a source of the generally low-level volatile organic compounds (VOCs) concentrations detected in groundwater. As a result, no action will be taken to address Creek Corridor groundwater.

The environmental benefits of the selected remedy may be enhanced by employing design technologies and practices that are sustainable.

The remaining areas of the Creek (commencing immediately downstream of the STA to the Creek's discharge at Lake Ontario) that are not addressed by this ROD will be addressed under separate, future action(s). The impoundment areas upstream of Newfane Dam and Burt Dam have historically acted as sinks for contaminated sediment, and, as such, these areas have been identified as potential sources of downstream contamination in the event of a change in the flow regime of the Creek. These remaining areas require additional evaluation to establish a final remedy for the full length of the Creek. This evaluation will identify and address the following:

- data gaps including the nature and extent of contamination within these remaining areas;
- the characteristics of the sediment bed behind the Newfane and Burt dams;
- a study of the impacts from having addressed the source areas;
- an assessment of the fate and transport mechanisms of the remaining contamination in the Creek, including residual soil contamination following excavation of floodplain soil in the STA;
- bathymetry monitoring of sediment to evaluate recovery, accumulation and/or erosion; and
- a long-term monitoring program.

After a comprehensive evaluation of the full length of the Creek is conducted, a final remedy for the entire length of the Creek will be determined. The final remedy will include final remediation goals for contaminated sediment, including the Creek Corridor (OU2) and the STA (OU3), as well as any additional remedial action objectives that are determined necessary, including for additional media such as surface water. In addition, floodplain soil sampling will be conducted downstream of the STA as part of a separate investigation. Separate response actions or a future operable unit(s) would address risks identified in floodplain soil downstream of the STA.

EPA released the Proposed Plan for the cleanup of OU3 to the public for comment on July 19, 2024. EPA also held a public meeting on August 1, 2024 to present the Proposed Plan for OU3 to local officials and interested citizens and to solicit input from the community on the remedial alternatives proposed for OU3. EPA considered all written and oral comments submitted during the public comment period (July 19, 2024 through August 19, 2024), which are documented in the Responsiveness Summary section of the

ROD, and determined that no significant changes to the remedy, as originally identified in the Proposed Plan, were necessary or appropriate. With this understanding, we concur with the selected remedy for the Eighteen Mile Creek OU3 Site.

If you have any questions or need additional information, please contact Mr. Steven Moeller at (716) 851-7220.

Sincerely,

Andrew Guglielmi

Andrew O. Guglielmi
Director
Division of Environmental Remediation

ec: P. Mannino, USEPA, Region 2 (mannino.pietro@epa.gov)
C. O'Leary, USEPA, Region 2 (oleary.christopher@epa.gov)
S. Bogardus, NYSDOH (sara.bogardus@health.ny.gov)
A. Martin, NYSDOH (angela.martin@health.ny.gov)
M. Cruden, NYSDEC (michael.cruden@dec.ny.gov)
S. Radon, NYSDEC, Region 9 (stanley.radon@dec.ny.gov)
S. Moeller, NYSDEC, Region 9 (steven.moeller@dec.ny.gov)

APPENDIX V

RESPONSIVENESS SUMMARY

INTRODUCTION

This Responsiveness Summary provides a summary of the significant comments and concerns submitted by the public on the U.S. Environmental Protection Agency's (EPA) July 19, 2024 Proposed Plan for the Eighteen Mile Creek Superfund Site (Site), Operable Unit 3 (OU3), and the EPA's responses to those comments and concerns. All comments summarized in this document have been considered in EPA's final decision regarding the selection of the remedy for OU3 at the Site.

SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

On July 19, 2024, EPA released a Proposed Plan for the cleanup of OU3 of the Site to the public for comment, along with a remedial investigation (RI) report, feasibility study (FS) report, human health risk assessment (HHRA) report, and ecological risk assessment. These documents, as well as others that collectively comprise the administrative record for this decision, were made available to the public at the information repositories maintained at the EPA Region 2 Office in New York City, the Lockport Public Library located at 23 East Avenue in Lockport, and Newfane Public Library located at 2761 Maple Avenue, Newfane and online at: www.epa.gov/superfund/eighteenmile-creek.

On July 19, 2024, EPA published a notice in the *Lockport Union-Sun and Journal* informing the public of the commencement of the public comment period for the Proposed Plan, the upcoming public meeting on August 1, 2024, a description of the preferred alternatives, contact information for EPA personnel, and the availability of the above-referenced documents. The public comment period ran from July 19, 2024 to August 19, 2024. EPA held a public meeting on August 1, 2024 at 6:00 P.M. at Newfane Town Hall located at 2737 Main Street, Newfane, New York, to inform officials and interested citizens about the Superfund process, to present the Proposed Plan for OU3 of the Site, including the preferred remedial alternatives, and to respond to questions and comments from the attendees. Responses to the questions and comments received at the public meeting and in writing during the public comment period are included in this Responsiveness Summary.

SUMMARY OF COMMENTS AND RESPONSES

Comments and/or questions were received at the public meeting, and six written comments were received during the comment period from July 19, 2024 to August 19, 2024. Copies of the comment letters are provided in **Attachment A** of this Responsiveness Summary. A summary of significant comments provided at the public meeting and in writing, as well as EPA's responses to them, are provided below.

Comment #1: An individual noted that the regulatory limit for lead is five parts per million (ppm), however, EPA is proposing a higher cleanup level for floodplain soils. The individual asked for an explanation on why EPA is proposing a higher cleanup level for lead.

Response to Comment #1: The regulatory level referenced by the commenter pertains to that used with the Toxicity Characteristic Leaching Procedure (TCLP), a test method used to determine if a waste is hazardous. The TCLP test does not measure the total lead in a sample, but rather the test is designed to simulate what happens to a waste product during leaching in a landfill setting. Leaching occurs when rainwater is filtered through wastes that are deposited in a landfill. When the rainwater liquid meets the buried wastes, it draws out leachate (chemicals and/or other constituents of those wastes). While the TCLP test will be employed during construction to determine how excavated soil and sediment will be disposed at an off-site facility, it is not being used to delineate soil or sediment that must be removed during the cleanup. If the concentration of lead in a TCLP extract for excavated soils is greater than or equal to five ppm, the waste must be managed as hazardous.

As part of the remedial investigation/feasibility study for OU3 of the Site, an assessment of lead exposure was conducted. To support the assessment, and consistent with EPA guidance, sediment and floodplain soil samples were analyzed to measure **total** lead concentrations.

Per EPA Region 2's approach to evaluating lead, sediment and residential soil concentrations were compared with a screening level of 200 ppm, and those concentrations greater than the screening level were identified for further evaluation; non-residential soil concentrations were compared to 800 ppm. The adult lead model was used to predict the maternal blood lead level (BLLs) for adult non-residential exposures, and the Integrated Exposure Uptake Biokinetic model was used to evaluate BLLs for the residential child (seven years and younger). Both models are designed to determine the probability of the BLL exceeding five micrograms per deciliter (µg/dL) based on the average or mean lead concentration.

The selected remedy identifies the remediation goals for contaminated soil to attain a degree of cleanup that ensures the protection of human health and the environment. The two-tiered remediation goal for lead in soils described is based on the New York State's 6 NYCRR Part 375 Residential Soil Cleanup Objectives and EPA Region 2's lead approach consistent with OLEM Directive 9200.2-167. The remediation goals are also consistent with the 2024 "OLEM Updated Residential Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities."

Comment #2: Representatives from several environment service companies inquired about opportunities for doing business at the Site**.**

Response to Comment #2: EPA expects to enter into an inter-agency agreement with the U.S. Army Corps of Engineers for the performance of the remedial design for the selected remedy. The Army Corps of Engineers would therefore be responsible for contracting related to the design and construction of the remedy. For information regarding the contracting process, refer to www.epa.gov/contracts.

Comment #3: A resident noted that a number of people from lower Lockport have died of cancer and residents in the vicinity of the former Flintkote Plant property were informed of measures that should be taken to minimize their exposure to soils on their properties. In addition, the commenter noted that people have been told that eating one fish caught from the Creek could endanger their life because of the contamination.

Response to Comment #3: The OU3 Human Health Risk Assessments (HHRAs) prepared for the site identify certain exposure scenarios that would present unacceptable risks to those that are exposed to specific areas of contaminated soils or consume specific quantities of fish, and that is the basis for EPA taking action to address the sediment and soil contamination in those areas. It should be noted that, based on sampling conducted to date, the soil contamination does not present a risk to visitors to the properties or those living in the vicinity of these properties. EPA has provided homeowners within both OU3 and OU4 the results of soil sampling conducted on their properties. Based on the sampling results, homeowners were provided with recommendations to avoid disturbing the soil to reduce potential exposure before the cleanup could begin. The recommendations are consistent with those provided by other public health agencies regarding how to reduce exposures to lead. For sites with immediate health risks, EPA utilizes its Removal Program, which has the authority to remove hazardous waste in time critical, emergency situations. The concentrations of lead found at the OU4 properties to date have not warranted a time critical removal action by EPA. The construction of the remedy for the first phase of the OU4 remediation, which addresses lead-contaminated soils at certain residential properties in the vicinity of the former Flintkote Property, began in Summer 2024. Soil sampling at additional residential properties, referred to as Phase 2 of OU4, is ongoing. Remediation of OU3 residential properties would commence once the remedial design for the floodplain soils is completed.

Fish consumption advisories, including the advisory for the Eighteen Mile Creek, are issued by the New York State Department of Health (NYSDOH) and updated annually. Information concerning fish consumption advisories is contained in the "Health Advisories" section of the NYSDEC's *New York Freshwater Fishing, Official Regulation Guide*, which is provided when a fishing license is issued. In addition, information concerning the fish consumption advisory can also be found at: https://www.health.ny.gov/environmental/outdoors/fish/health_advisories/. The advisory for Eighteen Mile Creek, upstream of Burt Dam is "DON'T EAT" for all fish.

Comment #4: Individuals inquired if there would be any actions taken north of Burt Dam.

Response to Comment #4: The impoundment areas upstream of Newfane Dam and Burt Dam have historically acted as sinks for contaminated sediment, and as such these areas have been identified as potential sources of downstream contamination in the event of a change in the flow regime of the Creek. These areas require additional evaluation. After a comprehensive evaluation is conducted, EPA will present the findings and a cleanup plan to the public for comment.

Comment #5: A resident inquired about the steps that EPA is taking to locate existing (or defunct) businesses in the area that polluted Eighteen Mile Creek.

Response to Comment #5: EPA has various tools available to evaluate operational and ownership history at properties of potential concern, including the issuance of written requests for information pursuant to Section 104(e) of CERCLA. EPA has used the information received in response to such information requests, in conjunction with data collected as part of investigations and inspections, to inform EPA's decision regarding releases at the Site. To date, no viable potentially responsible parties (PRPs) for the Site have been identified, however the PRP search is on-going.

Comment #6: Several individuals expressed frustration regarding the presence of raw sewage in the Creek. Individuals noted areas from the City of Lockport to Lake Ontario that are prone to this issue during heavy rain events. One individual noted that the metal grate intended to prevent debris from entering the Creek near his property is in disrepair and no longer serves its intended purpose.

Response to Comment #6: The commenters are likely describing combined sewer overflow events. A combined sewer system collects rainwater runoff, domestic sewage, and industrial wastewater into one pipe. Normally, it can transport all the wastewater to a treatment plant. Sometimes during large storm events, the amount of runoff exceeds the capacity of the system. When that happens, untreated stormwater and wastewater flows into nearby waterbodies. Combined sewer overflows are monitored and regulated by the New York State Department of Environmental Conservation (NYSDEC) Division of Water. NYSDEC regulates discharges of wastewater into waterbodies through its State Pollutant Discharge Elimination System (SPDES). The City of Lockport Wastewater Treatment Plant (WWTP) is the only property within the STA that has an active SPDES permit. The primary outfall for the WWTP is located at the upstream limit of the STA. The permit includes a monitoring program for various contaminants including lead, chromium, copper, nickel, zinc, nitrogen, selenium, phosphorus, bromodichloromethane, dibromochloromethane, chloroform, trichloroethylene, and bis(2-ethylhexyl)phthalate. It is EPA's understanding that there have been no exceedances of the limits reported by NYSDEC, indicating that this plant is not a potential source of contamination to Eighteen Mile Creek. Former City of Lockport Mayor Michelle Roman, in attendance at the public meeting, provided some information to those in attendance regarding the City of Lockport's efforts to upgrade the sewage treatment system. In addition, while not related to the OU3 remedy, it is EPA's understanding that Town of Newfane is receiving financing from the Clean Water State Revolving Fund and Water Infrastructure Improvement (WIIA) grant for the planning, design, and construction of wastewater treatment plant process upgrades.

Comment #7: A Newfane Town Planning Board Member, Mr. William Clark, noted the importance of the tourism and fishing economy in Newfane and expressed the need to address pressing environmental issues such as local agricultural runoff and industrial output from local hazardous waste sites.

Response to Comment #7: While agricultural runoff was considered as a migration pathway in the conceptual site model, particularly in Reach 6, the remedial investigation did not reveal the agricultural properties as the source of the primary contaminants of concern for OU3. Active hazardous waste facilities along the Creek, such as the VanDeMark Chemical Company facility, are being managed by NYSDEC pursuant to its authority under the Resource Conservation and Recovery Act Program. For information related to these facilities, contact Steve Moeller at NYSDEC, Division of Environmental Remediation, at steven.moeller@dec.ny.gov.

Comment #8: A commenter noted that waterways such as the Eighteen Mile Creek have a direct effect on the area of concern that the Niagara County Soil and Water Conservation District manages. The commenter suggested that EPA should work closely with the Niagara County Soil and Water Conservation District, New York State, and the Niagara County Health Department.

Response to Comment #8: EPA has and will continue to coordinate with federal, state, and local agencies working on the part of the Eighteen Mile Creek identified as an area of concern for Lake Ontario under the Great Lakes Restoration Initiative.

Comment #9: Several individuals noted their support for the preferred alternative.

Response to Comment #9: Comment noted.

Comment #10: An individual expressed the need for EPA to maintain safe working conditions and the safety of the residents during construction.

Response to Comment #10: Safety is of the utmost importance to EPA. Best management practices will be employed during the performance of the work and a community air monitoring program will be implemented in compliance with the Health and Safety Plan developed for the Site.

Comment #11: A City of Lockport Alderman inquired about the status of sampling plans for residential properties along Plank Road.

Response to Comment #11: Sampling of floodplain soils along Plank Road was conducted as part of the OU3 remedial investigation. The results revealed elevated concentrations of PCBs and lead. This area is targeted for excavation as part of the selected remedy for floodplain soils. As part of the remedial design phase, additional sampling will be conducted to delineate the areas requiring excavation.

Comment #12: Niagara County Legislator Carla Speranza requested clarification regarding the depth of excavation for contaminated sediment under the preferred alternative.

Response to Comment #12: The preferred alternative to address sediment, STA5, includes the excavation of contaminated sediment above the remedial action level of 1 ppm for PCBs. To achieve this remedial action level, the average depth of excavation is expected to be approximately 1.3 feet. The depth of excavation will be further informed by design sampling, as well as confirmation sampling performed during the implementation of the remedy.

Comment #13: A resident requested a list of addresses that would be cleaned up as part of the selected remedy.

Response to Comment #13: Refer to the figures in the Feasibility Study Report for properties within the STA requiring floodplain soil excavation. The Feasibility Study Report is included in the Administrative Record file for this decision and is available on EPA's webpage (www.epa.gov/superfund/eighteenmile-creek) for the Site. Personal information, including addresses, has been redacted in an effort to maintain the homeowner's privacy.

Comment #14: Several individuals inquired about the soil cleanup at the OU4 residential properties located along Mill Street and in the vicinity of the former Flintkote Plant Property. Information was requested on the following: the contractor performing the work, schedule, and landfill receiving the excavated soil.

Response to Comment #14: While not related to the OU3 remedy, the following responds to this comment. EPA entered into an interagency agreement with the U.S. Army Corps of Engineers for the performance of the remedial action for the OU4 Phase 1 properties. Sevenson Environmental Services, Inc. was subsequently awarded a task order from the U.S. Army Corps of Engineers to perform the work. Pursuant to work plans reviewed and approved by the U.S. Army Corps of Engineers and EPA, excavated soil is directly loaded onto trucks for off-Site disposal. CWM Chemical Services, LLC, Model City, in Niagara County, New York has been approved to receive excavated soil from the Site. Additional landfills may be approved in the future. Construction activities began in August 2024 and the excavation of contaminated soil is expected to begin in September. It is anticipated that the that it could take up to 2 to 3 years to complete the cleanup at the Phase 1 properties.

Comment #15: Several individuals inquired about the air monitoring that will be performed. Information was requested on the following: who is collecting the data, whether the data will be shared with the public, and who to contact with further concerns or questions.

Response to Comment #15: During the implementation of OU1, OU2, and OU4, EPA's contractor, Sevenson Environmental Services, Inc., will be conducting air monitoring pursuant to a community air monitoring plan reviewed by the EPA, USACE, and NYSDEC. EPA expects to periodically post a summary of the air monitoring data collected during periods of active construction for OU1, OU2, and OU3 on its webpage for the Site at www.epa.gov/superfund/eighteenmile-creek. To maintain the privacy of the residential property owners at OU4, air monitoring data collected during remedial activities will be provided to the homeowner upon request. Any additional questions should be directed to EPA's remedial project manager, Christopher O'Leary at oleary.christopher@epa.gov.

Comment #16: A homeowner of a residential property sampled as part of Phase 2 of OU4 asked if there will be a meeting to discuss Operable Unit 4.

Response to Comment #16: While not related to the OU3 remedy, EPA has the following response to this comment. EPA continues to sample residential properties as part of Phase 2 and will follow a process similar to that used during Phase 1. EPA will provide each property owner with a copy and explanation of the results for their property. If EPA determines a soil cleanup on the property is warranted, next steps will be discussed with the property owner, and an in-person meeting will be held prior to the start of any clean up.

APPENDIX V

RESPONSIVENESS SUMMARY
ATTACHMENT A

LETTERS SUBMITTED DURING THE PUBLIC COMMENT PERIOD

From:	Doug Nicholson
To:	O"Leary, Christopher
Subject:	18 Mile Creek, Lockport
Date:	Wednesday, August 7, 2024 7:34:43 AM

Dear Mr. O'Leary

Concerning our contamination in Lockport, can you list the address's of the mitigation of soil? Also, are there plans to clear/ dredge 18 mile creek at the area of Plank and Stone road below Gooding Street?
Thank you for your time.
Doug Nicholson

From:	Josh Randall
To:	O"Leary, Christopher
Subject:	18-Mile Superfund Comment
Date:	Monday, August 19, 2024 12:16:02 PM

Hello,

I provided verbal comments during the public meeting on August 1, and some of that is included here.

The proposed preferred alternative plan for OU3 of the 18-Mile Creek Superfund site is the best option presented and should be completed for the health and safety of any future residents of the area. EPA understands the importance of limiting the spread of PCBs, their continued harm to the Great Lakes, and the most effective procedure for reducing their risk. My interest is the process surrounding the remediation.

OU3 primarily follows the length of 18-mile creek for 5.3 miles through the Town of Lockport and into the Town of Newfane. These waterways also have a direct effect on the AOC that Niagara SWCD is managing. These two organizations should be working more closely together, especially so that the general public is able to better understand the process of remediation across multiple scales and different BUI. Additionally, NYS has provided new septic system replacement funds to each county through their Health Departments. Niagara Health Department will be installing new septic systems for people living within 250 feet of priority waterways, including 18-mile creek. Their input as well as other members of the Niagara Health Department should be sought out on the proposed remediation as well as timelines shared.

Outside of OU3, remediation is also including a section of residential work with OU4. There has been close communication between EPA/Army Corps and the residents living there, which is an important part of the process. However, in order to maintain safe working conditions and safety for the residents there will be air quality monitors on site that will not be publicly viewable until after the process is complete. EPA maintains a robust AirNow mapping website to allow for the public to view up to date air quality information. Because the remediation has been contracted out to a third party, they do not have the ability to post this information currently. Looking forward to OU3 and other remediation in the area, air quality data should be accessible at the time of work to anyone. There are people that work/drive/visit the area where remediation is occurring that may not have the knowledge shared with residents, and they deserve to be able to check air levels to make their own decisions about being present in the area.

Josh Randall
(He/Him)

Natural Resources Educator

Cornell Cooperative Extension

Niagara County

[redacted]

Cornell Cooperative Extension is an equal opportunity, affirmative action educator and employer

.

From: Allen Bullock
To: O"Leary, Christopher
Subject: Comments on proposed clean up options for 18 Mile Creek and information on in-situ treatment and capping considerations for PCB impacted sediment
Date: Friday, August 16, 2024 9:11:44 AM
Attachments: image001.jpg
TDS AquaGate+ PAC.pdf
AquaBlok General Brochure - New Web version.pdf

Hi Christopher,

I have had a chance to review the proposed remedies on your website and would like to submit the following information for consideration:

Please find the attached material that may be of interest to you and your team, that provides information on In-situ treatment and engineered reactive capping to address lower PCB concentration areas. Both have proven performance (mitigating PCB concerns), would minimize environmental impact (vs. dredging) and help maintain the integrity of cultural resources in ecologically sensitive areas.

The first (MD PCB Site) utilized AquaGate+ PAC as an in-situ remedy to address PCBs in lower impact/concentration areas throughout the site. The Year 1 Monitoring Data is also summarized in the document and revealed significant reductions in 28 Day Bioaccumulation (> 85%) and In Situ Porewater (>90%), which you indicated were primary drivers as you consider/select your final remedy for this site. Data from the 1-year review (along with several other recent projects/pilot studies) has consistently shown that benthic mixing begins almost immediately upon amendment placement and often within 30 days, there is already substantial reduction in pore water concentrations and overall recovery.

There is another project (EPA Region 5 - Thomson Reservoir) currently beginning construction for a 69-acre area where AquaGate+PAC will be used to mitigate PCB concerns through in-situ treatment:
https://www.pca.state.mn.us/news-and-stories/mpca-releases-assessment-of-thomson-reservoir-project-in-st-louis-river-area-of-concern.
https://www.epa.gov/newsreleases/epa-announces-22-million-help-restore-st-louis-river-minnesota
This in-situ treatment remedy was again selected over dredging after considering previous successful applications where PCB concentrations were significantly reduced with minimal environmental/ecological impact.

I hope you find this information helpful and would be more than happy to arrange a call/brief presentation to provide more details on these projects as well as others that may be of interest.

Thank you once again for your time and consideration.

Best regards,

[redacted]

From:	Gregg LaForce
To:	O"Leary, Christopher
Subject:	Eighteen Mile Creek Superfund Site
Date:	Monday, July 22, 2024 12:00:34 PM
Attachments:	Outlook-A picture .png Outlook-fi2gb5a2 Outlook-tffkuj05

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

Chris,

I hope you are doing well.

I saw the recent press release that the public comment period has opened for this superfund site with a public hearing on August 1st.

Other than the NYSDEC, are you partnering with another environmental consulting firm for the remediation and cleanup phases of this site? I have already reviewed some of the public documentations.

I represent one of the largest independent environmental laboratory networks in the world and have facilities in NY including a full-service lab in Rochester that would gladly be willing to assist you for any testing requirements you may need for this site.

Gregg LaForce
Technical Sales Representative
New York Region
[redacted]
[redacted]

[redacted]

From: Thomas Tedesco
To: O"Leary, Christopher
Subject: Lockport Union-Sun & Journal - Eighteenmile Creek Superfund meeting
Date: Friday, August 2, 2024 3:09:50 PM

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

Hi Christopher,

It's Thomas Tedesco from the Lockport Union-Sun & Journal. It was nice meeting you last night at the meeting in Newfane, NY.

Just wanted to follow up with you here. You can send me the presentation that you gave on the project last night at your earliest convenience.

I'll let you know if I have any questions or need anything further!

Thanks,
Thomas

Thomas Tedesco
[redacted]

From: [redacted]
To: O"Leary, Christopher
Cc: Basile, Michael
Subject: Sample results for 4410 purdy rd Lkpt.
Date: Friday, August 9, 2024 5:58:02 PM

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

Hi Chris,

As recently discussed at the meeting on 8/1/24 in Newfane ny, I am just emailing you as a reminder to collect my results of your sampling at my property located at [redacted] Lockport ny 14094.

Thank-you!

Kevin Drake.

APPENDIX V

RESPONSIVENESS SUMMARY
ATTACHMENT B

PROPOSED PLAN

Eighteen Mile Creek Superfund Site
Operable Unit 3
Niagara County, New York

July 19, 2024

EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan identifies the remedial alternatives considered to address contaminated sediment and floodplain soil in a discrete portion of the Eighteen Mile Creek Superfund site (Site) referred to herein as Operable Unit 3 (OU3), and also identifies its preferred remedial alternative with the rationale for this preference. OU3 is comprised of the portion of the Eighteen Mile Creek (Creek) beginning from Harwood Street and extending downstream for approximately 5.3 miles, referred to herein as the sediment transitional area (STA), as well as certain floodplain soil adjacent to the STA[1]. In September 2016, EPA issued a Record of Decision (ROD) for OU2 at the Site in which it selected a remedy addressing soil and sediment in the Creek Corridor, which is the approximately 4,000-foot-long segment of the Creek that extends from the New York State Barge Canal (Canal) to Harwood Street in the City of Lockport. Refer to the Scope and Role Section on the next page for details regarding that ROD, referred to as the OU2 ROD. The STA is the portion of the Creek commencing immediately downstream of OU2. A Site location map is provided as Figure 1.

This Proposed Plan was developed by the U.S. Environmental Protection Agency (EPA), the lead agency, 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 (CERCLA, also known as Superfund), as amended, and Section 300.430(f) and 300.435(c) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The nature and extent of contamination at OU3 of the Site and the remedial alternatives summarized in this Proposed Plan are more fully described in the Remedial Investigation (RI) Report, dated February 2022, and the Feasibility Study (FS) Report, dated January 2023, 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, the remedial alternatives that have been considered, and the remedial alternative that is being proposed.

The purpose of this Proposed Plan is to inform the public of EPA's preferred alternative and to solicit public comments pertaining to all of the remedial alternatives evaluated, including the preferred alternative. The preferred alternative for the contaminated sediment, referred to as Alternative STA5, includes the following: excavation and off-Site disposal of contaminated sediment, placing clean backfill over disturbed areas, long-term monitoring and institutional controls, such as existing fish consumption advisories. The preferred alternative for floodplain soil at properties adjacent to the STA, referred to as Soil3, includes the excavation and off-Site disposal of lead and polychlorinated biphenyl (PCB) contaminated floodplain soil at 17 discrete areas encompassing approximately 11 acres. During the pre-design investigation, sampling of additional floodplain soil would be performed at properties adjacent to the STA, including properties that have not yet been sampled, and separate risk evaluations would be conducted for each of these areas. The FS includes estimates that this sampling and the separate risk evaluations could reveal up to an additional 11 acres requiring remediation.

In addition, investigations of groundwater at the Site focused on the sources of contamination within the Creek Corridor (OU2) since groundwater predominantly flows

[1] Although EPA's OU3 investigation of the Creek initially included the full length of the Creek downstream of Harwood Street (Reaches 9 through 1), and adjacent floodplains to this portion of the Creek, EPA has redefined OU3 to consist of the Creek (bank to bank) starting at the downstream end of OU2 (beginning of Reach 9) and extending approximately 3,800 feet downstream of the convergence with the East Branch in Reach 6 at Station 312+93, and adjacent floodplains. The STA extends for approximately 5.3 miles (28,000 ft) and includes Reaches 9, 8, 7, and the upper portion of Reach 6. The station number refers to the length of the centerline of the Creek starting from the headwaters at the Canal. The downstream extent of the STA was determined based on an assessment of the mixing and depositional zone downstream of the confluence between the East Branch and the Creek. Portions of the Creek downstream of OU3 will be addressed in a future operable unit(s).

toward the Creek. Studies initiated by NYSDEC in 1999 revealed generally low-level concentrations of volatile organic compounds (VOCs) in groundwater. As part of EPA's investigation of groundwater at properties along the Creek Corridor, additional groundwater monitoring wells were installed, and sampling revealed results consistent with NYSDEC's investigation. Refer to the *Results of EPA's Groundwater Investigation* section below for more details regarding the contaminant concentrations detected. For the reasons discussed on Page 7, EPA is recommending that no action is necessary to address groundwater within the Creek Corridor at the Site.

The proposed alternatives described in this Proposed Plan to address the sediment and soil contamination are the preferred alternatives for OU3 of the Site. Changes to the preferred alternative, or a change from the preferred alternative to another remedial alternative described in this Proposed Plan, may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the selection of a remedy will be made after EPA has taken into consideration all public comments. For this reason, EPA is soliciting public comments on all of the alternatives considered in the Proposed Plan and on the detailed analysis section of the FS Report because EPA may, after consideration of comments, select an alternative other than the preferred alternative.

MARK YOUR CALENDAR

PUBLIC COMMENT PERIOD:
July 19, 2024 to August 19, 2024
EPA will accept written comments on the Proposed Plan during the public comment period.

PUBLIC MEETING:
August 1, 2024 at 6:00 pm
EPA will hold a public meeting to explain the Proposed Plan. Oral and written comments will be accepted at the meeting. The meeting will be held at Newfane Town Hall located at 2737 Main Street, Newfane, NY 14108.

COMMUNITY ROLE IN SELECTION PROCESS

EPA relies on public input to ensure the concerns of the community are considered in selecting an effective remedy for each Superfund site. To this end, this Proposed Plan has been made available to the public for a public comment period which begins on July 19, 2024 and concludes on August 19, 2024.

A public meeting will be held on August 1, 2024 at Newfane Town Hall located at 2737 Main Street, Newfane, New York at 6:00 p.m. to present the conclusions of the RI/FS, elaborate further on the reasons for recommending the preferred alternative, and receive public comments (see the "Mark Your Calendar" box above).

Comments received at the public meeting, as well as written comments received during the public comment period, will be documented in a Responsiveness Summary that will be a portion of a Record of Decision (OU3 ROD), the document that will memorialize the selection of a remedy for this OU3. Written comments on the Proposed Plan should be addressed to:

Christopher O'Leary
Remedial Project Manager
Western New York Remediation Section
U.S. Environmental Protection Agency
290 Broadway – 19th Floor
New York, New York 10007-1866
Telephone: (212) 637-4378
Email: oleary.christopher@epa.gov

PUBLIC INFORMATION REPOSITORIES

Copies of the Proposed Plan and supporting documentation are available at the following information repositories.

Lockport Public Library
23 East Avenue
Lockport, New York 14094
Telephone: (716) 433-5935

Newfane Public Library
2761 Maple Avenue
Newfane, New York 14108
Telephone: (716) 778-9344

USEPA – Region II
Superfund Records Center
290 Broadway, 18th Floor
New York, New York 10007-1866
Telephone: (212) 637-4308
Hours: Monday – Friday: 9 AM to 5 PM

EPA's website for the Eighteen Mile Creek Superfund Site:
www.epa.gov/superfund/eighteenmile-creek

SCOPE AND ROLE OF ACTION

Site remediation activities are sometimes separated into different phases, or Operable Units (OUs), so that remediation of different aspects of a site can proceed separately, resulting in a more efficient and expeditious cleanup of the entire site. EPA is addressing the Eighteen Mile Creek Site in multiple OUs.

OU1 addressed the risks associated with the residential soil contamination at nine residential properties located on Water Street and the threats posed from the deteriorating Flintkote Plant building. On September 30, 2013, EPA selected a final cleanup plan for OU1 (OU1 ROD). As part of EPA's selected remedy for OU1, residents on Water Street were permanently relocated from their homes because of the presence of PCB-contaminated soils in residential yards and the likelihood of recontamination based on recurring flooding of the properties with PCB contaminated water and sediments from the Creek, given their properties' location within the Creek's floodplain. It was determined that the OU1 soil excavation work would be performed at the time of the cleanup of the OU2 sediments to prevent the Creek from re-contaminating the above-referenced residential properties subsequent to their cleanup. Following the relocations, the structures at the OU1 properties were demolished. The buildings at the Flintkote property were also demolished.

On January 19, 2017, EPA selected the OU2 remedy, which addressed the contaminated soil at the following properties adjacent to the Creek: the former Flintkote Plant property (Flintkote), Upson Park, the White Transportation property, and the former United Paperboard Company property. The remedy set forth in the OU2 ROD also addressed contaminated sediment within the Creek Corridor. An overview of the Creek Corridor is included in Figure 2. As discussed further below, the highest levels of PCB contamination in sediments, and the presence of PCBs on adjacent properties, occurs within the Creek Corridor, which is why this portion of the Creek is being addressed first. The cleanup plan for OU2 includes bank-to-bank excavation of sediment in the Creek Corridor and a combination of soil excavation and capping at the upland properties. This remedy is currently in the remedial action phase and construction is scheduled to begin in Summer 2024.

OU3 is the subject of this Proposed Plan and is comprised of sediments within a portion of the Creek, referred to as the STA. The STA is a subset area of the full length of the Creek comprising the portion of the Creek beginning from Harwood Street and extending downstream for approximately 5.3 miles (upper portion of Reach 6 through Reach 9; see Figure 2). Floodplain soils impacted by the Creek adjacent to the STA are also included within this OU. Evaluations conducted during EPA's investigation of OU3 revealed that the STA contains approximately 21% of the overall mass of PCBs in the Creek, as well as the highest contaminant concentration in the sediment downstream of OU2. The sediment in this area is erodible during major flow events or other disturbances to the sediment, and it is considered a source of contamination downstream. The downstream cutoff point for this area, approximately 3,800 feet downstream of the convergence with the East Branch (Station 312+93), was based on an assessment of the mixing and settlement zone downstream of the convergence of the Creek and the East Branch. Based on this assessment, the area downstream of the STA is beyond the influence of the East Branch flow, including the resettling of sediment onto the Creek bed that was resuspended. This Proposed Plan describes the remedial alternatives considered for an interim remedy to address the sediments within the STA and a final remedy to address floodplain soils impacted by the Creek adjacent to the STA. The RI included an investigation of the nature and extent of groundwater contamination within the Creek Corridor; a decision related to Creek Corridor groundwater will be included in the OU3 ROD.

OU4 addresses lead-contaminated soils at certain residential properties in the vicinity of the former Flintkote Property. EPA selected a cleanup plan for OU4 (in the OU4 ROD) in 2019, which calls for the excavation and off-Site disposal of lead-contaminated soils found to be located at the residential properties. The remedy for the first phase of the OU4 remediation includes 33 residential properties, and construction is scheduled to begin in Summer 2024. Soil sampling at additional residential properties, referred to as Phase 2 of OU4, is ongoing.

Future Operable Unit(s)

The remaining areas of the Creek (commencing immediately downstream of the STA to the Creek's discharge at Lake Ontario) that are not addressed by this Proposed Plan would be addressed under separate, future action(s). The impoundment areas upstream of Newfane Dam and Burt Dam have historically acted as sinks for contaminated sediment, and as such these areas have been identified as potential pockets of downstream contamination in the event of a change in the flow regime of the Creek. Figure 3 depicts the location of these two dams. These remaining areas require additional evaluation to establish a final remedy for the full length of the Creek. This evaluation will identify and address the following:

- data gaps including the nature and extent of contamination within these remaining areas;

- the characteristics of the sediment bed behind the Newfane and Burt dams;
- a study of the impacts from having addressed the source areas;
- an assessment of the fate and transport mechanisms of the remaining contamination in the Creek, including residual soil contamination following excavation of floodplain soil in the STA;
- bathymetry monitoring of sediment to evaluate recovery, accumulation and/or erosion; and
- a long-term monitoring program.

After a comprehensive evaluation of the full length of the Creek is conducted, a final remedy for the entire length of the Creek will be established. The final remedy would include final remediation goals for contaminated sediment, including the Creek Corridor (OU2) and the STA (OU3) as well as any additional remedial action objectives that are determined necessary, including remedial action objectives for additional media such as surface water. In addition, floodplain soil sampling will be conducted downstream of the STA as part of a separate investigation. Separate response actions or a future operable unit(s) would address risks identified in floodplain soil downstream of the STA.

SITE BACKGROUND

The Site is located in Niagara County, New York. The main channel of the Creek originates just south of the Canal and flows north for approximately 15 miles until it discharges to Lake Ontario in Olcott, New York. The Eighteen Mile Creek watershed includes the two main tributaries: East Branch of Eighteen Mile Creek and Gulf Creek.

The Creek Corridor has a long history of industrial use dating back to the 19th century when it was used as a source of hydropower. Various industrial plants operated at properties within the Creek Corridor, including the former United Paperboard Company, the White Transportation Company, the former Flintkote Company, and various operations at Upson Park. Damaged drums, ash, slag material, and contaminated fill material have been observed at these properties. Aerial photographs also suggest that by 1938, fill was disposed in the section of 300 Mill Street between the Creek and the Millrace, which is a small segment of the Creek that splits and flows around an area of soil and fill on the Flintkote property, known as the Island.

Downstream of Harwood Street, Eighteen Mile Creek drops down the Niagara Escarpment and passes through approximately 12 miles of rural Niagara County. Land use within this portion of the Creek watershed consists primarily of cropland and orchards, with residential, commercial, and small industrial areas located closer to the city of Lockport and further downstream around Newfane. Several other industrial facilities are located along Eighteen Mile Creek, including the City of Lockport Wastewater Treatment Plant, VanChlor Inc., Twin Lakes Chemical, and Van De Mark Chemical.

Several dams were constructed to provide power near Newfane, two of which remain today. Newfane Dam was originally built in the 1830s near the end of McKee Street and Ewings Road to provide power for the Newfane mill district; the current dam was built in 1912 and is not in service. Burt Dam was built farther north of Newfane in 1924, creating a 95-acre impoundment that extends approximately two miles upstream of the dam. The original dam generated power until the 1950s. It was restored in 1988 and still operates.

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.

According to EPA's EJScreen: Environmental Justice Screening and Mapping Tool (www.epa.gov/ejscreen), there are no demographic indicators for communities on each side of the Creek along OU3 of the Site that would indicate a community with environmental justice concerns. However, an EJScreen analysis of the local community upstream of OU3, including the area encompassing OU1, OU2 and OU4, found that this area exceeded the 80th percentile relative to the rest of New York State for air toxics cancer risk and lead-based paint. The Air Toxics Cancer Risk results are based upon lifetime cancer risk from inhalation of air toxics, as risk per lifetime per million people. The proposed remedy is not anticipated to result in adverse impacts to environmental resources that would affect the populations living within the vicinity of the Site. During the design, a community health and safety plan would be developed to evaluate risks to surrounding communities and to adopt practices to mitigate these short-term risks. Risks that would be evaluated include those associated with potentially increased levels of traffic, the potential for air emissions, issues associated with the transportation of contaminated materials, and potential issues associated with noise and lighting.

SUMMARY OF PREVIOUS INVESTIGATIONS

Creek Corridor:
Beginning in 1999, NYSDEC conducted several investigations at the Site related to the Creek Corridor. NYSDEC investigations of the former United Paperboard Company property, Upson Park, and the White

Transportation property documented the presence of fill material on these properties, with surface and subsurface soil and fill contaminated with PCBs, metals, and semi-volatile organic compounds (SVOCs). The erosion and runoff of contaminated fill material from properties adjacent to the Creek appears to be the primary mechanism for transport of contamination to the Creek. PCBs and lead concentrations in soil at these properties are as high as 630 parts per million (ppm) and 77,300 ppm, respectively. Sediment samples collected in the Creek Corridor and the millrace revealed concentrations of PCBs and lead up to 25,400 ppm and 15,000 ppm, respectively. The turbine at the Flintkote property is also believed to be a source of PCBs contamination in the Creek. As mentioned in the Scope and Role section of this Proposed Plan, EPA selected the OU2 remedy to address soil and sediment contamination in the Creek Corridor in 2017. The remedial design that provides the detailed specifications for the performance of that remedy has been completed, and construction activities for this work are anticipated to begin this summer.

Sediment:

Several studies were completed under projects funded by EPA Region 2, the EPA Great Lakes Legacy Act (GLLA), and the EPA Great Lakes Restoration Initiative (GLRI). EPA's Great Lakes National Program Office (GLNPO) has identified part of the Eighteen Mile Creek as an area of concern (AOC) for Lake Ontario as part of its GLRI because of its sediment contamination and poor water quality. In March 2015, a report summarizing data collected for the characterization of the AOC under the GLLA program was prepared for the EPA's GLNPO. The RI report included sediment data collected under investigations performed by various agencies from Olcott Harbor (mouth of the Creek) upstream through the city of Lockport to the Canal and including the Creek Corridor. The results of the RI are presented in the 2015 report entitled "*Final Remedial Investigation Report, Eighteen Mile Creek, Remedial Investigation/Feasibility Study*".

Surface Water:

While surface water in the Creek has not been extensively sampled as part of previous sediment investigations, water quality has been evaluated as part of regional studies conducted by EPA and NYSDEC. Historical samples collected to measure concentrations of PCBs, mercury, and dioxins/furans were obtained in 1993 and 1994 as part of a NYSDEC study to track contaminants to Lake Ontario. Results of this study are presented in a report entitled, "*Trackdown of Chemical Contaminants to Lake Ontario from New York State Tributaries".*

GLNPO conducted semiannual monitoring of the surface water discharge from Eighteen Mile Creek and several other tributaries from 2002 to 2010. Results from these monitoring events are presented in the 2011 report entitled, *"Field Data Report, Lake Ontario Tributaries".*

The data indicate that Eighteen Mile Creek had the highest PCB concentrations (0.043 - 0.093 micrograms/liter (µg/L)) in surface water compared to other major tributaries to Lake Ontario.

Bioaccumulation:

The U.S. Army Corps of Engineers performed two studies in 2003 that focused on bioaccumulation and food web modeling that established a significant bioaccumulation potential for PCBs in fish tissue by collecting sediment and fish samples in the Creek. The earliest studies focused on the area downstream of Burt Dam, and more recent investigations included collecting sediment and fish tissue data from upstream of Burt Dam and Newfane Dam. In part, the studies found that PCBs were highly bioavailable and predicted to cause wildlife bioaccumulation risks. Results from these studies are presented in the following 2004 reports: "*Volume I (Project Report Overview): Sediment Sampling, Biological Analyses, and Chemical Analyses for Eighteenmile Creek", "Volume II: Laboratory Reports Sediment Sampling, Biological Analyses, and Chemical Analyses for Eighteenmile Creek AOC",* and *"Final Bioaccumulation Modeling and Ecological Risk Assessment, Eighteenmile Creek Great Lakes Area of Concern".*

For the Niagara County Soil and Water Conservation District, several studies were completed to evaluate beneficial use impairments in the Eighteen Mile Creek AOC. A study was performed in 2006 to evaluate whether PCBs and metals continued to migrate from upstream source areas and to identify other potential sources of contamination. Another investigation was conducted in 2007 downstream of Burt Dam to determine (a) whether the Eighteen Mile Creek AOC was impaired based upon the existence of fish tumors and other deformities, (b) the status of fish and wildlife populations, and (c) the status of any bird or mammal deformities or reproductive impairment. Finally, baseline benthic community and fish sampling and a pilot study on the use of powdered activated carbon to reduce PCB bioavailability in Eighteen Mile Creek sediment were completed in 2012.

More recent studies assessing beneficial use impairments in the Eighteen Mile Creek AOC are also included in the Administrative Record file.

New York State Department of Health (NYSDOH) has also monitored fish populations in the Creek, and there is currently a fish consumption advisory for the entire Eighteen Mile Creek issued by NYSDOH because of the presence of PCBs. For more information regarding the advisory, please refer to the following website: https://www.health.ny.gov/environmental/outdoors/fish/health_advisories/by_county.htm?county=niagara

All reports referenced in this Proposed Plan can be found in the Administrative Record file for this action.

RESULTS OF EPA'S OU3 REMEDIAL INVESTIGATION

In 2018, EPA initiated a separate investigation of sediments, surface water, biota, and floodplain soil along the Creek. Groundwater within the Creek Corridor was further investigated as part of EPA's investigations in an effort to define the nature and extent of the groundwater contamination and locate the source(s) of the low-level concentrations detected during previous studies.

Consistent with previous investigations, the Creek was divided into smaller investigation areas, or reaches, based on the following physical characteristics (see Figure 2):

- **Reach 1** consists of the Creek channel from Burt Dam to the mouth of the Creek in Olcott Harbor where the Creek discharges into Lake Ontario.
- **Reach 2** consists of the impoundment immediately upstream of Burt Dam.
- **Reach 3** is the historical channel that was flooded after the Burt Dam was installed.
- **Reach 4** is the section of the Creek located immediately downstream of Newfane Dam.
- **Reach 5** consists of the impoundment immediately upstream of Newfane Dam.
- **Reach 6** extends from the upstream end of the Newfane Dam impoundment to the confluence of the main channel and the East Branch.
- **Reach 7** runs from the confluence of the main channel and the East Branch to the downstream portion of the Niagara Escarpment.
- **Reach 8** is a 2,000-foot-long section of the Creek that cascades down the steep gradient of the Niagara Escarpment.
- **Reach 9** is an approximately 1,000-foot-long section of the Creek immediately downstream of OU2.

The following provides an overview of the sampling conducted by EPA in the Creek over multiple phases.

Phase IA, conducted from May to June 2018, included surface water, floodplain soil, and soil sampling of agricultural areas that were irrigated with Creek water. Bathymetric surveys and light detection and ranging (LiDAR) surveys were also conducted. Five groundwater monitoring wells were installed on the west side of the Creek Corridor.

Phase IB, conducted from October to November 2018, included surface water sampling. Game and forage fish from the Creek were collected, and tissue samples were analyzed. Groundwater sampling was conducted from monitoring wells installed in Spring 2018 as well as existing wells in the Creek Corridor.

Phase IIA, conducted in July 2019, included surface water sampling targeting high-flow events and floodplain soil.

Phase III, conducted from October to November 2020, included the following: surface water sampling targeting high-flow and low-flow events; a filtration study to examine the relationship between particle size and PCB concentrations in surface water; floodplain soil sampling; surface sediment sampling; sediment core collection and analysis; additional bathymetric surveys; and young-of-year[2] fish sampling.

The results indicate that chemical contamination of the sediment in the Creek generally decreases in concentration moving downstream (the Reach numbers descend from Reach 9 to Reach 1 as they flow downstream to Lake Ontario). For Reaches 1 through 9, the highest concentrations of PCBs were detected in Reaches 6 and 7 where a significant portion of the contaminated sediment has settled. A maximum PCB concentration at 97 ppm was detected in Reach 7. Elevated concentrations of PCBs and lead are found in shallow and deeper sediments behind Burt Dam and Newfane Dam. Lead concentrations ranged from 3.8 ppm in Reach 5 to a maximum concentration of 6,760 ppm in Reach 2. The higher concentrations in the sediment at depth behind the dams indicate that the major contributions of PCBs and lead were from historical sources. However, high concentrations of PCBs in both the total and dissolved phases of surface water indicate that PCBs in the shallow sediments of Reaches 6 and 7 are being transported and deposited downstream by sediment resuspension and resettling.

Floodplain soil sampling in areas prone to flooding revealed maximum PCB and lead concentrations of 26 ppm and 2,630 ppm, respectively. The higher concentrations for both PCBs and lead were primarily on properties within Reach 7. Areas with steeper banks were not impacted by deposition of contaminated sediment. Soil sampling

[2] "Young-of-year" refers to all the fish species that are younger than one year of age.

conducted in nearby areas irrigated with water from the Creek did not reveal PCB detections.

Surface water was analyzed over three years under a range of flow conditions. Additional studies designed to understand contaminant sources and migration pathways included passive sampler and filtration studies. While PCBs were consistently detected in both the whole-water and field-filtered samples, based on the absolute magnitude of total PCB concentration in whole-water samples compared to the total PCB concentration in the field-filtered samples, suspended solids contribute the largest load of PCBs into the water column. For example, total PCB concentrations ranged from 20 to 160 ng/L for whole-water samples collected from 2018 to 2020, whereas the corresponding field-filtered samples, where suspended solids were removed, had reported total PCB concentration of less than 7 ng/L. Lead was consistently detected in the total phase in all reaches of the Creek at concentrations that exceed background levels. Lead was not consistently found in the dissolved phase. Lead concentrations in Reaches 1 to 7 are comparable to the concentration in the OU2 source area. Except for the lead concentrations collected during very high flows, resuspension of the contaminated sediment does not appear to be a mechanism to transport lead in the water column. Metals in surface water are not a significant contaminant source or migration pathway. In addition, other contaminants such as polycyclic aromatic hydrocarbons also are not a significant contaminant source or migration pathway in surface water.

The uptake of PCBs from sediment and surface water has resulted in elevated concentrations of PCBs in fish tissue and biota. Sampling of game fish including largemouth bass, northern pike, and walleye revealed PCB concentrations ranging from 0.26 ppm to 27 ppm. Sampling of forage fish including pumpkinseed fish, common shiner, and rock bass revealed maximum PCB and lead concentrations of 8.5 ppm and 8.3 ppm, respectively. Mercury detections in the fish from the Creek are generally low.

RESULTS OF EPA'S GROUNDWATER INVESTIGATION IN THE CREEK CORRIDOR

The most recent groundwater sampling conducted in 2018 and 2019 generally showed low level concentrations of VOCs, including trichloroethylene (TCE), with some exceedances of federal maximum contaminant levels (MCLs) and state standards in some monitoring wells. For example, in 2019, the highest concentration of TCE was detected in well MW-14, at a concentration of 11 µg/L, compared to the federal MCL and state standard of 5 µg/L. This represents a decline from 2007, when TCE was detected in MW-14 at a concentration of 20 µg/L.

The results also show fluctuating concentrations in TCE daughter products (*cis*-1, 2-dichloroethylene, trans-1, 2-dichloroethylene, and vinyl chloride), with higher concentrations of the daughter products occurring downgradient of the TCE detections. For example, at MW-5 *cis*-1, 2-dichloroethylene was detected at a concentration of 8.4 µg/L in 2019, compared to the federal MCL and state standard of 70 µg/L and 5 µg/L, respectively. This represents a decline from 2007. Historically, TCE has not been detected in MW-5. Trend analyses including historical data collected by NYSDEC beginning in 2007 show an ongoing reduction in concentrations of chlorinated VOCs. Based on the groundwater investigation conducted within the Creek Corridor, no historical or active source of VOCs has been identified, and groundwater is not expected to be a significant source of groundwater contamination to the Creek. Furthermore, the City of Lockport is the provider of potable water to residents within the Creek Corridor and surface water from the east branch of the Niagara River is its primary source.

The groundwater investigation within the Creek Corridor identified a limited area of contamination with no historical or active source of VOCs and evidence of on-going natural attenuation of the contaminants in the groundwater. Since groundwater is not expected to be a significant source of contamination to the Creek, it was determined that groundwater in the Creek Corridor would not be addressed further as part of the FS.

CONTAMINANT FATE AND TRANSPORT

The main transport method of contaminated material in the Creek is through sediment movement in the surface water with deposition in sediment beds and on floodplains. This sediment transport has been identified to occur through the following two processes: (1) transport of fine-grained sediment through resuspension of fine sediment in the water column, with the suspended fine sediments being transported downstream, and the settling of suspended sediments in quiescent conditions; and (2) movement of sand as bed load and resettlement.

The transport of contaminants throughout the Creek is influenced by the geology, hydrology, and geomorphology of the surrounding area along with the presence of wetlands, structures, and obstructions in the Creek.

An analysis of sediment erosion and deposition and contaminant movement at the Site revealed the following:

- Upstream sources of PCBs in OU2 likely contribute to PCB concentrations in surface water and sediment in the STA and further downstream; and

- High flows or other disturbances can mobilize the elevated concentrations of PCBs in Reaches 7 and 6 and redistribute them downstream.

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. Source material includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to ground water, 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 that would present a significant risk to human health, or the environment should exposure occur. For residential areas, principal threats will generally include soils contaminated with PCBs at concentrations greater than 100 ppm. EPA's findings to date in OU3 have not revealed the presence of principal threat wastes in floodplain soil or elsewhere in OU3.

RISK SUMMARY

A site-specific Baseline Human Health Risk Assessment (BHHRA) for the full length of the Creek was developed to quantitatively evaluate both cancer risks and noncancer health hazards from exposure to contaminants. The BHHRA is part of the RI/FS to assess Site-related cancer risks and noncancer health hazards to chemicals including lead and PCBs. Risks were evaluated under baseline conditions, in the absence of any response action and/or institutional controls. A copy of the *Final Baseline Human Health Risk Assessment for OU3*[3], dated May 2022, is available in the Administrative Record file for this decision. A four-step human health risk assessment process was used for assessing Site-related cancer risks and noncancer hazards. The four-step process is comprised of Hazard Identification/Data Collection and Evaluation, Toxicity Assessment, Exposure Assessment, and Risk Characterization (see the "What is Human Health Risk and How is it Calculated" box on page 10).

The BHHRA quantitatively evaluated cancer risks and noncancer health hazards from exposure to chemical contaminants in sediment, soil, surface water, and fish tissue within the length of the Creek beginning at the end of the Creek Corridor (Harwood Street) and continuing to where the Creek discharges into Lake Ontario in Olcott, New York. The BHHRA evaluated current and future risks to recreational users of the Creek, anglers, visitors/ trespassers on a reach-specific basis, and residents based on sampling transects along the Creek. The BHHRA included floodplain soil sampling data for the separate exposure areas representing individual properties along the Creek. While the BHHRA encompassed an area greater than the subject of this Proposed Plan, the following risk assessment summary focuses on the STA and floodplain soils adjacent to the STA.

The BHHRA followed EPA guidelines, guidance, and policies, and more specifically the Risk Assessment Guidance for Superfund. EPA evaluated risks to the reasonable maximum exposed (RME) individual in the BHHRA that are expected to occur under current and/or future land use. The RME individual is defined as "the highest exposure that might reasonably be expected to occur" and is well above the average case of exposure but within the range of possibility.

Hazard Identification/Data Collection and Evaluation

Soil, sediment, surface water, and fish tissue data relied upon in the BHHRA were collected during the 2018/2019 field investigations. Sediment data from historical investigations were also used to support the BHHRA.

Toxicity Assessment

The toxicity assessment estimates the relationship between the extent of exposure to a contaminant and the likelihood and/or severity of adverse health effects. The toxicity assessment has the following two parts:

- Hazard identification – a qualitative description of the potential toxicity of Site chemicals of potential concern (COPCs).
- Dose-response – a quantitative estimate of toxicity for each COPC. For carcinogenic effects, the slope factor (SF) is determined for oral and dermal exposure and the inhalation unit risk (IUR) is used for inhalation exposure; for noncancer effects, the reference dose (RfD) is used to evaluate oral and dermal exposures while the reference concentration (RfC) is used to evaluate inhalation exposures.

[3] While the BHHRA document included in the Administrative Record file specifies OU3 in its title, this document assesses cancer risks and non-cancer hazards for the full length of the Creek (Reaches 9 to 1). However, the information provided in the Risk Summary section of the Proposed Plan focuses on the results for the STA.

Chemical-specific toxicological parameters (*i.e.*, RfDs, RfCs, SFs, and IURs) are obtained following EPA's tiered process for selecting toxicity values. The SF for chemicals identified with a Mutagenic Mode of Action were evaluated but did not exceed the risk range or a hazard index (HI) of 1.

Exposure Assessment

Exposure parameters used to calculate intakes and doses were obtained from the Superfund standard default exposure assumptions, EPA's Exposure Factors Handbook, and the 2014 standard default exposure assumptions. Parameters, such as the quantity of sediment and surface water ingested, or exposure durations for recreational users, anglers, and visitor/trespasser, are estimates based on professional judgment. Exposure parameters were selected to be health-protective consistent with the definition of RME discussed above.

The exposure assessment evaluated individuals who may contact environmental media in the Creek (*e.g.*, sediment, soil, surface water, and fish tissue) based on a review of current and reasonably foreseeable future land use at the Site. Receptors or individuals who may be exposed include:

- **Recreational users**: Adult (older than 18 years), adolescent (7 to 18 years), and children (6 years and younger) exposed through incidental ingestion and dermal contact with surface water; incidental ingestion and dermal contact with sediment; and inhalation of dust particles from floodplain soil and exposed Creek nearshore sediment.

- **Visitor/trespasser**: Adult, adolescent, and children exposed through incidental ingestion, dermal contact, and inhalation of dust particles with floodplain soil.

- **Resident**: Adult and children exposed through incidental ingestion, dermal contact, and inhalation of dust particles from floodplain soil.

- **Angler**: Adult and adolescent exposed through incidental ingestion of and dermal contact with surface water, incidental ingestion, dermal contact, and inhalation of dust particles from floodplain soil and nearshore sediment in the Creek.

- **Fish Consumers:** Adult, adolescent, and child exposed through ingestion of fish caught in the Creek.

Risk Characterization

Risk characterization, the final step of the risk assessment process, combines the information from the exposure assessment and toxicity assessment to yield estimated cancer risks and noncancer hazards from exposure to chemicals in the media of concern (*e.g.*, soil, sediment, groundwater, and fish tissue). The risk characterization step also involves an evaluation of the uncertainty associated with the quantified cancer risks and noncancer health hazards.

EPA uses the cancer risks and the noncancer hazard quotient (HQ) for individual chemicals and the hazard index (HI) for total chemicals calculated based on RME exposures to determine whether Site risks and hazards are above or below the risk range established under the NCP (1 x 10^{-6} to 1 x 10^{-4}, or one in a million to one in ten thousand cancer risk) and the goal of protection of an HQ/HI less than or equal to 1. A separate assessment was conducted for lead using Region 2's lead approach described below.

Sampling was conducted per the designated reaches and the results were further broken down into transects to aid in organizing data collection, present results, and calculate cancer risks and noncancer hazards for upland residential and commercial properties. This was needed to inform risk management decisions.

The assessment of the transect data included the following assumptions:

- Properties zoned as residential were assessed individually under a residential exposure scenario.
- Creek bank/floodplain soil samples were collected along 13 total soil transects located in five of the nine reaches, with the transects extending in a perpendicular direction away from the banks of the Creek. The sample locations were selected based on the potential for exposure from flooding.
- Soil samples collected from the floodplain areas were used in the risk assessment to assess exposures of residents on a property-by-property basis, as well as exposures of the angler or recreational user who are exposed on a less frequent basis than the resident.
- In some limited instances, a transect traversed more than one property.

Table 1 provides a summary of cancer risks exceeding the risk range and a noncancer HI of 1 from fish consumption in Reaches 6 and 7. Table 2 provides a summary of the risk assessment results for floodplain soil for the transects evaluated in Reaches 6 and 7. The assessment for floodplain soil revealed the cancer risks were within the risk range and the noncancer HQ varied across properties. As discussed in more detail below, lead was evaluated separately.

Table 1: **Summary of Current/Future Angler Cancer Risks and Noncancer Hazards from Fish Consumption**

Reach	Receptors	Cancer Risk	Noncancer Hazard
6	Child	2.0×10^{-3}	567
	Adolescent	2.3×10^{-3}	328
	Adult	3.7×10^{-3}	320
7	Child	2.0×10^{-3}	566
	Adolescent	2.3×10^{-3}	327
	Adult	3.7×10^{-3}	319

*In Reach 6, the chemical drivers for the cancer risk and noncancer hazards is PCBs, while PCBs and mercury are the drivers in Reach 7.

Table 2: Summary of Noncancer HIs Greater than 1 from Exposure to Soil

Transect #	Reach #	Basis for HQs > 1 Based on Effects on the Same Target Organ.
06	6	Aluminum, manganese, and mercury are associated with potential impacts on the nervous system with a target organ HI of 1.1, and PCBs are associated with potential impacts on the immune system with a target organ HI of 1.1
08	6	PCBs are associated with potential impacts on the immune system with a target organ HI of 3.9
10	7	PCBs are associated with potential impacts on the immune system with a target organ HI of 5.5
13	7	Cobalt is associated with potential impacts on the endocrine system with a target organ HI of 1.2, and PCBs are associated with potential impacts on the immune system with a target organ HI of 2.9
15	7	PCBs are associated with potential impacts on the immune system with a target organ HI of 8.4
19	7	PCBs are associated with potential impacts on the immune system with a target organ HI of 3.5
20	7	PCBs are associated with potential impacts on the immune system with a target organ HI of 3.5
20	7	Mercury and manganese are associated with potential impacts to the nervous system with a target organ HI of 1.5, and PCBs are associated with potential impacts on the immune system with a target organ HI of 1.3
22	7	Mercury and manganese are associated with potential impacts to the nervous system with a target organ HI of 1.5, and PCBs are associated with potential impacts on the immune system with a target organ HI of 1.3
23	7	PCBs are associated with potential impacts on the immune system with a target organ HI of 9.4
25	7	Mercury and manganese are associated with potential impacts to the nervous system with a target organ HI of 1.4. PCBs are associated with potential impacts on the immune system with a target organ HI of 1.4

Lead

Lead in sediment and floodplain soils were evaluated consistent with EPA Superfund guidance. Concentrations in surface water were compared with the EPA's Office of Water Lead Action Level of 15 micrograms per liter. Per EPA Region 2's approach to evaluating lead, sediment and residential soil concentrations were compared with a screening level of 200 ppm and those concentrations greater than the screening level were identified for further evaluation; non-residential soil concentrations were compared to 800 ppm.[4]

The adult lead model (ALM) was used to predict the maternal blood lead level (BLLs) for adult non-residential exposures, and the Integrated Exposure Uptake Biokinetic (IEUBK) model was used to evaluate BLLs for the residential child (seven years and younger[5]). Both models are designed to determine the probability of the BLL exceeding five micrograms per deciliter (µg/dL) based on the average or mean lead concentration.

IEUBK Model Results for Soil and Sediment

A summary of the lead risk assessment results are provided below for exposure to sediment in each of the reaches and floodplain soils in each of the transects. Tables 3 and 4 provide the maximum, mean (average) sediment/soil and IEUBK model results. The maximum lead concentrations at Transects 02, 07, and 21 did not exceed the screening level of 200 mg/kg; therefore, risk from lead exposure was not further evaluated. Based on soil concentrations, the IEUBK modelling resulted in a conclusion that at Transects 10, 11, 13, 16, 20, 23, and 24, the probability of child blood level exceeding 5 µg/dL was less than 5%, while at Transects 5, 6, 8, 15, 17, 18, 19, 22, and 25 the probability of child blood level exceeding 5 µg/dL was greater than 5%.

The probability of the blood lead level exceeding 5 µg/dL in Reach 1 was less than 5%, and the probability of exceeding 5 µg/dL greater than 5% in all other reaches.

[4] Since the risk assessment was performed, EPA released new guidance for lead in residential soils: Updated Residential Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. The evaluation described here is consistent with this new guidance.

[5] While the IEUBK model guidance standard default value for lead evaluations of the child receptor is seven years, the BHHRA provides for an age range of six years for the child exposed to other chemicals.

Table 3: Summary of Maximum and Average Lead Concentrations in Sediment by Reach Based on Blood Lead Levels (BLL) Greater than 5 µg/dL and IEUBK Model Results

Reach	Maximum Concentration Lead Level (mg/kg)	Average (Mean) Lead Concentration (mg/kg)	Percent of Individuals with BLLs > 5 µg/dL
6	4,383	623	100
7	2,940	613	99

Table 4: Lead Transect Evaluation Providing Average Concentration in Soil, Average Blood Level, and IEUBK Model Results

Transect	Average Soil Concentration (mg/kg)	Predicted Blood Lead Level (µg/dL)	IEUBK Model Results with BLLs > 5% above 5 µg/dL
05	375	19	Yes
06	498	32	Yes
08	278	10	Yes
15	450	27	Yes
17	208	5.4	Yes
18	242	7.6	Yes
19	256	8.7	Yes
22	291	11	Yes
25	287	11	Yes

In summary, the HHRA demonstrated unacceptable risk and hazard throughout the Creek from fish consumption (Table 1) primarily attributed to PCBs. Additionally, exposures to floodplain soil in the transects identified in Table 3 demonstrate hazards at or above the goal of protection, as well as predicted BLLs above the goal of no more than 5% of the population with BLLs above 5 µg/dL. Sediment exposures in Reaches 6 and 7 are also associated with predicted elevated BLLs in young child receptors.

Ecological Risk Assessment

In July 2018, a screening level ecological risk assessment (SLERA) was completed for the full length of the Creek. The purpose of the SLERA was to assess risk posed to ecological receptors because of Site-related contaminants. The SLERA indicates that ecological risks may be present for benthic macroinvertebrates and wildlife that consume invertebrates from soil or sediment. A copy of the *Final Screening Level Ecological Risk Assessment*, dated July 2018, is available in the Administrative Record file for this Operable Unit.

In an effort to better define risks, in 2019 and 2020 additional sampling was conducted to investigate sediment toxicity and bioaccumulation of contaminants from soil and sediment into invertebrates that reside in those media. The results were incorporated in a baseline ecological risk assessment (BERA).

While the BERA evaluated the portion of the Creek beginning at the end of the Creek Corridor (Harwood Street) and continuing to where the Creek discharges into Lake Ontario in Olcott, the evaluation of potential ecological hazards and chemical of potential ecological concerns (COPECs) was separated into three distinct areas of the Creek. The three areas are: (1) Downstream from Burt Dam, (2) Between Burt Dam and Newfane Dam, and (3) Upstream from Newfane Dam. For the purposes of this Proposed Plan, the results presented below are for the area upstream of Newfane Dam, including the STA.

Surface Soil

Terrestrial invertivores wildlife (e.g., American robin and shrew) are highly at risk to surface soil exposure. Through direct exposure, incidental ingestion of contaminated soil and consumption of contaminated food items it was determined that several contaminants of concern (COCs) pose a risk to terrestrial invertivores that feed and dwell within the flood plain soils (i.e., HQs exceeded 1.0 for one or more contaminants). COCs, including PCBs and lead, can accumulate in soil fauna and subsequently put American robin and shrew at risk to COCs exposures.

Sediment

Insectivorous aquatic-dependent wildlife (e.g., tree swallow and little brown bat) and fish-eating wildlife (e.g., great blue heron and mink) are highly at risk to sediment exposure. Through direct exposure, incidental ingestion of contaminated sediment and consumption of contaminated food items it was determined that several COCs, including PCBs and lead, pose a risk to insectivorous aquatic-dependent life and fish-eating wildlife that feed and dwell within the contaminated sediment (i.e., HQs exceeded 1.0 for one or more contaminants). COCs accumulated in benthic macroinvertebrates and forage fish population can put tree swallow, little brown bat, blue heron and mink at risk to COCs exposures.

Overall, the BERA results revealed a wide range of contaminants that present risks to various ecological receptors. The major source of risk from Site-related contaminants are PCBs and metals. The affected ecological receptors are insectivorous aquatic dependent wildlife (*e.g.*, tree swallow and little brown bat), terrestrial insectivorous wildlife (*e.g.*, American robin and shrew), and fish-eating wildlife (*e.g.*, great blue heron and mink). Based on the results of the BERA, ecological receptors in areas upstream from Newfane Dam are greatly affected by contaminants.

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 public health or welfare or the environment from actual or threatened releases of pollutants or contaminants from this Site that may present an imminent and substantial endangerment to public health or welfare.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are specific goals to protect human health and the environment. RAOs are based on available information and standards such as applicable or relevant and appropriate requirements (ARARs), to-be-considered (TBC) guidance, and site-specific risk-based levels.

The following interim RAOs have been established for OU3:

Sediment Interim RAOs:

- Reduce the mass, transport, and exposure to PCBs in sediment throughout the Creek channel by remediating areas that serve as sources of COCs to the Creek system.

Floodplain Soil Final RAOs:

- Minimize human exposure risk from contact with contaminated floodplain soil by reducing COC concentrations in soil to remedial goals.
- Minimize risks to ecological receptors from contact with contaminated floodplain soil by reducing the COC concentrations in soil to remedial goals.
- Minimize the transport of floodplain soil containing COCs by reducing the potential for interaction with adjacent areas and the Creek.

PRELIMINARY REMEDIATION GOALS

To achieve the RAOs, EPA has identified a soil cleanup goal, or Preliminary Remediation Goal (PRG), for contaminated soil to attain a degree of cleanup that ensures the protection of human health and the environment. The two-tiered PRG for lead in soils described below is based on the New York State's 6 NYCRR Part 375 Residential Soil Cleanup Objectives and EPA Region 2's lead approach consistent with OLEM Directive 9200.2-167. The PRG is also consistent with the 2024 "OLEM Updated Residential Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities," which establishes a regional screening level (RSL) of 200 ppm where there are no additional sources of lead (e.g., lead water service lines, lead-based paint

WHAT IS HUMAN HEALTH RISK AND HOW IS IT CALCULATED?

A Superfund human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substances releases from a site in the absence of any actions to control or mitigate these releases; it estimates the "baseline risk" in the absence of any remedial actions at the site under current and future land uses. To estimate this baseline risk at a Superfund site, a four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios.

Hazard Identification: The hazard identification step identifies the contaminants of concern at the site in various media (*i.e.*, soil, groundwater, surface water, air, etc.) based on such factors as toxicity, frequency of occurrence, 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 identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil. Factors relating to the exposure assessment include but are not limited to the concentrations that people might be exposed to and the potential frequency and duration of 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.

Toxicity Assessment: The toxicity assessment determines the types of adverse health effects associated with chemical exposures, and the relationship between the magnitude of exposure (dose) and severity of adverse effects (response). Potential health effects are chemical-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 chemicals are capable of causing both cancer and noncancer health effects.

Risk Characterization: This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks. Exposures are evaluated based on the potential risk for 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 explained in the Exposure Assessment. Current federal Superfund guidelines for acceptable exposures are an individual lifetime excess cancer risk in the range 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. An HI represents the sum of the individual exposure levels compared to their corresponding RfDs. The key concept for a noncancer HI is that a "threshold level" (measured as an HI of 1) exists below which noncancer health effects are not expected to occur.

non-attainment areas where lead concentrations exceed the National Ambient Air Quality Standards) are present.[6]

The following PRGs have been identified for adjacent floodplain residential, including agricultural, properties within the STA:

- Lead: 400 ppm
  In addition to targeting detections of lead above 400 ppm, the average soil concentration across each residential property will be at or below 200 ppm.
- PCBs: 1 ppm

By remediating floodplain soils to an average concentration at or below 200 ppm, the goal of protection (target blood lead level of 5 ug/dL) outlined in the 2024 Updated Residential Soil Lead Guidance will be met. These levels would also be protective of recreational users and ecological receptors.

The following PRGs have been identified for adjacent surface (0 to 2 ft) floodplain commercial properties within the STA:

- Lead: 1,000 ppm
- PCBs: 1 ppm

The PRGs for surface commercial soils are consistent with the PRGs established in the OU2 remedy.

It is EPA's expectation that by targeting PCBs and lead, risks posed by other contaminants found in floodplain soil, such as mercury, would also be addressed. The remedy to be selected for floodplain soils in the STA is intended to be a final remedy. However, the proposed interim remedy for sediments in the STA is not intended to attain acceptable COC levels in all media throughout the Creek. A future, final remedy will establish acceptable COC levels in sediments that are protective of human health and the environment. An interim remedy should be consistent with and not preclude a final protective remedy. Interim action remediation goals are associated with the interim actions and reflect the limited scope of the interim action.

To achieve the interim remedy RAOs, a remedial action level (RAL) of 1 ppm for PCBs will be used to delineate PCB source sediments within the STA for remediation. The RAL of 1 ppm is consistent with other sediment cleanups in New York State. This RAL is not a final PRG for the Creek sediments, however, and the practical outcome of this RAL is that a large mass of source material that is acting as a continuing source to the rest of Eighteen Mile Creek will be addressed. The RAL of 1 ppm for PCBs satisfies interim Site objectives of source control and PCB migration reduction. In addition, given the widespread presence of PCBs, addressing PCBs above the RAL in the STA is also expected to address other potential COCs, such as lead and mercury.

As indicated in the Scope and Role of Action section above, a separate comprehensive evaluation would be conducted for the full length of the Creek. A subsequent or final remedy will identify the final RAOs and remediation goals for sediment along the entire length of the Creek.

SUMMARY OF 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, comply with ARARS, and utilize permanent solutions and 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 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 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, 42 U.S.C. § 9621(d)(4).

To address the RAOs, the FS identified three primary areas that have the greatest potential for transporting significant contamination downstream based upon transport modeling and data identifying the areas with the highest levels of contamination. The three primary areas identified in the FS Report are the STA and two sediment depositional areas (SDAs) located immediately upstream of Newfane Dam and Burt Dam (represented by Reaches 2 and 5, respectively). While the STA was identified as the primary source of continuing contamination related to elevated contaminant concentrations that occur with sediment erosion and surface water flow from the East Branch, contaminated sediments have accumulated and are present behind the impoundment areas of both Newfane Dam and Burt Dam. While the FS Report included remedial alternatives for the two SDAs and floodplain soil adjacent

[6] See Updated Scientific Considerations for Lead in Soil Cleanups, December 22, 2016 https://semspub.epa.gov/work/08/1884174.pdf and Updated Residential Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities https://www.epa.gov/system/files/documents/2024-01/olem-residential-lead-soil-guidance-2024_signed_508.pdf

to the SDAs, for the purposes of this Proposed Plan, alternatives for the two SDAs and floodplain soil not adjacent to the STA are not being addressed at this time. As indicated in the Scope and Role of Action section, above, further evaluations and long-term monitoring of these areas is needed before a cleanup plan for these remaining portions of the Creek can be developed.

In this Proposed Plan, as discussed below, EPA has considered alternatives for sediment contamination within the STA as well as contaminated floodplain soil at properties adjacent to the STA. Detailed descriptions of all the remedial alternatives for addressing the contamination associated with OU3 can be found in the FS Report.

The construction time for each alternative reflects only the actual time required to construct or implement the action and does not include the time for other activities, such as that required to design the remedy, negotiate the performance of the remedy with any potentially responsible parties, obtain funding or procure the contracts for design and construction.

Sediment Alternatives

Common Elements of the Sediment Alternatives

All of the sediment alternatives, with the exception of STA1 (No Action) and STA2 (Monitored Natural Recovery, Long-Term Monitoring, and Institutional Controls), would include the following common components:

Sediment Delineation and Cultural Resource Evaluation: Based on data collected to date, an estimated 80% of the STA Creek bed area exceeds the RAL. During the remedial design, additional sampling would be conducted to refine the areas requiring remediation. In addition, a Phase 1B cultural resource investigation would be performed to assess the presence or absence of archaeological deposits.

During implementation of the remedial action, temporary cofferdams or other barriers would be installed to divert water around active work areas to allow for excavation in dry conditions. Diversion piping would be used to divert water around the work area. Excavated sediment would be transferred from the Creek to the staging area. Confirmation samples would be collected at the bottom of excavation to verify the RAL has been met. Confirmation samples would be analyzed for PCBs, and additional excavation and sampling may be required to demonstrate the RAL has been met.

Access Roads: Access roads and staging areas would be constructed in upland areas to allow equipment access and facilitate implementation of the proposed remedial activities along the Creek. A staging area for contaminated material storage and dewatering, wastewater treatment, and clean fill material storage would be established. Construction would require clearing and grubbing of vegetation. Following remediation of the Creek, the access roads and staging areas would be removed, and the areas restored in accordance with the habitat reconstruction plan.

Off-Site Disposal of Contaminated Sediment: Excavated sediment exceeding RALs would be transported off-Site for disposal at a RCRA or TSCA regulated landfill, as appropriate, based on the concentrations of contaminants in the excavated sediment. If necessary to meet the requirements of the disposal facilities, contaminated material would be treated prior to land disposal.

***Construction Monitoring**:* Water quality downstream of the work areas would be monitored during construction activities. Air quality would be monitored throughout construction activities to protect workers and the public.

Long Term Monitoring: A monitoring plan would be developed during the remedial design to track PCB concentrations in sediment, surface water and fish tissue. The monitoring plan would evaluate remaining residual soil contamination in the floodplain soil, the potential for bank erosion, and an assessment of the fate and transport mechanisms of the remaining contamination to contaminate sediments in the Creek. Results would be used to assess the effectiveness of the remedial alternative in reducing PCB concentrations in fish tissue and to develop a final remedy for the Creek.

Institutional Controls: Institutional controls refer to non-engineering measures intended to ensure the protectiveness of a remedy and to restrict human activities so as to prevent or reduce the potential for exposure to contaminated media. Institutional controls in the form of informational devices, such as NYSDOH fish consumption advisories, would be implemented to limit exposure to PCBs. NYSDOH periodically reviews fish PCB data to ensure the advisories are up to date and considers whether the fish consumption advisories need modification.

STA1: No Action

The NCP requires that a "No Action" alternative be developed as a baseline for comparing other remedial alternatives. Under this sediment alternative, there would be no remedial action conducted at the Site for sediments in the STA. This alternative does not include monitoring.

Capital Cost:	*$0*
Annual Operation and Maintenance (O&M) Costs:	*$0*
Present-Worth Cost:	*$0*
Construction Time:	*Not Applicable*

STA2: Monitored Natural Recovery, Long-Term Monitoring, and Institutional Controls

The Monitored Natural Recovery (MNR) alternative for sediments relies on the naturally occurring transport and deposition of cleaner upstream material to reduce exposure to contaminant concentrations over time through burial.

A MNR monitoring program would be developed to document and evaluate the performance of natural recovery, including the evaluation of changes in PCB concentrations over time as clean sediment from upstream areas is deposited within the STA. This alternative also includes institutional controls and long-term monitoring, as described in the Common Elements of the Sediment Alternatives Section, above.

Capital Cost:	$0
Annual O&M Costs:	$337,000
Present-Worth Cost:	$1,999,000
Construction Time:	*Not Applicable*

STA3: Excavation, Long-Term Monitoring, and Institutional Controls

Alternative STA3 includes the excavation of all sediment within the STA, consistent with the response selected in the OU2 remedy of bank-to-bank excavation down to native material, followed by backfilling with up to two feet of clean sand and covered with a suitable habitat layer to create conditions for the reestablishment of natural conditions in the Creek. The RI investigation found that PCBs above the RAL are present in sediments in Reach 7 down to 4 feet below the sediment surface. In addition to targeting deeper sediments that exceed the RAL, this alternative would include removal of PCBs at concentrations lower than the RAL of 1 ppm.

For the conceptual design, it is estimated that the average depth of sediment to native material is less than two feet, resulting in the removal of an estimated 96,000 cubic yards of sediment. Contaminated material would be sent for off-Site disposal.

Capital Cost:	$102,273,000
Annual O&M Costs:	$268,000
Present-Worth Cost:	$82,440,000
Construction Time:	*16 months*

STA4: Pre-Dredge to Accommodate Cap, Capping, Long-Term Monitoring, and Institutional Controls

Alternative STA4 includes the excavation of approximately one foot of contaminated sediment in areas within the STA that exceed the RAL followed by the placement of clean sand and suitable habitat material to create a cap over the remaining contaminated sediment.

For the conceptual design, it is estimated that the removal of approximately one foot of existing sediment is needed to support the placement of a cap that would minimize the potential for mobilization of contaminated sediment without creating adverse impacts associated with flooding. In addition, contaminated sediment with PCB concentrations greater than 50 ppm would be removed regardless of the depth. Under this alternative, an estimated 41,000 cubic yards of contaminated sediment would be excavated and sent for off-Site disposal.

Capital Cost:	$61,940,000
Annual O&M Costs:	$296,000
Present-Worth Cost:	$53,025,000
Construction Time:	*12 months*

STA5: Excavation to RAL, Long-Term Monitoring, and Institutional Controls

Alternative STA5 includes the excavation of contaminated sediment above the RAL within the STA followed by backfilling with clean sand and covering with a suitable habitat layer to create conditions for the reestablishment of natural conditions in the Creek.

For the conceptual design, it is estimated that the average depth of the excavation to meet the RAL would be approximately 1.3 feet, resulting in the removal of an estimated 54,000 cubic yards of contaminated sediment. Contaminated material would be sent for off-Site disposal. While estimated excavation depths across the STA were calculated in the FS, the estimated excavation depth was based on the average depths of samples exceeding the RAL. Post-excavation sampling would be performed prior to backfilling to confirm that the RAL has been met.

Capital Cost:	$75,104,000
Annual O&M Costs:	$237,000
Present-Worth Cost:	$60,769,000
Construction Time:	*9 months*

Floodplain Soil Alternatives

Common Elements of the Floodplain Soil Alternatives

Each of the floodplain soil alternatives, with the exception of SOIL1 (No Action), include the following common components:

Remediation Areas*:* Sampling in flood-prone areas conducted as part of the RI revealed 17 areas adjacent to the STA that are impacted by Site-related contamination requiring remediation. The FS Report divides remediation areas into the following two categories.

- Adjacent floodplain soil areas (not farmland or developed residential areas); and
- Adjacent farmland and developed residential floodplain soil areas.

The purple-colored sections within the STA on Figure 2 represent the floodplain soil remediation areas. Refer to Figures 5-18 through 5-22 in the FS Report for the specific areas targeted for remediation depicted by creek reach.

During the remedial design, additional sampling of floodplain soil adjacent to the STA would be conducted to further delineate nature and extent and refine volume estimates. The additional sampling would also provide a better estimate of the residual contamination remaining in the floodplain soil, thereby providing data needed to conduct the assessment of the fate and transport mechanisms of the remaining contamination in the Creek, as outlined in the discussion on future operable units and the long-term monitoring plan as outlined in the common elements section for the sediment alternatives. EPA conservatively assumed that contaminated soil extends to 2 feet deep although samples in the remedial investigation only went to a depth of 1 foot.

Floodplain soils that were not sampled during the RI but are prone to river flooding would also be sampled as part of the remedial design. This additional data would be used for risk evaluations to determine if, based on land use designations or the potential for floodplain soil to re-contaminate sediments in the Creek, additional properties or areas require remediation. EPA has conservatively estimated, for cost estimation purposes, that additional sampling may identify up to 11 additional acres that would require remediation as part of this OU. In addition, floodplain soil sampling would also be conducted downstream of the STA as part of a separate investigation. Separate response actions or a future operable unit would address risks identified in floodplain soil downstream of the STA.

Excavation and Soil Management: Construction of the active floodplain soil alternatives would require clearing and grubbing of vegetation. Temporary access roads from the remediation areas to nearby public roads and the staging area would be constructed. Excavated contaminated floodplain soil would be transported to a staging area for storage and dewatering prior to off-Site disposal. Erosion and sediment controls at each remediation area would be installed to prevent the migration of floodplain soil to the Creek. Water and air quality would be monitored during construction. In areas requiring excavation, verification samples would be collected to confirm that contaminated soil in excess of the PRGs has been removed and the remedial action objectives have been met. Excavated areas would be backfilled by placing clean fill material and topsoil. Following remediation of the Creek, access roads and staging areas would be removed, and impacted areas would be restored in accordance with the habitat reconstruction plan.

Site Management Plan (SMP): Development of a SMP to provide for management of floodplain soil post-construction, including the use of institutional controls and periodic reviews.

Soil1: No Action

As mentioned above, 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 to address floodplain soil adjacent to the STA at the Site. This alternative does not include monitoring.

Capital Cost:	$0
Annual O&M Costs:	$0
Present-Worth Cost:	$0
Construction Time:	*Not Applicable*

Soil2: Limited Floodplain Soil Excavation, Soil Cover, and Institutional Controls

Under this alternative, lead and PCB-contaminated floodplain soil would be addressed through a combination of excavation and/or installation of a cover system based on land use. While floodplain soil areas in residential and farmland areas would be excavated to remove all contaminated soil above the PRGs and backfilled with clean topsoil, non-developed areas including commercial areas would have a soil cover system installed. The cover system, with an estimated thickness of two to three feet, would be vegetated and constructed to isolate floodplain soil exceeding the PRGs from erosion, transport, and/or migration to surrounding areas. In areas with steep slopes, riprap would be placed as the top layer to prevent erosion. During the remedial design, investigations would be conducted to determine the need for the addition of amendments, such as activated carbon, as well as to evaluate the impact of the cover system on wetlands.

Because contaminated soil would remain at the impacted properties adjacent to the STA above levels that would otherwise allow for unrestricted use following remediation, institutional controls would be implemented. Institutional controls may include environmental easements/restrictive covenants, deed notices, and/or zoning restrictions to limit future use of the properties and would require maintenance of the cover material and impose restrictions on excavation of these properties.

Because this alternative would result in contaminants remaining at the Site that are above levels that would otherwise allow for unrestricted use and unlimited exposure, CERCLA requires that the Site be reviewed at least once every five years. If justified by the review, additional response actions may be implemented.

Capital Cost:	$42,941,000
Annual O&M Costs:	$51,000
Present-Worth Cost:	$39,363,000
Construction Time:	*2 years*

Soil3: Floodplain Soil Excavation and Off-Site Disposal

This alternative includes the excavation and off-Site disposal of PCB and lead contaminated floodplain soil exceeding the PRGs adjacent to the STA regardless of the land use designation. These areas would be backfilled with clean fill and topsoil.

Because contaminated soil would remain at the impacted commercial properties adjacent to the STA above levels that would otherwise allow for unrestricted use following remediation, institutional controls would be implemented. Institutional controls may include environmental easements/restrictive covenants, deed notices, and/or zoning restrictions to limit future use of the commercial properties and impose restrictions on excavation.

Capital Cost:	$149,125,000
Annual O&M Costs:	$0
Present-Worth Cost:	$131,307,000
Construction Time:	*2 years*

EVALUATION OF ALTERNATIVES

During the detailed evaluation of remedial alternatives, each alternative is assessed against 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, below, entitled "Evaluation Criteria for Superfund Remedial Alternatives", 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 compare to the other options under consideration. A more detailed analysis of alternatives can be found in the FS Report.

Overall Protection of Human Health and the Environment

A threshold requirement of CERCLA is that the selected remedial action be protective of human health and the environment. An alternative is protective if it reduces current and potential risk associated with each exposure pathway at a site to acceptable levels.

<u>Sediment:</u>
Alternative STA1 (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. STA2 relies on natural processes, such as sedimentation to cover the surface sediment with cleaner sediment from upstream, in order to reduce the PCB concentration at the sediment surface and reduce risk. While sedimentation of clean backfill material from the cleanup of upstream Creek Corridor as part of OU2 is expected to result in some reduction of contaminant concentrations within the STA over time, because sediment within the STA is prone to resuspension, the redistribution and redeposition of contaminated sediment to downstream areas is likely. As a result, Alternative STA2 would not achieve the RAOs.

While Alternatives STA3, STA4, and STA5 each include removal of contaminated sediments, under Alternative STA4, only contaminants within the top one foot would be removed followed by the installation of a cap to prevent mobilization or exposure to underlying contaminated sediment. Therefore, while Alternatives STA3, STA4, and STA5 would achieve the RAOs, under Alternative STA4 monitoring and maintenance of the cap would be required to ensure protection over the long term.

EVALUATION CRITERIA FOR SUPERFUND REMEDIAL ALTERNATIVES

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.

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.

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.

Floodplain Soil:
Alternative Soil1 (No Action) is not protective of human health and the environment because it does not eliminate, reduce, or control risk of exposure to contaminated floodplain soil. Alternative Soil2 and Alternative Soil3 would be protective of human health and the environment as contaminated material would either be removed from the Site or capped. Under Alternative Soil2, contaminated soils would remain in place above the PRGs in non- developed areas or areas not used as farmland, and protection would be achieved through the placement of cover material and implementation of institutional controls.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Sediment:
There are currently no federal or state promulgated standards for contaminant levels in sediments. There are, however, other federal or state advisories, criteria, or guidance (which are used as TBC criteria). Specifically, NYSDEC's "Screening and Assessment of Contaminated Sediment Guidance" (2014) sediment screening values are a TBC criteria. The RAL of 1 ppm for PCBs is consistently evaluated and often applied at contaminated sediment sites in New York State. This value is also supported by NYSDEC's "Technical Guidance for Screening Contaminated Sediments."[7]

Because the contaminated sediments would not be addressed under Alternative STA1, the RAL for PCBs would not be achieved. Under Alternative STA2, a long-term monitoring program would track if there were progress toward achieving the RAL over the long term. Alternative STA3 would achieve the RAL through the full removal of sediment. Alternative STA4 would achieve the RAL through a combination of isolation and removal of sediment. STA5 would achieve the RAL through the removal of sediments that exceed the RAL.

Because there is no active remediation associated with the sediment for Alternative STA1 or STA2, action-specific and location-specific ARARs do not apply. Alternatives STA3 through STA5 are expected to comply with action-specific and location-specific ARARs for water quality monitoring during excavation of sediments and wastewater discharge resulting from sediment dewatering. Mitigation may be required to address location-specific ARARs in relation to the construction of access roads through the floodplains and wetlands.

[7] NYSDEC Technical Guidance for Screening Contaminated Sediments, June 24, 2014. https://www.dec.ny.gov/docs/fish_marine_pdf/screenasssedfin.pdf

Pursuant to Section 106 of the National Historic Preservation Act, a Stage 1B Cultural Resource Investigation would be performed during the design phase to evaluate the existence of cultural and archaeological resources within the STA that could be impacted by the implementation of this alternative.

The Resource Conservation and Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA) are federal laws that mandate procedures for managing, treating, transporting, storing, and disposing of hazardous wastes and PCBs, respectively. All portions of RCRA that are applicable or relevant and appropriate to the proposed remedy for the Site would be met by Alternatives STA1 through STA5, and all portions of TSCA would be met by Alternatives STA1 through STA5 as well.

<u>Floodplain Soil:</u>
EPA has identified NYSDEC's 6 NYCRR Part 375 soil cleanup objectives as an ARAR, a TBC, or an 'other guidance' to consider in addressing contaminated soil at OU3. Alternative Soil1 would not achieve PRGs for soil because no measures would be implemented and contaminated soil would remain in place. Alternative Soil2 would prevent direct contact with PCB and lead contaminated soil exceeding the PRGs through a combination of removal and capping. Under Alternative Soil2, in order to comply with location-specific ARARs related to the protection of wetlands and floodplains, mitigative measures or modification to the conceptual design of the cover system may need to be evaluated during the design for areas that receive a cap because of the impacts to wetlands and floodplain soils. Areas receiving a cover system would require long-term monitoring and maintenance to verify continued compliance with ARARs. Soil3 complies with ARARs through the removal of PCB and lead contaminated soil exceeding the PRGs.

RCRA and TSCA are federal laws that mandate procedures for managing, treating, transporting, storing and disposing of hazardous wastes and PCBs. All portions of RCRA and TSCA that are applicable or relevant and appropriate to the proposed remedy for OU3 would be required to be met with Alternatives Soil2 and Soil3.

Long-Term Effectiveness and Permanence

<u>Sediment:</u>
Alternatives STA1 and STA2 remove no PCBs from the Creek and include no active measures to reduce residual risk at the Site. Neither option would prevent mobilization of PCBs in sediment that are vulnerable to erosional forces. Each of these alternatives therefore would allow for the continued exposure of PCBs over the long-term and thus do not promote long-term effectiveness and permanence.

Alternative STA3 and Alternative STA5 reduce residual risk through excavation of PCB contaminated sediment. Alternative STA3 and Alternative STA5 are considered more permanent than Alternative STA4. Alternative STA4 includes limited excavation of sediment followed by capping to isolate the contaminated sediment, and long-term monitoring of the cap.

Low-lying areas within the City of Lockport are subject to flooding. The *Resilient New York Flood Mitigation Initiative Report for Eighteen Mile Creek*, dated November 2020, states that more frequent and intense precipitation events are expected because of climate change, resulting in a higher likelihood of flooding along the Creek. The increased flooding may reduce the lifespan of capping and backfill material through increased erosional forces from faster flow. If Alternative STA4 is selected, an evaluation of the need for additional armoring would need to be performed during the remedial design to ensure that the cap would withstand such events. In addition, inspections of the cap would be conducted periodically, including after major storm events, and any necessary maintenance of the cover system would be performed.

<u>Floodplain Soil:</u>
Alternative Soil1 would not provide a permanent or long-term effective solution to contaminated floodplain soil as no remediation would occur. Under Alternative Soil2, long-term risks at the residential and farming properties would be permanently removed since contaminated floodplain soil would be permanently removed and disposed of off-Site. At the commercial properties, Alternative Soil2 provides long-term effectiveness through effective maintenance of a cover system and institutional controls such as land-use restrictions. Under Alternative Soil3, long-term risks would be permanently removed since contaminated floodplain soil would be excavated and disposed of off-Site.

Reduction of Toxicity, Mobility, or Volume through Treatment

<u>Sediment:</u>
For Alternatives STA1 and STA2, the only possible way to reduce contaminant concentrations in sediment would be natural recovery processes. Under these alternatives, there would be no reduction of toxicity, mobility, or volume through treatment. Alternatives STA3, STA4, and STA5 would permanently remove various volumes of sediment from the Creek through excavation, although not through treatment. Off-Site treatment, if required, would reduce the toxicity of the contaminated sediment prior to disposal. Placement of a cap, which is a component of Alternative

STA4, would provide reduction of mobility of the contaminated sediment through isolation of contaminants, but would not reduce mobility through treatment.

Floodplain Soil:
Alternative Soil1 would not achieve any reduction in the mobility, toxicity, or volume because contaminated soil would remain in place as is. Alternative Soil2 would use a combination of capping and removal to achieve a reduction in mobility, volume, and exposure to contaminants, but not through treatment. Alternative Soil2 would not reduce the toxicity of the contaminants at properties that are capped. Under Alternative Soil3, the mobility, volume, and exposure to contaminants would be reduced but not through treatment. Furthermore, off-Site treatment, if required, would reduce the toxicity of the contaminated soil prior to disposal.

Short-Term Effectiveness

Sediment:
Alternatives STA1 would not create new, adverse short-term impacts because no remediation activities would take place. Alternative STA2 would have few adverse short-term impacts since the only activities would be monitoring of conditions in the Creek to assess changes in site conditions. Alternatives STA3, STA4, and STA5 involve active remediation, similar in size and scope, and have the potential for similar short-term risks. Based on the higher volume of sediment that would be removed, Alternative STA3 would have the greatest duration of impacts given the longer project schedule. No time is required for construction of Alternative STA1 or Alternative STA2. Alternatives STA3, STA4, and STA5 are estimated to take 16, 12, and 9 months, respectively.

The risks to remediation workers and nearby residents under all of the active alternatives would be mitigated by following appropriate health and safety protocols, by exercising sound engineering practices, and by utilizing proper protective equipment.

Floodplain Soil:
Alternative Soil1 would have no adverse short-term impacts or risks since no remediation activities would take place. Both Alternatives Soil2 and Soil3 would have similar adverse short-term risks associated with construction activities. Similar to the sediment alternatives, the risks to remediation workers and nearby residents under all of the active alternatives would be mitigated by following appropriate health and safety protocols, by exercising sound engineering practices, and by utilizing proper protective equipment.

No time is required for construction of Alternative Soil1. Time required for implementation of Alternative Soil2 is estimated to take two years. Alternative Soil3 is also estimated to take two years.

Implementability

Sediment:
There are no implementability issues with Alternative STA1 and STA2, which do not involve any active remediation. The technologies and methods to perform the active alternatives, STA3, STA4, and STA5, are well established. Given the topography, steep slopes, presence of heavy woods or wetlands, and in water structures (*e.g.*, bridges and culverts) in some sections of the STA, some of the remediation areas may be difficult to access. Construction of temporary access roads for multiple access points in addition to siting of the material stockpile and processing area for excavated material may be logistically, but not necessarily technically, challenging because this work would likely require use of a large area of private land in the vicinity of the STA. Under Alternative STA4, one foot of contaminated sediment would be removed to facilitate the installation of a cap. The design of this cap would need to take into consideration that the total thickness of the cap should not impact the depth of open water or increase the potential for flooding, both while ensuring that the cap would weather erosional forces resulting from storm events. The cap specifications would be evaluated further during the remedial design. In addition, in order to perform excavation activities under Alternatives STA3, STA4, and STA5, temporary cofferdams or other barriers would be installed to divert water around active work areas to allow for excavation in dry conditions. Because the release of water from the upstream Canal impacts water flow in the Creek, coordination with the Canal Corporation regarding these releases is essential. As it relates to the design and implementation of the OU2 selected remedy, EPA has already been coordinating closely with the Canal Corporation on this matter.

Floodplain Soil:
Alternative Soil1 would be the easiest to implement as there are no construction activities to implement. Both Alternatives Soil2 and Soil3 use common construction technologies and are technically feasible to implement. Alternative Soil2 may be slightly more difficult to implement as the areas receiving the cover system would require long-term monitoring and maintenance.

Cost

The estimated capital, operation and maintenance, and present worth costs assuming a 7% discount rate over a period of 30 years are presented in the table below and discussed in detail in the FS Report. The cost estimates are based on the best available information. Alternative 1 has no cost because no activities are implemented. The present worth cost for the preferred sediment alternative, Alternative STA5, is $60,769,000. The present worth cost for the preferred floodplain soil alternative, Alternative SOIL3, is $131,307,000.

Alternative	Capital Cost	Annual O&M Costs*	Present Worth**
Sediment			
STA1	$0	$0	$0
STA2	$0	$337,000	$1,999,000
STA3	$102,273,000	$268,000	$82,440,000
STA4	$61,940,000	$296,000	$53,025,000
STA5	$75,104,000	$237,000	$60,769,000
Floodplain Soil			
Soil1	$0	$0	$0
Soil2	$42,941,000	$51,000	$39,363,000
Soil3	$149,125,000	$0	$131,307,000

* Annual cost is for the first five years. Refer to the FS for details regarding subsequent periodic costs.
** 30-year present worth cost calculations includes a 7% discount rate.

State/Support Agency Acceptance

NYSDEC concurs with the preferred alternatives for sediments and floodplain soil.

Community Acceptance

Community acceptance of the preferred alternatives for sediments and floodplain soil will be evaluated after the public comment period ends and will be described and responded to in the Responsiveness Summary section of the Record of Decision for this OU. The Record of Decision is the document that formalizes the selection of the remedy for an OU.

PREFERRED REMEDY AND BASIS FOR PREFERENCE

Basis for the Remedy Preference

Based upon an evaluation of the remedial alternatives, EPA, in consultation with NYSDEC, proposes Alternative STA5: Excavation to RAL, Long-Term Monitoring, and Institutional Controls as an interim remedy for the STA.

The preferred remedy for the STA has the following key components:

- Excavation of contaminated sediment that exceeds the RAL of 1 ppm for PCBs within the STA followed by backfilling with clean sand and covered with a suitable habitat layer to create conditions for the reestablishment of natural conditions in the Creek.
- Construction of access roads and staging areas in upland areas. Following remediation of the Creek, the access roads and staging areas would be removed and the areas restored in accordance with the habitat reconstruction plan.
- Water and air quality monitoring during construction.
- Development of a monitoring plan to track PCB concentrations in surface water and fish tissue.
- Institutional controls in the form of informational devices to limit exposure to PCBs. EPA is relying on existing NYSDOH fish consumption advisories. NYSDOH periodically reviews fish PCB data to ensure the advisories are up to date and considers whether the fish consumption advisories need modification. Other informational devices could include outreach programs to inform the public to promote knowledge of and voluntary compliance with the fish consumption advisories.

For Floodplain Soil, EPA, in consultation with NYSDEC, proposes Alternative Soil3: Floodplain Soil Excavation and Off-Site Disposal. The preferred remedy is considered a final remedy for floodplain soil in the STA, and has the following key components:

- Excavation and off-Site disposal of PCB and lead contaminated floodplain soil exceeding the PRGs adjacent to the STA regardless of the land use designation. Backfill of excavated areas with clean fill material and topsoil.
- Construction of temporary access roads from the remediation areas to the closest public roads and the staging area.
- Implementation of erosion and sediment controls at each remediation area to prevent the migration of floodplain soil to the Creek.
- Water and air quality monitoring during construction.
- Following remediation of the Creek, access roads and staging areas would be removed, and impacted areas would be restored in accordance with the habitat reconstruction plan.
- Development of a SMP to provide for management of floodplain soil post-construction, including the use of institutional controls and periodic reviews. Institutional controls would limit future use of the commercial properties and impose restrictions on excavation.

During the remedial design, additional sampling of floodplain soil adjacent to the STA would be conducted.

Risk evaluations, based on land use designations, would be performed to determine if additional properties or areas require remediation. The preferred alternative is a final remedy for addressing floodplain soil in the STA.

The estimated present worth of the preferred alternative remedy is $192,076,000. Further detail of the cost is presented in Appendix D of the FS Report.

In addition, EPA's investigations of groundwater within the Creek Corridor have not revealed a source of the generally low-level VOC concentrations detected in groundwater. As a result, EPA is recommending taking no action to address Creek Corridor groundwater.

The environmental benefits of the preferred alternative may be enhanced by consideration, during the design, of technologies and practices that are sustainable in accordance with both the EPA Region 2's Clean and Green Energy Policy and NYSDEC's Green Remediation Policy[8]. This would include consideration of green remediation technologies and practices.

While Alternative STA5 is more expensive than Alternatives STA2 and STA4, Alternative STA5 permanently removes contaminated sediment exceeding the RAL and would not require the maintenance of a cover system over large areas required under STA4, or the monitoring of elevated PCB concentrations in sediment prone to erosional forces required under STA2. Although Alternative STA3 removes the greatest volume of sediment, the additional sediment excavation results in substantial cost increase while providing comparable risk reduction to Alternative STA5. Alternative STA5 has a present net worth of $60,769,000. Similarly, Alternative Soil3 would permanently remove the contaminated floodplain soil from the banks of the Creek, thereby eliminating the potential for contaminated floodplain soil to find its way into the Creek and allow the properties to be used without restrictions. EPA has conservatively estimated, for cost estimation purposes, that additional sampling may identify up to 11 additional acres that would require remediation as part of this OU. Alternative SOIL3 has a present net worth of $131,307,000.

Based upon the information currently available, EPA believes the preferred alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing criteria. EPA expects the preferred alternative to satisfy the following statutory requirements of CERCLA §121(b): 1) is protective of human health and the environment; 2) complies with ARARs; 3) is cost effective; 4) utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The preferred alternative may satisfy the preference for treatment, since, if necessary to meet the requirements of the disposal facilities, contaminated material would be treated to address lead concentrations prior to land disposal. Long-term monitoring and five-year reviews would be performed to assure the protectiveness of the remedy. With respect to the two modifying criteria of the comparative analysis, state acceptance and community acceptance: NYSDEC concurs with the preferred alternative; community acceptance will be evaluated upon the close of the public comment period.

[8] See http://www.epa.gov/greenercleanups/epa-region-2-cleanand-green-policy and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf

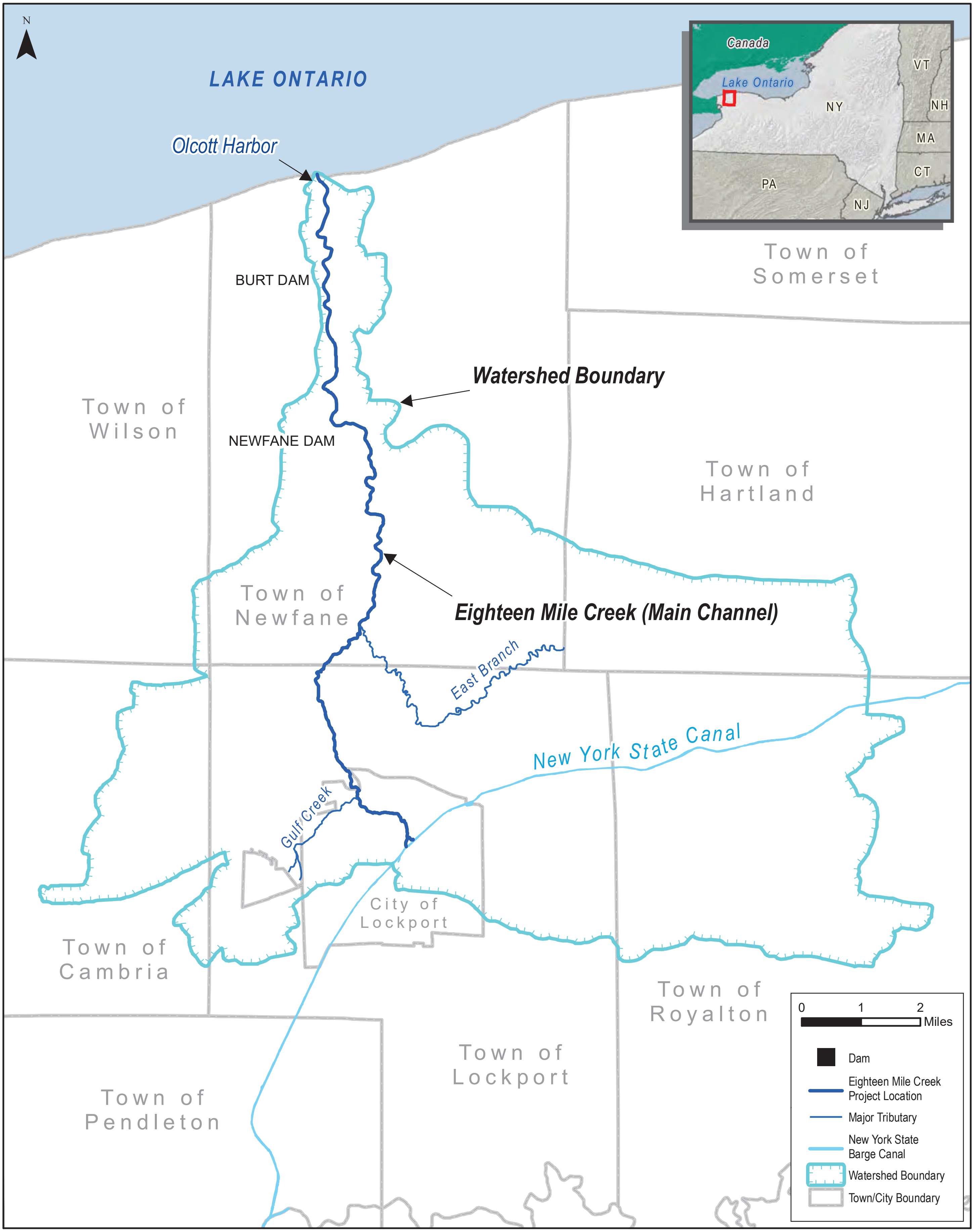

Figure 1 - Site Location Map

Eighteen Mile Creek Superfund Site OU3 Proposed Plan

Niagara County, New York

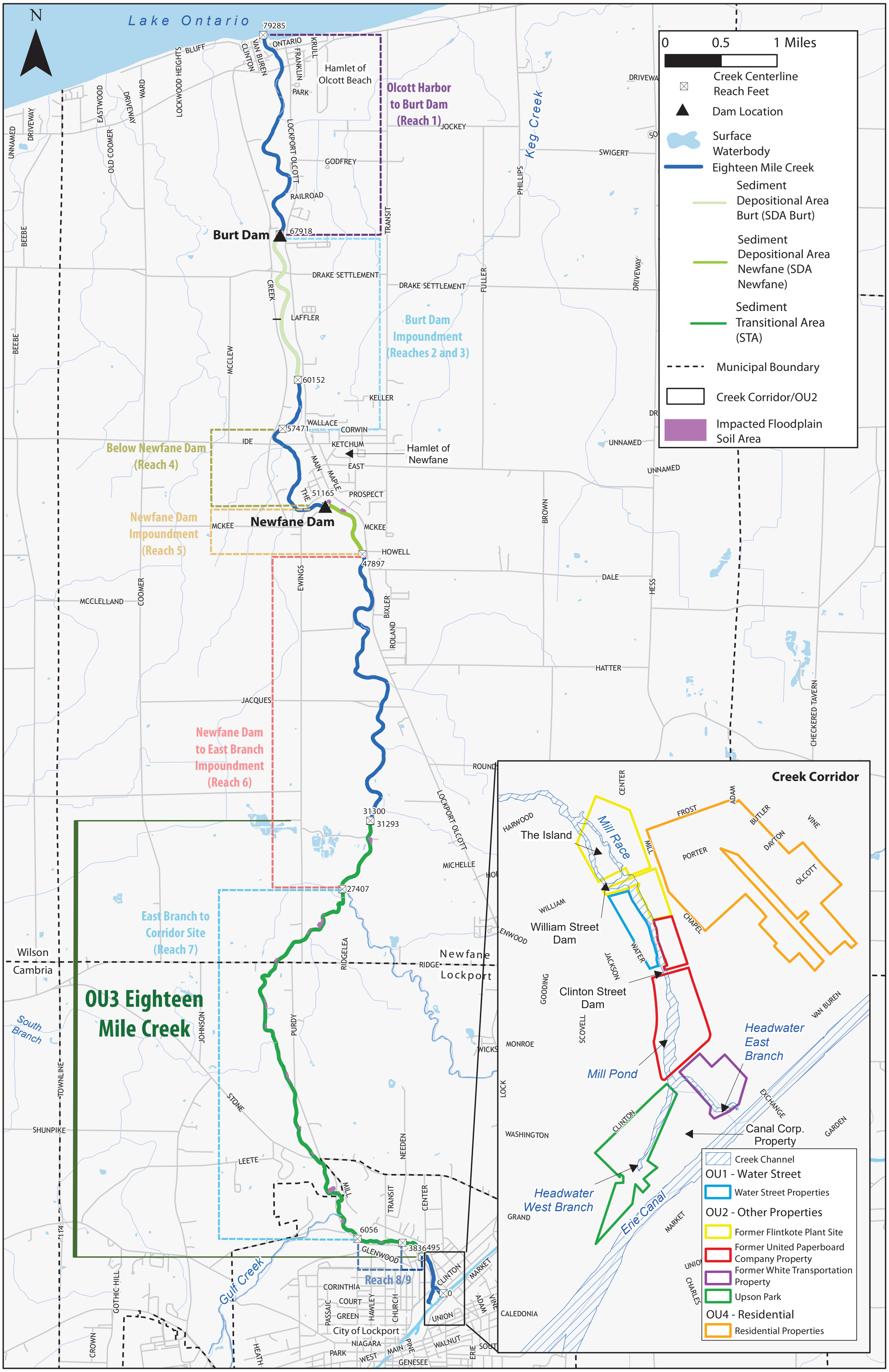

Figure 2 - Overview Map
Eighteen Mile Creek Superfund Site OU3 Proposed Plan
Niagara County, New York

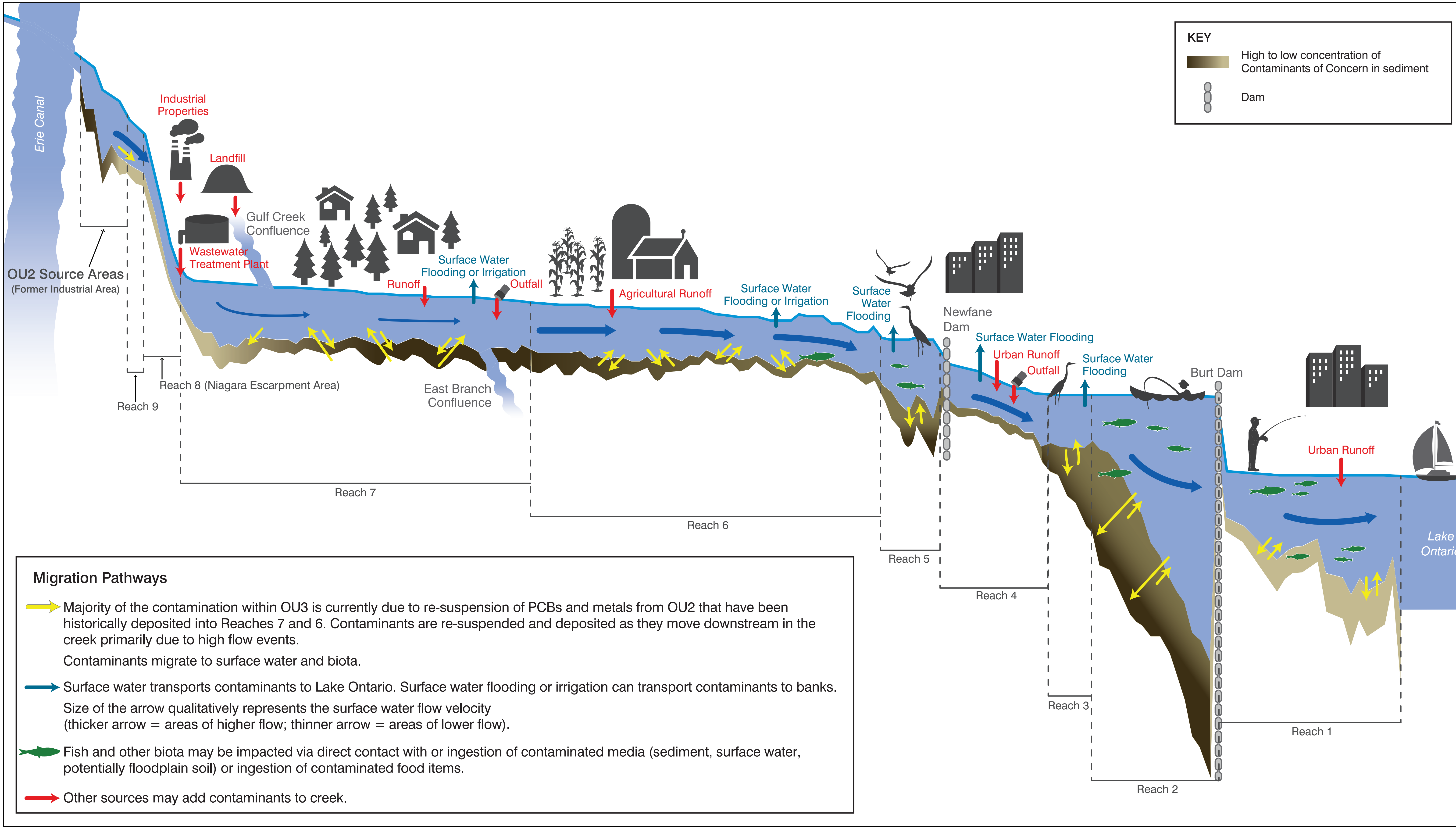

Figure 3- Conceptual Site Model
Eighteen Mile Creek Superfund Site OU3 Proposed Plan
Niagara County, New York

APPENDIX V

RESPONSIVENESS SUMMARY
ATTACHMENT C

PUBLIC NOTICE

EPA Seeks Community Input on Proposed Cleanup Plan for Eighteen Mile Creek Superfund Site in Niagara County, NY

July 19, 2024

Contact Information
Stephen McBay (mcbay.stephen@epa.gov)
(212)-637-3672

Mike Basille (basille.michael@epa.gov)
(646) 369-0055

NEW YORK – The U.S. Environmental Protection Agency is inviting the public to comment on its proposed cleanup plan to address contaminated creek sediment and floodplain soil along a portion of the Eighteen Mile Creek Superfund site in Niagara County, New York. The 30-day public comment period runs from July 19 to August 19, 2024. EPA will host a public meeting at Newfane Townhall located at 2737 Main Street, Newfane, New York on August 1, 2024, at 6:00 p.m. to discuss the cleanup plan.

“EPA’s proposed cleanup for this portion of the creek is to remove and dispose the contaminated sediment and floodplain soil that threaten human health as well as fish and wildlife,” said Regional Administrator Lisa F. Garcia. “We encourage the public to join our meeting, ask questions and share their views on the proposed plan.”

Under the proposed cleanup plan and with EPA oversight, contractors would remove and dispose of contaminated sediment, replace clean fill and monitor sediment, surface water and fish tissue long term. The plan recommends that contractors remove and properly disposed of floodplain soil that is contaminated with lead and polychlorinated biphenyls (PCBs) within a specific 11-acre area. By targeting these specific areas, the EPA can accelerate the cleanup by removing some known sources of contamination while continuing to evaluate the downstream segment of the creek. EPA will propose further cleanup for the areas of the creek not covered by this proposed plan.

Eighteen Mile Creek has a long history of industrial use dating back to the 19th century when it was used to produce hydropower. The main channel of the creek originates just south of the New York State Barge Canal and flows north for about 15 miles until it discharges to Lake Ontario in Olcott, New York. The Eighteen Mile Creek watershed includes the two main tributaries: East Branch of Eighteen Mile Creek and Gulf Creek.

EPA added the Eighteen Mile Creek site to the National Priorities List in 2012 and is cleaning up the site in several phases, or Operable Units (OUs). OU1 addressed residential soil contamination and structural hazards posed by buildings at the former Flintkote Plant property. OU2 focuses on soil cleanup at nearby commercial properties acting as sources of contamination to the Creek Corridor and sediment within the Creek Corridor. The current proposal relates to OU3 and will address contaminated sediment and the contaminated creek floodplain soil, extending roughly 5.3 miles downstream from Harwood Street. OU4 is dedicated to resolving lead contamination in residential soil near the former Flintkote Plant property. Cleanup actions for OU1, OU2, and OU4 are underway, with construction set for Summer 2024, funded by the Bipartisan Infrastructure Law.

Written comments on the proposed plan may be submitted to Christopher O'Leary, Remedial Project Manager, U.S. Environmental Protection Agency, 290 Broadway – 19th Floor, New York, NY 10007 or via email: OLeary.Christopher@epa.gov.

For additional background and to see the proposed cleanup plan, visit the Eighteen Mile Creek Superfund site profile page.

Follow EPA Region 2 on X <https://x.com/eparegion2> and visit our Facebook <http://facebook.com/eparegion2> page.

For more information about EPA Region 2, visit our website <https://epa.gov/aboutepa/epa-region-2>.

24-055

Contact Us <https://epa.gov/newsreleases/forms/contact-us> to ask a question, provide feedback, or report a problem.

LAST UPDATED ON JULY 19, 2024

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STATE OF NEW YORK
NIAGARA COUNTY,} SS,__________

Jackie Bilogan, of said county, being duly sworn, deposes and says that she is now and during the whole time hereinafter mentioned was the Clerk of

LOCKPORT UNION-SUN & JOURNAL

A newspaper published in the County and State aforesaid, and that the annexed printed legal # 336446 was printed and published in said paper on the following dates:

07/19/2024

J Bilog

Principal Clerk

Subscribed and sworn to before me this
7-23-24

Teresa L McCarthy

Teresa L McCarthy 02/26/2026

Notary Public Expiration Date

TERESA L McCARTHY
Notary Public - State of New York
No. 01MC4962698
Qualified in Niagara County
My Comm. Expires Feb. 26, 2026

The EPA Invites the Public to Comment on the Proposed Cleanup Plan Addressing Sediment and Floodplain Soil along a Portion of the Eighteen Mile Creek Superfund Site in Lockport, Niagara County, New York

The U.S. Environmental Protection Agency (EPA) has issued a proposed cleanup plan for a portion of the Eighteen Mile Creek Superfund Site in Niagara County, New York.

The EPA is asking the public to comment on the plan during a 30-day public comment period, which begins on July 19, 2024 and ends on August 19, 2024. The proposed plan identifies the cleanup options and EPA's preferred cleanup plan. The EPA's proposed plan regarding the sediment within a portion of the creek, beginning at Harwood Street and extending downstream for approximately 5.3 miles includes excavating and disposing off-site contaminated sediment, placing clean backfill over the disturbed areas, long term monitoring and institutional controls. The preferred cleanup option for the floodplain soil includes excavating and disposing off-site the floodplain soil that is contaminated with lead and polychlorinated biphenyls across approximately 11 acres. Targeting these specific areas will allow the EPA to expedite the cleanup while continuing to evaluate the downstream segment of the creek.

The EPA will hold an in-person public meeting at 6:00 p.m. on August 1, 2024 at the Newfane Town Hall located at 2737 Main Street, Newfane, New York. At the meeting, the EPA will present information on its investigation, elaborate further on the reasons for recommending the preferred cleanup option, and solicit public comment on the proposed cleanup plan.

The proposed cleanup plan can be found online at: www.epa.gov/superfund/eighteenmile-creek. You may also find it at the following repositories: Lockport Public Library, 23 East Avenue, Lockport, New York; Newfane Public Library, 2761 Maple Avenue, Newfane, New York; and at the EPA Records Center, 290 Broadway, 18th Floor, New York, New York.

Written comments regarding the proposed plan must be submitted no later than August 19, 2024 to Christopher O'Leary, Remedial Project Manager, EPA 290 Broadway, 19th Floor, New York, NY 10007, or via email: OLeary.Christopher@epa.gov.

EPA United States Environmental Protection Agency

THE EPA PROPOSES A PLAN TO CLEAN UP A PORTION OF THE EIGHTEEN MILE CREEK SUPERFUND SITE NIAGARA COUNTY, NEW YORK

JULY 2024

The Proposed Plan

The U.S. Environmental Protection Agency is seeking public comment on a proposed cleanup plan to address contaminated sediment and floodplain soil at part of the Eighteen Mile Creek Superfund site. The EPA's plan identifies its preferred cleanup options for the portion of the Eighteen Mile Creek site that begins from Harwood Street and extends downstream for approximately 5.3 miles, referred to as the sediment transitional area.

The EPA is proposing to dig up the contaminated sediment and put clean backfill material over disturbed areas. The contaminated material will be disposed of off-site. The EPA is also proposing to dig up the floodplain soil contaminated with lead and polychlorinated biphenyls, also known as PCBs. The EPA cleanup plan includes long-term monitoring and institutional controls, such as existing fish consumption advisories.

Based on the EPA's groundwater investigation within the Creek Corridor, the agency found no historical or active source of volatile organic compounds. The groundwater is not expected to be a significant source of contamination to the creek. As a result, the EPA is recommending that no action is needed to address groundwater within the Creek Corridor.

Get Involved with the EPA's Clean Up!

Public Comment Period:
The EPA is requesting the public's input on its proposed plan from **July 19, 2024** to **August 19, 2024**. The public is encouraged to review the plan, attend the public meeting, and comment on the cleanup options. To provide comments to the EPA, read the document online at: www.epa.gov/superfund/eighteenmile-creek and send your comments to Christopher O'Leary, Remedial Project Manager via email to OLeary.Christopher@epa.gov or mail to 290 Broadway, 19th Floor, New York, NY 10007-1866 by August 19, 2024.

Public Meeting: A public meeting to present the proposed cleanup plan and take public comments.

Date and Time: August 1, 2024 at 6:00 PM

Location: Newfane Town Hall located at 2737 Main Street, Newfane, NY 14108

704653

Past Activities

The EPA finalized a cleanup plan in 2013 to address contaminated soil located on certain residential properties on Water Street in Lockport, New York. As part of the 2013 plan, the EPA relocated residents at five properties before demolishing the structures. The EPA finished transporting and disposing of debris off-site as well as installing a fence in 2015. The cleanup plan for this portion of the site also indicated that the contaminated soil at the nine, flood-prone residential properties would be removed at the same time that the EPA would address the contaminated sediment and soil in non-residential properties.

In 2017, the EPA selected another plan that included removing sediment in the Creek Corridor from bank-to-bank. The plan also included removing contaminated soil at the Upson Park, the United Paperboard Company, and White Transportation properties, as well as removing contaminated soil from the former Flintkote plant before placing a cap.

The Creek Corridor is the furthest upstream portion of the creek and contains the highest levels of polychlorinated biphenyls, or PCB contamination, which is why the EPA is addressing this portion of the creek first. The agency is coordinating its cleanup of the Creek Corridor with the cleanup of the residential properties that have soil contaminated with lead and PCBs and are prone to flooding along Water Street. Construction for this portion of the cleanup is scheduled to begin this summer.

The EPA selected a third cleanup plan in 2019 to address the residential properties with lead contaminated soil. The EPA's plan to clean up these residential properties is to remove and dispose of off-site the contaminated soil. The agency will clean up at least 33 residential properties; however, the agency is continuing to study the extent of contamination and adjust the number of properties that will need to be addressed. Construction at the first group of residential properties is scheduled to begin this summer.

Background

The Eighteen Mile Creek Superfund site is located in Niagara County, New York. The main channel of the creek starts just south of the canal and flows north for approximately 15 miles until it discharges to Lake Ontario in Olcott, New York. The Eighteen Mile Creek watershed includes the East Branch of Eighteen Mile Creek and Gulf Creek tributaries.

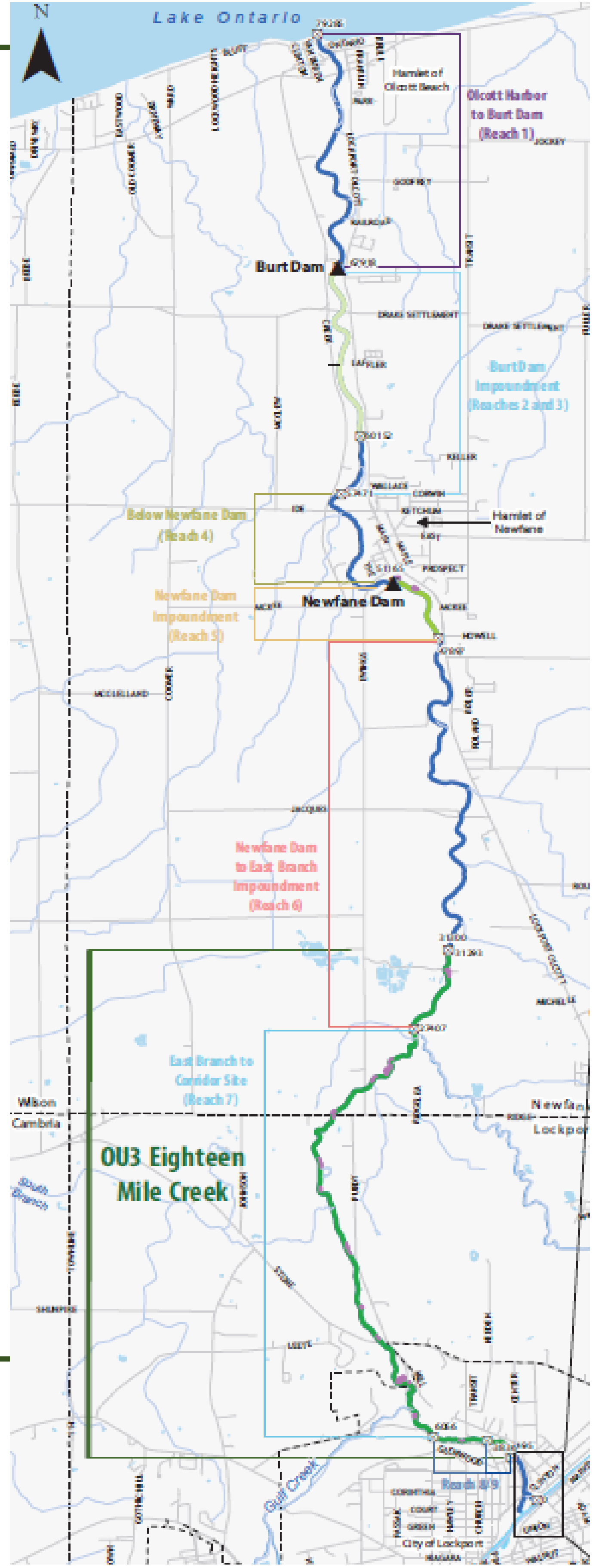
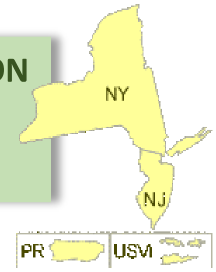


Figure 1 – Eighteen Mile Creek Site Location Map

THE EPA PROPOSES A PLAN TO CLEAN UP A PORTION OF THE EIGHTEEN MILE CREEK SUPERFUND SITE NIAGARA COUNTY, NEW YORK

United States Environmental Protection Agency

JULY 2024



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Information Repositories

EPA Superfund Records Center
290 Broadway
New York, NY 10007
(212) 637-4345

Lockport Public Library
23 East Avenue
Lockport, NY 14094
(716) 433-5935

Newfane Public Library
2761 Maple Avenue
Newfane, NY 14108
(716) 778-9344

APPENDIX V

RESPONSIVENESS SUMMARY
ATTACHMENT D

PUBLIC MEETING TRANSCRIPT

Transcript of Video File:

EIGHTEEN MILE CREEK SUPERFUND SITE

PUBLIC MEETING

THURSDAY, AUGUST 1, 2024

Video Runtime: 1 Hour 56 seconds

(Beginning of Video Recording.)

MR. BASILE: Can I have -- can I have your attention, please?

First of all, let me -- I'll introduce myself. My name is Mike Basile. I'm the Public Affairs Officer and Community Involvement Coordinator for the United States Environmental Protection Agency. I'd like to welcome you to the Eighteen Mile Creek proposed plan public meeting. Thank you for taking the time to come out for this meeting tonight.

I just want to give you a few little ground rules, okay? The meeting is being videotaped. It will eventually be transcribed into the public record and we'll have a transcript. So I ask you to just give our speaker, the remedial project manager, the opportunity to make the presentation, and then when he's done, we'll go into a question and answer period at which time I will come up to you with this microphone, and I will ask you to, just remember, state your name, spell your name, and give us your address for the public record. It will then go into the official transcript.

We have a few individuals from different agencies that are here this evening. Some of them will not be speaking. Some may be answering questions, and I'd like to recognize them at this time. From the New

York State Department of Health, Sara Bogardus. Sara is right here. From the New York State Department of Environmental Conservation, Steve Moeller. Thank you, Steve. From our agency who won't -- won't be speaking, but possibly will be answering some questions, is Pete Mannino from our Superfund program, right here. Kelly Gaffney from our Superfund program, and Marian Olsen, our risk assessor with EPA.

We also have two other individuals I'd like to recognize at this time: Scott Collins from Cornell Cooperative Extension, he works on Eighteen Mile Creek, the area of concern, and he's the remedial coordinator, Scott. And from the City of Lockport, Mark Devine, the Third Ward Alderman from the city of Lockport. Mark. Very good. Okay. Very good.

MR. DEVINE: Well, you've got a county legislature here, too, that just came in, Carla Speranza.

MR. BASILE: Oh, just came in. Your first name again?

MS. SPERANZA: Carla Speranza. I represent part of lower town and the north end of the City of Lockport.

MR. BASILE: Carla, welcome and welcome -- welcome to the meeting. Okay.

MR. DEVINE: And also Michelle --

MR. BASILE: The form --

MR. DEVINE: -- Roman, the former mayor of Lockport.

MR. BASILE: The -- the former mayor -- the former mayor of Lockport, Michelle Roman. Thank you. Thanks very much, Mark. Thank you very much.

At this time, I'd like to call upon our remedial project manager, Christopher O'Leary, who will make the presentation and explain to you the history of the site and why we're here this evening. Christopher.

MR. O'LEARY: Great. Thank you, Mike. Good evening and welcome to the Eighteen Mile Creek Operable Unit 3 Proposed Plan Public Meeting. I appreciate and thank everyone for listening to the next steps with regards to the site. My name is Chris O'Leary, and as mentioned, I'm the remedial project manager for the Eighteen Mile Creek Superfund site.

Mike did the team introductions already, but just to call out everyone again, I am the remedial project manager. Mike Basile is the community involvement coordinator. Pete Mannino is the western New York remediation section supervisor. Marian Olsen, down there in purple shirt, is the human health risk assessor. And then we have representatives from the

New York State Department of Health and the New York State Department of Enviromental Conservation.

Tonight's agenda. I'm here tonight, as mentioned, to present to everyone the Proposed Cleanup Plan for the Eighteen Mile Creek Superfund site. This presentation will provide an overview of the Proposed Cleanup Plan and more details can be found within the July 19th Proposed Plan Document. The agenda will be split into five parts and will include an overview of the Superfund process, a brief site background, the cleanup options and preferred alternatives, EPA's next steps, and lastly, the meeting will be open to question and answer, comment period. This presentation should last about 20 minutes.

To begin, I would like to explain a little bit about Superfund or something called CERCLA, which stands for the Comprehensive Environmental Response Compensation and Liability Act. CERCLA was passed in 1980 by Congress. The law provides funding for cleanup of hazardous waste sites. It also grants the EPA the authority to require potential responsible parties to pay for cleanup activities.

This next slide here is a flow diagram of the Superfund process. As seen here in the top left, blue box (laser pointer being used to indicate location of discussed material), this is an initial discovery of the site, and it begins with the preliminary assessment.

The -- the site is then evaluated for possible addition to the National Priorities List, and at that time it would become an official Superfund site, the second box here (laser pointer being used to indicate location of discussed material). A remedial investigation is conducted to understand the nature and extent of the contamination at the site and a feasibility study is performed to analyze the different methods available to clean up the site.

Then we issue a proposed plan, which is what we are here tonight to talk about. After listening to the community's concerns and comments, we will take all of that into account and issue something called a record of decision, which documents the selected remedy for the site. Then we move on to the remedial design and the remedial action phase, which is when we sit down with the contractors, we review how the cleanup will proceed and discuss next steps that are taken to implement and construct the remedial design, as you can see down here (laser pointer being used to indicate location of discussed material).

Then we have the construction completion phase and the site then is deleted from the National Priorities List and -- to be reused by the community. As you can see with the blue -- or sorry, the green bubble here (laser pointer being used to indicate location of discussed material), community involvement is important and it is included with all steps of the Superfund process. So again, I'd like to thank everyone for coming out tonight.

A little background information on the Eighteen Mile Creek site. The site is located in Niagara County, New York. The main channel of the Eighteen Mile Creek originates just south of Erie Canal and flows north for about 15 miles until it discharges until -- into Lake Ontario located in Olcott, New York. The creek watershed includes two main tributaries, the east branch of Eighteen Mile Creek and Gulf Creek.

Eighteen Mile Creek has had a long history of industrial use dating back to the 19th century when it was used as a source of hydropower. There were several properties along and adjacent to the creek where various forms of manufacturing occurred, resulting in contamination of the soils and creek sediments.

The New York State Department of Environmental Conservation conducted numerous studies of Eighteen Mile Creek before the site was listed on the National Priorities List in 2012. EPA, since then, has conducted supplemental investigations to build upon what the state has already done.

Now, I will provide just a brief overview of the site. Site remediation activities are sometimes separated into different phases or operable units, OUs, so that remediation of different aspects of the site can proceed separately, resulting in a more efficient and expeditious cleanup of the entire site. The Eighteen Mile Creek site has been divided into operable units to address the contamination more efficiently in this case. OU1 addresses the risk associated with residential soil contamination at nine residential properties located on Water Street and threats posed by the former Flintkote Plant Building seen on the figure in blue -- oops -- up here. This is OU1 (laser pointer being used to indicate location of discussed material).

OU2 addresses the contamination sediment in the approximate 4,000-foot segment of the creek corridor seen in the figure in yellow, red, purple, and green. So yellow, red, purple, and green (laser pointer being used to indicate location of discussed material). This is what we consider OU2.

OU4 addresses lead contamination soil at certain residential properties on Mill Street and several other adjoining residential streets east of the former Flintkote plant property seen in orange here (laser pointer being used to indicate location of discussed material).

I'm here tonight to talk to you about Operable Unit 3 and, specifically, about the cleanup plan to address the sediment in this portion of the site. Although EPA's Operable Unit 3 investigation of the creek initially included the full length of the creek downstream of Harwood Street, discharging into Lake Ontario, EPA has redefined the Operable Unit 3 area.

You might be wondering why it was redefined? It was due to the large size and complexity of the original Operable Unit 3, so it was subdivided into smaller manageable pieces. The original piece started at the end of OU2 and had discharged all the way up at Lake Ontario. So what you see here in the red circle (laser pointer being used to indicate location of discussed material) is the new defined Operable Unit 3 area. The downstream extent of the new subset area was determined based on creek characteristics and sediment mixing. It was also subdivided this way because of the contamination levels to be discussed in the next slide.

The cleanup plan is addressing specific areas as a means of source control, the subset area the full length of the creek beginning from Harwood Street extending downstream for about 5.3 miles. Adjacent floodplain soils that have been impacted by the creek are also included. It's also important to note that any portions of the creek downstream of OU3 that are not included will be addressed under further operable units.

Operable Unit 3 is comprised of sediments within a portion of the creek referred to as the sediment transitional area or STA. I will talk about the STA further now. As you may recall, the contaminants of concern for Eighteen Mile Creek are PCBs and lead.

The previous investigations performed revealed that within the STA area, again, this red circle on the figure, contains about 21 percent of the overall -- overall mass of PCBs within the creek. It also contains the highest contaminant concentrations in the sediment downstream of OU2. Other characteristics of the -- something we call the STA, is it erodes easily and is acting as a source of contamination to the rest of Eighteen Mile Creek and has a large area of the creek and a large volume of sediment.

Any floodplain soils adjacent to Operable Unit, these include residential, commercial, and agricultural properties, will be included. A minimum of 29 adjacent floodplain properties will be addressed in this Proposed Plan Action. The EPA is aware that additional sampling is necessary to further define areas that may require remediation. Additional properties within the STA may include, based upon future sampling and risk assessments.

As part of the remedial investigation and feasibility study, remedial action objectives or RAOs were developed. Remedial action objectives are goals to protect human health and the environment. I won't read this slide word for word, but in summary, these bullets state that current and future risk will reduce, prevent -- sorry, reduce, prevent, and the migration of contaminants will be minimized. These RAOs are consistent with upgradient Record of Decisions for Operable Units 1 and 2.

To achieve the RAOs, EPA has set goals, or something we refer to as preliminary remediation goals or PRGs, for the contaminated soil to obtain a degree of cleanup that ensures the protection of human health and the environment. As you can see here on the chart, on the lower bottom of the slide, the interim cleanup goal for PCBs in sediment is one part per million. The PRGs are consistent with the PRGs established in the OU2 remedy.

Next, we will discuss the goals for the floodplain soils. EPA has selected preliminary remediation goals for cleaning up of the soil, as well. These values have been selected based on land use of either residential or commercial for PCBs and lead. More details can be found in the Proposed Plan Document regarding to these PRGs.

Now that we've discussed the site background, we're aware of the contamination and the cleanup goals for the sediment and floodplain soils, I would like to now review how the remediation will accomplish these goals. The EPA evaluates the alternatives against nine criteria to ultimately select a preferred remedial alternative. The first two are threshold criteria, meaning they must be met. It must protect human health in the environment on or near the site.

It also must meet all federal, state, and environmental regulations. The next five criteria, 3 through 7, are known as balancing criteria. They have trade-offs and are assessed individually so that the best option can be chosen given the site-specific data and conditions.

The final two, 8 and 9, are modifying criteria because new information or comments from the community may provide and modify the preferred remedial alternative and cause other alternatives to be considered.

Now that we're aware of how each alternative is evaluated, I want to discuss them individually. There are five alternatives that we have developed for the sediment cleanup of OU3. The first alternative looks at what happens if we take no action. This alternative is used as a baseline to compare to other alternatives. Under this alternative sediment -- sorry. Under this sediment alternative, there will be no remediation conducted at the site for the sediments. The -- the alternative also does not include any monitoring. The cost of this sediment alternative is $0.

The second alternative, STA 2: Monitored Natural Recovery, Long-Term Monitoring and Institutional Controls for sediment relies on naturally occurring transport and deposition of cleaner, upstream material to reduce exposure to contaminant concentrations over time through burial.

This alternative also includes long-term monitoring, which would develop -- be developed during the remedial design to track PCB concentrations in sediment, surface water and fish tissue. It also includes institutional controls. An example of an institutional control would be the, "do not eat fish consumption advisory." No sediment would be removed under this alternative. And the cost for STA number 2 is $1,999,000.

The third alternative STA 3: Excavation, Long-Term Monitoring and Institutional Controls includes the excavation of all sediment. Consistent with the response selected for the OU2 remedy of a bank-to-bank excavation down to native material. This alternative also includes long term monitoring and institutional controls. An estimated 96,000 cubic yards of sediment would be removed under this alternative. The cost is $82,440,000.

Alternative four includes the excavation of approximate -- oh, sorry. Let me restart. Alternative four, STA 4: Pre-Dredge to Accommodate Cap, Capping, Long-Term Monitoring and Institutional Controls includes the excavation of approximately one foot of contaminated sediment in areas that exceed the remedial action levels. This alternative also includes long-term monitoring institutional control, an estimated

41,000 cubic yards of sediment would be removed, and the cost is $53,025,000.

Last, the fifth alternative, Excavation to Remedial Action Levels, Long-Term Monitoring and Institutional Controls is excavation of contaminated sediment above the remedial action levels. This alternative also includes long-term monitoring and institutional controls. An estimated 40 -- sorry, 54,000 cubic yards of sediment would be removed under this alternative. The cost is 60,700,000 -- sorry, $60,769,000.

Now we will discuss the alternative for the Floodplain Soils. The first alternative looks at what happens, again, if we take no action. This alternatives only use as a baseline to compare to the other alternatives. This has no remediation, no monitoring, and zero cubic yards of floodplain removal. The cost for soil 1, floodplain soil alternative is $0.

The alternative 2, titled Limited Floodplain Soil Excavation, Soil Cover, and Institutional controls, which lead, and PCB contaminated floodplain soil would be addressed through a combination of excavation and/or installation of a cover system based on land use. This alternative would require institutional controls due to the contamination remaining in place. An institutional control may include environmental easements, restrictive covenants, and deed notices. An estimated 5,000 cubic yards of sediment would be removed. Sorry, 5,000 cubic yards of soil would be removed. The cost is $39,363,000.

Alternative three, titled Floodplain Soil Excavation and Off-Site Disposal includes the excavation and off-site disposal of PCB and lead contaminated floodplain soil exceeding the remedial goals adjacent to the STA regardless of land use. These areas would be back filled with clean material and60, topsoil. This alternative would require institutional controls due to contamination remaining in place at commercial properties. An estimated 39,000 cubic yards of soil would be removed. The cost is estimated at $131,307,000. In the next slide, I will provide the EPAs Preferred Alternatives for both of these topics.

On this slide, these two tables summarize EPAs Preferred Alternatives. The top table is for the sediment alternative, and the bottom table is a summary for the soil alternative. The charts also include the amount of contaminated soil and sediment that would be removed under each alternative as well as the cost for each option.

To summarize, the preferred sediment cleanup is STA 5, excavation of sediment above remedial action levels in Eighteen Mile Creek OU3. The preferred soil cleanup, soil three, is a targeted removal of PCBs and lead contaminated flood plain soil exceeding the preliminary remediation goals. The total cost for the Preferred Alternatives for OU2 is $192 million, 670 -- sorry, $192,076,000. A further breakdown of the alternative costs are presented in appendix D of the feasibility study report.

The next steps following this meeting is the EPA relies on public input to ensure the concerns of the community are considered in selecting an effective remedy for each Superfund Site. To this end the proposed plan has been made available to the public for public comment period, which began on July 19th and ends August 19th. Comments received at this meeting as well as comments written during this public comment period will be included in the appendix of the record of decision. The record of decision will memorialize the selection of the remedy for this operable unit number three.

Copies of the proposed plan and supporting documentation are available at the following information repositories; the Lockport Public Library, the Newfane Public Library, and EPA - Region II Superfund Records Center. Tonight's presentation and all additional site documents can also be found on the Eighteen Mile Creek Superfund Site website -- webpage. The link is here.

Written comments on the proposed plan should be addressed to me at -- the address you see here on the screen. I will leave this slide up for a few minutes.

And now following this presentation of material, you probably have some questions. So I want to thank you for listening to the presentation. I will turn things back to Mike Basile with the microphone so that he can answer and take some questions. Thank you.

MR. BASILE: Okay. Thanks very much, Chris. Really appreciate it. In addition to the information that's on the screen, on your agenda, there's information there and how you can reach Chris O'Leary as well.

We really value community input. It's truly the cornerstone. I remember when this site went on the National Priorities List in 2012, and the first meeting we held at Cornell Cooperative Extension in Lockport, we must have attracted close to 100 people and there -- there was a -- there still is an awful lot of interest.

As Chris indicated, we have been actively involved with doing a lot of sampling and activities and a -- a lot of work will begin probably within the next month or two. You -- if you live in the Lockport area, in the city of Lockport, you've probably seen an awful lot of the equipment being staged and we're -- we're really happy to see that. And we're going to be reaching out to many of the residents who live in that area.

You must remember one thing, I as a community involvement coordinator, Eighteen Mile Creek isn't your typical Superfund Site. When -- when we deal with Superfund Sites there -- many times, there are abandoned facilities or companies that were in business, who are no longer in business that have impacted a community and they could be 20, 30 or 40 acres. This site is a site that I call, rambles. It rambles 15 miles from the city of Lockport up towards Olcott, Newfane, towards Wilson, and out into Lake Ontario. It's a massive site.

And as Christopher indicated that we have an awful lot of operable units, and tonight we're here to get your input on the operable unit that he's outlined. We'll be more than happy to entertain questions at this time. And remember, I'll bring the mic to you, and

I'll ask you to state your name, spell your name, and your address. Yes.

MR. WOODWARD: Thank you. My name is Jim Woodward (phonetic). I live on West Creek Road with my wife and -- in Newfane, and I do have a question. Where did you come up with a 400 PPM level for lead? Because in the hazardous waste business at five milligrams per liter is considered a hazardous waste, and you folks have deemed 400 to be acceptable?

MR. O'LEARY: Okay.

MR. BASILE: Okay. There you go.

MR. MANNINO: Thanks. I just wanted to clarify. So you -- you correct about the -- the concentrations, but there are two different analytical methods, one is a T clip, total, and the other one is the -- one is the T clip, and the other one is the totals. So --

Correct. So they used to divide by 20 methods. So you would -- you'd go five times 20, 100 would be acceptable.

Correct. But so I'm -- I'm familiar with the dilution standard that you're talking about, but our cleanup goals are based on New York State and EPA promulgated standards for health-related purposes. And I'll turn it over to Mary and our human health risk assessor to talk about the 400 number and how it's consistent with EPAs updated policy, right? But I just wanted to clarify the T clip versus the totals, just so that everyone is aware of that.

MR. BASILE: Stay right there. Mary, there you go. There you go.

MS. OLSEN: Thank you. Okay.

Thank you for your question. So the way that EPA assesses lead is, we have two models. We use the adult lead model for adults, and we have a children's model, which is the integrated exposure uptake biokinetic model.

And EPA is going through a process right now of looking at the approaches that we're using. And in the proposed plan, we talk about our goal is actually an average of less than 200 and no blood lead level above five micrograms per deciliter. So those are the values we will be using. The 400 is basically a not to exceed value within this whole process that we use for the lead. And the models and other information are available on EPA's webpage for the lead models. IEUBK for children and adult lead, which is for older individuals.

MR. BASILE: Okay. Another question? Any other questions?

They had -- they had two mics, but
unfortunately only one of the mics works tonight.

MR. WOODWARD: Thanks, Mike.

MR. BASILE: Here's your --

MR. DEVINE: All right. Couple things here.
Nice seeing you again, Chris.

MR. O'LEARY: Yes.

MR. DEVINE: And I'm going to address a
couple of the -- two phases of the project. The first
phase -- I'm going go right back to first phase, your
cleanup on Mill Street, the soil on Mill Street area,
and the adjacent neighborhoods. Okay. I know that you
guys have been staging, but have you actually been
starting to take soil out yet?

MR. O'LEARY: We have not. We are -- the
staging area has been set up and the goal is --

MR. MANNINO: Approximately two weeks for
the first property. The shovel should be in the
ground.

MR. DEVINE: Okay. And now my second
question pertaining to that is: When you guys start
excavating, are you going to be taking the soil right
out or is it going to be stored down there at Blue
Blocks?

MR. MANNINO: Yeah. No, it's a direct load

right on the top --
MR. DEVINE: It's going to be direct load?
MR. MANNINO: -- to the disposal.
MR. DEVINE: Okay. Where is the disposal facility?
MR. MANNINO: We're currently looking at Model City and we're working through the administrative process to get that approved.
MR. DEVINE: Where? In Lewiston? That's where --
MR. O'LEARY: Yeah. Lewiston, Niagara County.
MR. DEVINE: So down in Lewiston? Okay. Thank you.
MR. BASILE: Okay.
MR. DEVINE: And now that -- well, now I want to just ask about your second phase. So I see you -- since last time I talked to you, when I met you last year. And when you took over as project manager, we had talked about expanding some of your testing at the Plank Road area, right by our wastewater treatment plan in Lockport.
MR. BASILE: Uh-huh.
MR. DEVINE: With the -- with your new, you know, vision of what needs to be done. Did you expand

your testing down the plank road area for those six residents that go Stone Road?

Yeah. So what we'd like to do with that area. So that area along Plank Road that was sampled is a low-lying flood plain area, right?

MR. MANNINO: Right.

MR. DEVINE: So after the record of decision is signed, we enter --

I apologize.

-- we enter what's called the remedial design phase where we develop all the specifications on how the clean up is going to be done. The first step of that process is to go out and collect additional data to determine exactly what our cut lines are going to be. Right now, as Chris mentioned, we have limited data and we need to collect additional data.

So the -- when you refer to as the expansion is the additional step out to see how much soil has to be excavated. Now, what all the -- what the data shows along these floodplain areas is, as you move up in elevation, in OU3 and further downstream, the concentrations significantly drop off once you are outside of the floodplain. So we can share that type of data with you.

But so the -- the simple answer to your

question is, that additional sampling would happen as part of the pre-design investigation phase, which would happen after the record of the decision, not before it.

Thank you. Okay.

MS. KEENY: Thank you very much. I hope you don't mind if I don't stand, but I unfortunately broke my back in two places. So anyway, I am here tonight to really represent Shirley Nicholas. Shirley Nicholas is the lady who was responsible for the initial investigation into the situation in lower town. I'd like to share the picture with you if you wouldn't mind.

MR. O'LEARY: Okay.

MS. KEENY: Now, Shirley was approximately 4'4", weighed about 75 pounds --

MR. O'LEARY: Uh-huh.

MS. KEENY: -- and had a heart of gold. And her goal was to see to it that the contamination in lower town was remediated as she and the number of people that are with me tonight I'd wish to introduce. Our legislator for that area, Carla Speranza; Mark Devine in the back who walked the area with us; our previous mayor, Michelle; and there's a gentleman that's sat with us tonight that walked.

Now, we would go from house to house,

knocking on the doors, asking about the health. One health -- house in particular, the gentleman had cancer, the wife had cancer, they died from cancer. The Chihuahua died from cancer and the son died from cancer. I was present at Shirley's home when they came in from New York City and they told her that she should tear up her vegetable garden. She should not eat any fruit from the trees.

That -- in addition to that, her shoes should be removed before she went in the house. That the pads of the dog and the cat, they should all be washed. And as we went on further going down the street, we learned the same thing. They had the same type of contamination. There was a great deal of cancer there.

And I cannot say enough nice things about Mike Basile because Mike has stayed with us year after year after year, trying to see to it that we do have the correct remedial recommendations that are down there. And then I want to say thank you, thank you, thank you to Kathy Hochul, because it was Kathy Hochul who came to Lockport. And when she was in Congress, she assured us of the $22 million for the cleanup. Without her efforts and without Shirley, there would be nothing being done today.

Our concern all along has been the health of the people in lower town. And apparently it flows beyond that. It goes down through Newfane, to your fishing area, where your fish are contaminated. We have been told that to eat one fish could very much endanger your life because of the contamination. And I know everyone that is here, you know, we're all concerned about our brothers and sisters. You know, we -- we -- we're just here to help one another. And again, I cannot say enough nice things about Mike Basile, and thank you so much for listening to me.

MR. O'LEARY: You're welcome. Thank you.

MR. BASILE: Thank you, Jean. Thanks very much.

MS. SPERANZA: Thank you. It's going to be tough to follow that, but I'll try. Carla Speranza, I live at 6438 Lincoln Avenue in the town of Lockport. However, I am the legislator for District 12, which represents this -- the part of the City of Lockport and northward to Old Niagara Road. But I also grew up out on Johnson Road in between Stone and 104, adjacent to Purdy Road. So very familiar with that, this part of Lockport, and Newfane.

And I would like, Mr. O'Leary, if you could, could you go back a few slides in the presentation?

I'd like to just do kind of a deeper dive. You had your -- we had the recommendation slide. Can you go back to the detailed slides for each of the EPA's recommendations? I just want to check my --

MR. O'LEARY: The preferred -- this one?

MS. SPERANZA: Right, right.

MR. O'LEARY: Okay.

MS. SPERANZA: So STA 5 and SOIL 3. Yes. Could you go back to -- to the detailed slides for each?

MR. O'LEARY: So STA 5 is this one?

MS. SPERANZA: Yes. Okay. Just in my head, I wanted to clear because one of the proposed options was only going one foot down. And I just in my head, I wanted to make sure that this -- the recommendation or the preference, the EPAs not limited to one foot depth of excavation that you are going to do. It's basically more we are looking to go as deep as we sort of need to go here.

MR. O'LEARY: We excavate --

MS. SPERANZA: Is that a correct assumption?

MR. O'LEARY: Correct. We will excavate until we get to the remedial action level. The one that you were referring to is this one, STA 4. That's the one foot and then the capping. So we prefer and the preferred alternative for the EPA is STA 5.

MS. SPERANZA: Okay. Thank you. And can you take us to the number 4, the SOIL 4?

MR. O'LEARY: SOIL 3?

MS. SPERANZA: Okay, SOIL 3. Okay.

MR. O'LEARY: SOIL 3. That's this one.

MS. SPERANZA: So basically the same kind of approach?

MR. O'LEARY: Correct. This would be soil excavation and off-site disposal. Correct.

MS. SPERANZA: Okay. Of --

MR. O'LEARY: Of the floodplain soils.

MS. SPERANZA: Okay, thank you. Thank you, Mr. Basile.

MR. BASILE: Thank you.

Any other questions? Are there any other questions? Yes.

MR. CLARK: My name is Bill Clark. I live in Olcott. And Mike and I go way back. We worked on the Love Canal project some -- I can't believe you're not retired yet. Anyway.

MR. BASILE: We -- we were younger then. Just a little younger then, Bill.

MR. CLARK: I chair the Town of Newfane Planning Board and, you know, I -- I think, you know, what you're proposing here, I mean, it's got to be fantastic. I mean, you're -- you're talking about spending almost $200 million, you know, to help clean up the Eighteen Mile Creek. And much of the work is going to be done in the town of Lockport, City of Lockport, but it's got to be a huge benefit for the town of Newfane. You know, as we look at the cleaning up the creek that -- that, you know, as it goes to the -- all the way to Lake Ontario in Olcott.

I guess the -- the -- the question I have is, you know, I think we -- we also, here in Newfane, have some more immediate problems. You know, I think you're looking at -- you know, a lot of what the contamination you're looking at here, the sediment and so forth, you know, what was put there that you're cleaning up was put there decades ago and, you know, it needs to be cleaned up. That's very clear.

But also, even today, you know, if we look at our tourism economy here in Newfane and -- and all the -- the fishing and tourism activity that occurs in Olcott, you know, we're dealing with pressing environmental and pollution problems this day and we're continuing, you know, to, you know, deal with pollution, you know, that -- that is going on, you know, as we speak here.

You know, specifically, you know, we're told, you know, that, you know, there may be pollution issues related to agricultural runoff. There may be pollution issues related to industrial output. There may be pollution issues related to sewage treatment. There may be sewage -- you know, contamination issues related to birds and avian, you know, and gulls and -- and -- and cormorants and -- and others.

You know, so, you know, there's a whole, you know -- this project here looks at, you know, some of the issues that go way back and it -- it targets a very defined area under the Superfund and I appreciate that. But I think I guess I'm talking more to, like, some of the State Environmental and Health folks that are here. You know, you know, we've been told that all of these potential contamination issues are going on around us, but we don't really see any comprehensive testing going on to determine what it is.

You know, we're told, it's -- it's -- it's, you know, the -- the agriculture going on. We're told it's suburban. We're told it's the, you know -- the, you know -- the industrial. We're told it's, you know, all these different issues. But, you know -- and, you know, we're looking I think at this stage, also, to have some kind of comprehensive testing done, you know, so that we can -- you know, we can stop this or control or manage this -- this kind of pollution that we're seeing.

MR. BASILE: Thank you, Bill. Thank you very much. And I -- and I am sure, at the end of this meeting, please avail yourself of the state representatives that are here from the DEC and DOH.

Any other questions? Any other questions? Yes, sir.

MR. HELLNER: Yeah. Hi, I am Brian Hellner, 2653 Fuller Road, Burt. I just had a question. I couldn't really tell from the map, it wasn't really, you know, easy to read, but is there anything that would be done north of the dam, or is that in, like, another step down the road?

MR. O'LEARY: Great question. So the Operable Unit 3 is this green part you see here on the figure. I know it's difficult to see. If you come up to the front here, there are larger figures that are blown up.

But to answer your question, yes. Everything north of where OU3 ends will be handled under additional action phases of the project.

MR. MANNINO: Chris, do you want to mention that the two impoundments by the dams have been identified as depositional areas? Our plan calls for further evaluations of that.

MR. O'LEARY: Okay. Yeah. So in the -- one of the documents that are in the administrative record, which you can look at the document repositories, is the Remedial Investigation/Feasibility Study. If you look at those documents, they actually go into, as -- as Pete mentioned, behind the impoundments of Newfane Dam, but more importantly behind the impoundment of Burt Dam. There is a -- a great deal of sediment at this position.

And up here, again, with the figures, I don't include this there, but this is a -- a what we call a conceptual site model. And this runs from the end of OU2 all the way down to Lake Ontario. And you can see, just by looking at the illustration, this piece here is the amount of material that's gauged to be right behind Burt Dam. And then this is the material behind Newfane Dam.

So as you can see, the amount of material behind Burt Dam needs to be handled differently. So that was another reason why OU3 was made smaller when it was discovered how much material was actually behind the impoundment at that point.

That's a great question.

MR. HELLNER: Thank you.

MS. KEENY: Jean Keeny (phonetic), Lockport. Just a quick question. Approximately how many years are we talking about before the project is completed?

And with regards to the removal of the soil in lower town, how is it going to be removed? Are those trucks going to be covered or is the dust going to be, you know, floating through the air? And have you contracted with trucking companies that will be willing to dispose of it in a proper manner? Thank you.

MR. MANNINO: Yeah. Fine.

So we work on the residential properties along Mill Street in that area. We're focusing on the block we call block two. That work's going to start in about two weeks, right? That's our current schedule. It could deviate a little bit.

The trucks are going to be covered before they leave the property and then go to the disposal facility. We're going to have best management practices to keep the dust down. There's going to be a community air monitoring program where we continuously check concentrations of dust and add water or do whatever we need to do to keep those concentrations down. If we can't do the work safely, we're going to stop the work and take a look at what we can do to keep the dust down. Slow it down, add more water, whatever the best management practice is. That's all laid out in our work plans that we have that have been approved.

So I hope that addresses your question regarding the dust. Was there another piece to that?

MR. O'LEARY: Have you mentioned the contractor?

MR. MANNINO: So Sevenson Environmental Services is the prime contractor performing the residential cleanup. It's being overseen through an inter-agency agreement that we have with the United States Army Corps of Engineers. We have a trailer set up on Mill Street. And so that's where the Army Corps and Sevenson is set up to keep track of daily activities. And they will be contracting out to various trucking companies. I don't know who they are at this point, so.

But does that answer your question, Jean? You good? Thanks.

MR. BEIDLE: Hi, my name is Jeremy Beidle (phonetic). I have property at 165 Olcott Street and 157 Olcott Street. Just a question one -- will there be a meeting about Operable Unit number 4? Is there a future meeting for that, or is this pretty much that?

MR. MANNINO: So we divided Opera -- Operable Unit 4 into two phases of work. The first phase handles -- I think it's the first 32 or 33 properties.

MR. BEIDLE: I'm in phase two.

UNIDENTIFIED SPEAKER: You are part of phase two?

MR. BEIDLE: Two, yeah.

MR. MANNINO: Okay. So what we're doing is we're collecting the data. We're sampling. We're sharing the results with each of the property owners as we have it. Right? At that point, we will have to make a decision as to whether or not we need to come out with a -- a new decision document or work under the existing record of decision. If that's the case, we'll have another public meeting.

But regardless of that, before -- what we've been doing with the phase one properties is before the work starts, we're meeting with the homeowners one-on-one, talking about the specific details, about the work that's going to be coming on with respect to that property.

So we're having, you know, communications with the individual property owners ahead of the work starting. And so my expectation is, is that with the phase two properties we would be doing the same exact thing.

When you say one -- one-on-one, do you mean face-to-face or --

MR. BEIDLE: Face-to-face, in person.

MR. MANNINO: Okay.

Yep. The suitable location -- our convenience for you. We sit down, we go over the detailed sampling results. Show you the area where we -- the data shows we need to dig, how we're going to restore the property and, you know, the schedule for doing that work. And walk through any issues you may have with respect to how that work is going to be performed. So --

Thank you.

MR. BASILE: Sure. Any other questions?

MR. CLARK: Yes, Mike. Just -- I can -- I can blow -- I can blast it from out here.

MR. BASILE: Okay. Okay.

MR. CLARK: Is there -- you mentioned the -- the contamination build up behind the Burt Dam in Newfane. Is there -- you know, is there any confidence level that there will be future phases here that will go further down from the creek?

MR. BASILE: Of course. Yep.

MR. CLARK: Are you going to address some of those issues and problems?

MR. O'LEARY: Yeah. So it's a great question. And the goal is to address further downstream of the end of Operable Unit 3 with further actions, based on looking at the data, looking at the results, looking at the investigations, it will then be decided. I can't tell you now what operable units will be and how it'll be handled, but it is something being looked at right now.

MR. BASILE: Good. Are there any other questions? Are there -- yes. Okay.

MR. GOODMAN: Greetings. My name is Steven Goodman (phonetic), 3098 Lockport Olcott Road in Newfane. I've lived there since 1979. I've come to these meetings on and off for the last 45 years. When I first started coming to these meetings, a couple of the old fellows that I knew in the area said, yeah, we've been coming to these meetings for 40 years, nothing's happening and blah, blah, blah. They're dead, so it's -- I'm sure I'll be at the same way, probably, when it's all said and done.

I appreciate that the quality of the creek has improved a ton, I see it in my backyard all the time. However, last Friday I was out kayaking the Lake

Ontario on the west side of the -- over towards the Bluff. Raw sewage, a lot of raw sewage, it's right in that immediate area floating around, but I had to yonder through that last week, on Friday. I don't know where that's coming from, but I think that's certainly a concern, I -- piggybacking on Bill Clark's comment about the current situation of dropping things through.

I also have a question about -- I remember going to the first Earth Day. It was 1970 or '71 and Alan Van De Mark, I think was the gentleman's name, was insisting along the Eighteen Mile Creek, Red Snake Hill, was insisting that the things that they were putting in the creek were -- were cleaning the creek and it was a different color every time you went through there, any old timers that went through there back in the day.

What are some of those industry's responsibilities to some of these gigondal fees that are going on? I mean, I know this is all federal stuff and state stuff, but aren't there some responsibilities to some of those gentlemen and some of those industries, that are still going? I know a lot of them are gone, but some -- some are still going.

Again, I appreciate the -- the quality of the creek, it's a big improvement, but there's a lot of work to do yet. And again, there's still stuff being dumped in the creek that has no business being in there. Thank you.

MR. BASILE: Thank you.

MR. O'LEARY: And again, thank you. Great questions. So the first question you had regarding the raw sewage or sewage that you -- you saw in the creek. That's not handled under the purview of the -- the federal government, that would be something you'd have to find out from the city of Lockport and -- and check with their CSOs and -- and understanding to find out why that is and why that's the case. Regarding your second question.

MR. GOODMAN: Yeah. About Van De Mark and other --

MR. O'LEARY: Correct.

MR. GOODMAN: -- active facilities?

MR. O'LEARY: Yeah, active facilities. So under Superfund, we continue to evaluate, we look for potential responsible parties, or in this case, chemical companies or -- or companies that could cause the contamination or the pollution. So that's an ongoing process. Right now, Eighteen Mile Creek, the entire work that you've seen in OU1, OU2, OU3, and OU4, there is no potential responsible party. This is being

handled by the federal taxpayers. OU1, 2, and 4 is
being handled on the -- bipartisan --
MR. BASILE: Bipartisan infrastructure.
MR. O'LEARY: -- infrastructure law
legislation money funding, that's how that's being
handled. But we will continue to evaluate, that's why
we have these community meetings. The community might
be aware of something or know of some history that
we're not aware of and could point us in the direction
of another potential responsible party.
So that would be why we -- you know, we can
reach out and any communication that you might have or
-- or knowledge that you might be aware of can help,
obviously, potentially, find the PRP. As far as the
state sites. I don't know, Steve, did you want to
speak to either Van De Mark or Vanchlor?
MR. MOELLER: I can. There's a -- Van De
Mark chemical is a state site. There is a remedial
system along the creek down grading of the plant. The
contamination of concern there currently is coal tar
that was deposited there, probably in the early 1900s
before Van De Mark Chemical was even there. Van De
Mark itself produces phosgene gas chemistries. So most
of their stuff would be airborne rather than water
related or soil related contamination. There is

groundwater contamination also related to the coal tar previously -- it was disposed there.

Vanchlor landfill used to be a Van De Mark landfill, and then the ownership of it went over to Vanchlor Company, which is on Jackson Street or Plank Road. Their landfill will be there, it's a capped and closed landfill and it'll be monitored. It's currently monitored. In fact, the annual sampling is coming up in two weeks. It'll be monitored for a long, long time, but there's very minimal contamination associated with that landfill, it's an older landfill and it's also a state site.

MR. O'LEARY: Thank you, Steven.

MR. GOODMAN: Thank you.

MR. BASILE: Any other questions? Yes.

MS. ROMAN: Michelle Roman, Cherry Street in Lockport. I wanted to address -- I don't have the answers to everything about the sewage treatment plant, but they are under the New York State DEC.

So our sewage plant has to follow all of their regulations and rules. And we were working on, and we just started the UV system for -- sanitizing the sewage before it goes into the creek. And sometimes there will be an overflow incident, but it's really not that often.

And I know that some other people told me that some of the houses along Eighteen Mile Creek go directly into the creek, and they're not hooked up to any kind of sewage line, it goes directly into the creek and there's a number of houses that do that. And because when I asked the DEC, like, what is happening, what's going on with our monitoring and stuff?

So I understand your concerns, I share them. And also, there was -- there's discussion of the Newfane sewage facility treatment plant right on Lake Ontario and how the currents and everything happened in the lake. So there's a lot of potential things that need to be looked at. And -- those are things that I continue to ask about.

MR. BASILE: Are there any other questions? Does anyone else have a question? Remember, we're in a 30-day public --

MR. O'LEARY: Mike.

MR. BASILE: Okay. Right here. Yes, sir.

UNIDENTIFIED SPEAKER: Just a couple quick questions. One was, you mentioned that there's going to be the community air quality monitoring. Is that going to be publicly accessible, like, through the, is it EPA Air Now site or something? Is it -- but -- but in general, is the data for that going to be available to the public to view in real time?

MR. MANNINO: I don't believe it -- it is. We can look into putting some of the data on once we've had a -- a -- a chance to, kind of, consolidate it. But I -- the current plan is not to have it live, but we can provide updates to, and post that on the website. We can look into doing something like that.

Okay.

Or, you know, again, I'm -- I -- I can't commit to exactly what we'll do, but we'll look at what additional information we could post on our website, whether it's a -- any exceedances or -- or anything along those lines. But we can go back and look at that.

UNIDENTIFIED SPEAKER: Yeah. And so is that -- is that Army Corps that's doing the air monitoring or is it EPA?

MR. MANNINO: So the air monitoring is going to be done by Sevenson Environmental Services, it's their equipment. The oversight, the actual folks present there is the Army Corps of Engineers, they'll have a daily presence. And EPA will be periodically on site.

UNIDENTIFIED SPEAKER: And so if people have concerns at any point during the -- the process, can they -- is there a direct contact for them for Army Corps?

MR. MANNINO: So our -- our preference would be, if you -- you have any questions regarding the OU OU4 work, that is currently managed by Julio Vasquez, who couldn't be here this evening. Feel free to give him a call and I -- his number --

Or -- or -- myself.

-- or -- or -- or Chris. Julio's number is 212-637-4323.

Is it 212?

212-637-4323.

Or you call me and I can get you in touch. Yeah. Okay.

Yeah. We'll -- we'll -- we'll -- we'll -- we'll make sure you have the right number. Sometimes I get dyslexia with those fours -- those threes and those twos, so I apologize. But what -- when it comes to any of the individual homeowners --

Yes.

-- okay? We are working closely with them as we get closer to doing work on that block.

So if any particular homeowner were to have a concern, we will definitely be sharing that information much closer. When it comes to the -- the larger community and our ability to post that information or some of that information on the website. That's where, you know, I -- I've got to go back to the team and see what we can do versus what might take some time.

But for individual homeowners, if they have any questions about what that data looks like for their property or the neighboring property, we will share that as soon as possible. Yeah. We -- we're trying to have very close working relationships with each of the homeowners. And right now, we're focusing on this one particular block. Once the work starts, we're going to keep rolling that out.

Got you. Thank you.

MR. BASILE: Thank you. Are there any other questions? Any other questions?

Just want to remind you that we're in a public comment period, 19th July to 19th August. If you have any comments that you would like, or you think of something, like, two or three days after you've left here, you can -- you can either call Chris, you can put them in writing, you can go on internet via e-mail and send it to him. And we'll be more than happy to respond to those questions up to and including August the 19th.

If there aren't any other questions, remember, we do have a website for Eighteen Mile Creek that we post all of our documents to, community update, all the activities that are ongoing with Eighteen Mile Creek. I want to thank you on behalf of the EPA and the state. And thank you for coming out and taking the time.

Remember, we'll close the meeting but the state representatives and our EPA folks will be here for a while. If you have any questions, please feel free to go up to them. Enjoy the rest of your summer. Thank you very much.

(MEETING CONCLUDED)

(End of Video Recording.)

CERTIFICATE

I,Doug Yarborough, do hereby certify that I was authorized to and transcribed the foregoing recorded proceedings, and that the transcript is a true record, to the best of my ability.

Dated this 7th day of August, 2024.