RECORD OF DECISION

Kentucky Avenue Wellfield Superfund Site
Operable Unit 4 – Koppers Pond
Chemung County, New York

United States Environmental Protection Agency
Region 2
New York, New York
September 2016

393189

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Kentucky Avenue Wellfield Superfund Site
Chemung County, New York

Superfund Site Identification Number: NYD980650667
Operable Unit 4

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 4 (OU4) of the Kentucky Avenue Wellfield Site (Site), which was 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 C.F.R. Part 300. This decision document explains the factual and legal basis for selecting the OU4 remedy. The attached index (See Appendix III) identifies the items that comprise the Administrative Record, 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 CERCLA Section 121(f), 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 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 response action described in this document actively addresses contamination at Koppers Pond. Koppers Pond is located in the Village of Horseheads, Chemung County, New York and is situated on property owned by the Village of Horseheads, Hardinge, Inc. (Hardinge), and the Elmira Water Board (EWB). For purposes of this ROD, OU4 is identified as a 12- acre area that is or was ponded , defined by a corresponding pond water elevation of approximately 887 to 888 feet above mean sea level (ft-amsl). While the size of the water body referred to as Koppers Pond has reduced in recent years, the full 12-acre area of the former pond area is addressed in OU4 as described on Section 2.0. The 12 acres are generally bounded by the Old Horseheads Landfill (Landfill) to the north and northeast, the Norfolk Southern Corporation railroad tracks to the west, and an area of the EWB's Kentucky Avenue Wellfield property to the south. Waters from Koppers Pond historically have discharged via two outlet streams to its south, which ultimately drain to Newtown Creek.

The major components of the selected remedy include the following:

- Placement of a geotextile membrane and six-inch thick soil and sand cap over the pond to provide a uniform and continuous bottom surface, which is estimated will cover approximately nine acres of sediments and exposed soils;
- Consolidation/grading of sediments/exposed soils within the historic footprint of Koppers Pond to accommodate the placement of capping material;
- Modification of the pond outlets structures to help maintain pond surface water elevation if results of pre-design investigations indicate modifications are warranted;
- Implementation of flood management mitigation measures if determined to be necessary during remedial design;
- If determined to be necessary during the remedial during, development of a fishery management program;
- Restoration of wetlands that may be impacted by the implementation of the remedy as determined to be necessary during remedial design;
- Installation of chain-link security fencing around the perimeter of the pond to supplement the existing fencing;
- To the extent necessary, long-term monitoring of sediment and fish, to confirm that a decrease in contaminant concentrations is occurring and that the reduction is achieving the remedial action objectives;
- Development of a Site Management Plan to ensure proper management of the remedy post-construction. The Site Management Plan will include provisions for any maintenance and long-term monitoring required for the remedy, as well as periodic certifications; and
- Implementation of institutional controls such as restrictions on activities in Koppers Pond that could cause or contribute to the spread of contaminants.

The environmental benefits of the preferred remedy may be enhanced by giving consideration, during the design, to technologies and practices that are sustainable in accordance with EPA Region 2's Clean and Green Energy Policy[1] and NYSDEC's Green Remediation Policy. This will include consideration of green remediation technologies and practices.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy meets the requirements for remedial actions set forth in CERCLA Section 121, 42 U.S.C. § 9621, because it meets the following requirements: 1) it is protective of human health and the environment; 2) it meets a level or standard of control of hazardous substances, pollutants, and contaminants that at least attains the legally applicable or relevant and appropriate requirements under the federal and State laws; 3) it is cost-effective; and 4) it utilizes permanent solutions and technologies to the maximum extent practicable.

Principal threat wastes were not present at Koppers Pond. Remedies for other portions of the Site where principal threat wastes were present did employ treatment as a principal element.

This remedy will result in hazardous substances, pollutants, or contaminants remaining at Koppers Pond above levels that would allow for unlimited use and unrestricted exposure. Pursuant to Section

[1] See http://epa.gov/region2/superfund/green_remediation and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf

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 following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record file for this action.

- A discussion of the current nature and extent of contamination is included in the "Summary of Koppers Pond Characteristics" section.
- Chemicals of concern and their respective concentrations may be found in the "Summary of Koppers Pond Characteristics" section.
- Potential adverse effects associated with exposure to Site contaminants may be found in the "Summary of Site Risks" section.
- A discussion of cleanup levels for chemicals of concern may be found in the "Remedial Action Objectives (RAOs)" section.
- A discussion of principal threat waste is contained in the "Principal Threat Waste" section.
- Current and reasonably-anticipated future land use assumptions are discussed in the "Current and Potential Future Land and Groundwater Uses" section.
- RAOs to be achieved as a result of the selected remedy are discussed in the "RAOs" section.
- Estimated capital, annual operation and maintenance, and total present worth costs are discussed in the "Description of Remedial Alternatives" section.
- Key factors that led to selecting the remedies (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 decisions) may be found in the "Comparative Analysis of Alternatives" and "Statutory Determinations" sections.

AUTHORIZING SIGNATURE

September 30, 2016

Walter E. Mugdan, Director
Emergency and Remedial Response Division

Date

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1.0 SITE NAME, LOCATION, AND DESCRIPTION

The Site is located within the Village of Horseheads and the Town of Horseheads in Chemung County, New York. The Site includes the Kentucky Avenue Well (KAW), a former municipal water supply well owned by the Elmira Water Board (EWB), the former Westinghouse Electric Corporation's (Westinghouse's) Industrial and Governmental Tube Division facility (Facility), the industrial drainageway that runs south from the Facility into and including Koppers Pond, and the contaminated portion of the underlying aquifer, known locally as the Newtown Creek Aquifer. A Site location map is provided as Figure 1.

The Facility is bounded by Interstate 86 on the north, State Route 14 on the east, a Conrail track to the south, and property of New York State Electric and Gas Company to the west. The Facility is characterized by areas of grass lawn, pavement, and buildings. Surface runoff from precipitation is routed by shallow swales and captured by surface-water drains at various locations around the Facility's main plant building. A large portion of the runoff is routed through two plant outfall flumes and ultimately flows to the industrial drainageway. The main building at the Facility covers approximately 16 acres in the eastern portion of the property and includes two wastewater treatment plants. Wastewater (process and non-contact cooling water) had been discharged to the industrial drainageway via the two outfalls at the Facility from the beginning of operations in 1952 through 2014.

The industrial drainageway is a surface water channel that conveys surface water runoff when present from a 1,350-acre commercial and industrial watershed, and also historically received discharges from the Facility. The industrial drainageway begins at the outlet of an underground pipe (located at the Chemung Street outfall) approximately 1,500 feet southeast of the Facility. It is a seven to 10-foot wide open ditch which extends approximately 2,200 feet to the southeast where it discharges into Koppers Pond.

Operable Unit 4, addressing Koppers Pond, is a 12-acre area that is or was ponded, defined by a corresponding pond water elevation of approximately 887 to 888 feet above mean sea level (ft-amsl). The 12 acres are generally bounded by the Old Horseheads Landfill (Landfill) to the north and northeast, the Norfolk Southern Corporation railroad tracks to the west, and an area of the EWB's KAW property to the south.

Historically, the water in Koppers Pond was approximately three to six feet deep and discharged to two outlet streams at its southern side, which then merge about 500 feet downstream to a single channel that flows past the Hardinge plant and into Halderman Hollow Creek. From there, the creek would flow through mixed industrial, commercial, and residential areas and discharge into Newtown Creek approximately 1.5 miles south of Koppers Pond. (See Figure 2).

2.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

The KAW is part of the EWB public-water supply system. It was constructed in 1962 and provided approximately 10 percent of the potable water for the EWB distribution area until its closure in 1980 following the discovery of elevated levels of trichloroethylene (TCE). TCE contamination was first detected in the KAW in May 1980 during an inventory of local wells initiated by the New York State Department of Health (NYSDOH). In July 1980, the Chemung County Health Department conducted further groundwater sampling in the area and found similarly elevated levels of TCE in the KAW and several private residences and commercial facilities. As a result of these findings, the EWB closed the KAW in September 1980 and removed it from its other sources of potable water for its users. In 1983, the Site was placed on the federal National Priorities List of releases. Additional sampling conducted by local, state, and federal agencies through 1985 identified TCE contamination throughout the Newtown Creek Aquifer. In March 1985, EPA initiated a removal action for the purpose of providing alternate water supplies to impacted residences not connected to the public water distribution system. Residences whose private wells were found to be contaminated with TCE in excess of the NYSDOH drinking water standards for public water supplies were supplied with bottled water and ultimately connected to the public water supply.

Site investigations have identified the Facility as the primary source of contamination to the KAW. Westinghouse began operations at the Facility in 1952. The Facility developed and manufactured television picture tubes, vacuum switches, and similar electrical products. Beginning in 1988, Westinghouse sold off its business operations at the Facility by selling its Imaging and Sensing Technology Division to the Imaging and Sensing Technology Corporation, which continued operations until 2000. In 1989, Westinghouse sold its interest in the Toshiba-Westinghouse Electric Corporation to Toshiba Corporation. Toshiba Display Devices, Inc., and later MT Picture Display Corporation of America-New York, LLC continued to occupy a portion of the Facility until 2004. In 1994, Westinghouse sold its remaining operations to Cutler-Hammer, which continues to operate at the Facility, while maintaining ownership of the Facility. In April 2007, CBS Corporation, as the corporate successor to Westinghouse, sold the Facility to Silagi Development and Management, Inc.

EPA has divided the Site into four separate phases, referred to as Operable Units or OUs, for remediation purposes. OU1 addressed residences and commercial properties that had relied upon private drinking water wells for potable water in the area affected by groundwater contamination in the vicinity of the Site. OU2 addressed contamination in the KAW public supply well, a source of public drinking water. OU3 addressed soil contamination at the former Facility and sediment contamination in the industrial drainageway that runs south from the Facility. OU4, the subject of this Record of Decision (ROD), addresses soil and sediment contamination in Koppers Pond.

OU1: In 1986, a remedial investigation and feasibility study (RI/FS) was conducted by New York State Department of Environmental Conservation (NYSDEC) and U.S. Environmental Protection Agency (EPA) to determine the nature and extent of the groundwater contamination at the Site. The results confirmed the presence of several volatile organic compounds (VOCs), including TCE at concentrations up to 340 parts per billion and inorganic chemicals at concentrations exceeding Federal maximum contaminant levels (MCLs) and New York State standards. Based on the 1986 RI/FS, EPA selected a remedy on September 26, 1986 in a ROD that addressed OU1. The OU1

ROD called for the connection of all residences on private wells within the study area to public water supplies and monitoring at, and upgradient of, the EWB's nearby Sullivan Street supply well, which is further downgradient from the KAW. The OU1 ROD also called for a supplemental source control RI/FS to be conducted to further identify the source of contamination. In July 1989, NYSDEC completed the installation of the monitoring wells upgradient of the Sullivan Wellfield to monitor regional groundwater quality of the contaminant source areas. Groundwater samples collected from those wells in January 1990 revealed the presence of TCE in excess of Federal MCLs and State standards. The public water supply at the Sullivan Street Wellfield was also found to be contaminated by TCE. In April 1990, EPA issued a document called an Explanation of Significant Difference (ESD) that modified the remedy selected in the 1986 ROD by announcing EPA's intention to design and construct a groundwater treatment facility for the Sullivan Street Well. This treatment facility was constructed and operational by mid-1994. Pursuant to the OU1 ROD, EPA connected an additional 46 residences and three commercial properties that were using private drinking water wells in the affected area of groundwater contamination to the public water supply. Overall a total of 95 residences and three commercial properties were connected to a public water supply between 1985 and 1994.

OU2: In February 1990, EPA completed a supplemental RI/FS. The supplemental RI concluded that the primary source of TCE contamination at and near the KAW was the Facility. Based on the 1990 RI/FS results, EPA selected an interim groundwater remedy on September 28, 1990, that called for the following: restoration of the KAW as a public drinking water supply; prevention of the further spread of contaminated groundwater within the Newtown Creek Aquifer by pumping of the KAW and the yet-to-be installed recovery wells between the KAW and the Facility; construction of two groundwater treatment plants, one to treat water extracted by the KAW, and the other located at the Facility which was to treat water from the new extraction wells; and a long-term monitoring program to monitor contaminant migration and evaluate the effectiveness of the remedy. On June 28, 1991, EPA issued a unilateral administrative order to Westinghouse to implement the remedy selected in the 1990 ROD. Remedial construction activities began in September 1996 and were completed on June 30, 1999. Following the restoration of the KAW, EWB elected not to use the KAW. At this time, the KAW remains out of service. The second treatment system, which is located at the Facility and treats groundwater extracted from two barrier wells, was in operation until April 2014, when EPA authorized that the pumping of the extraction wells could be temporarily suspended to evaluate groundwater quality conditions. As part of that evaluation, groundwater monitoring is ongoing.

OU3: The OU2 ROD also called for an additional RI/FS to address source control at the Facility and to study the contaminated sediments present in the industrial drainageway and Koppers Pond. Based on the results of the additional RI/FS completed in 1996, EPA selected a remedy for OU3 on September 30, 1996. The OU3 ROD addressed soil contamination at the Facility and sediment contamination in the industrial drainageway. The major components of the selected remedy for OU3 included the following: excavation and off-Site disposal of contaminated soils and waste materials from the Facility; treatment of VOC-contaminated soils from the former Runoff Basin Area at the Facility using a soil vapor extraction (SVE) treatment system; and excavation and off-Site disposal of polychlorinated biphenyls (PCB)-contaminated sediments from the industrial drainageway. The OU3 ROD also required further investigations at Koppers Pond. In addition, in the OU3 ROD EPA determined that no further groundwater treatment beyond that specified in the OU2 interim remedy was necessary as a response action for OU3. On August 27, 2001, the OU3 remedial action began with the remediation of the PCB-contaminated sediments in the industrial drainageway, which was completed in 2003, and the excavation and off-Site disposal of contaminated soils at the Facility, which was completed on August 23, 2005. Construction of the SVE system was completed on November 7, 2000 and operated until January 2011, at which time sampling revealed that the treatment system had successfully remediated the VOC-contaminated soils.

OU4 - Koppers Pond: In September 2006, EPA and six potentially responsible parties entered an administrative order on consent for the performance of the RI/FS for Koppers Pond. The results of the OU4 RI/FS led EPA to select the remedy presented in this ROD.

Additional Response Actions - EPA has also completed additional response actions at the Site. On September 1995, EPA and Westinghouse entered an administrative order on consent requiring Westinghouse to perform a removal action at the Facility. The action consisted of the removal and off-Site disposal of buried drums containing magnesium chips and titanium turnings waste from the magnesium chip burial area and two calcium fluoride sludge disposal areas at the Facility. The removal action was completed in 1996.

Beginning in 2007, EPA also performed an evaluation of impacts associated with vapors generated at the Site. VOC vapors released from groundwater contamination and/or soil have the potential to move through the soil and seep through cracks, utility penetrations, or other openings, into the indoor air of overlying buildings. This process is referred to as soil vapor intrusion. EPA investigates the soil vapor intrusion pathway at homes and buildings situated at Superfund sites when the potential for vapor intrusion exists. EPA's approach for investigating, assessing, and remediating vapor intrusion was developed after the issuance of the OU2 and OU3 RODs. In October 2007, EPA conducted vapor intrusion sampling at six residences located near the Facility. Where permission was granted, EPA collected air samples from beneath, and in some cases within the buildings. The analytical results of the October 2007 vapor intrusion sampling showed elevated TCE concentrations in the air beneath two of the six homes. As a result, sub-slab depressurization systems were installed at these two residences to mitigate the impacts of soil vapor intrusion by reducing or eliminating vapor entry into the buildings. In addition to sampling residences for soil vapor intrusion, indoor areas in the occupied office spaces at the Facility were sampled in February 2015. VOCs were not detected above health-based levels in the four indoor air samples collected. Based on the results, no further vapor intrusion sampling is anticipated.

3.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

On July 23, 2016, EPA released the Proposed Plan for cleanup of OU4 of the Site to the public for comment. EPA made supporting documentation comprising the administrative record available to the public at the information repositories maintained at the Horseheads Town Hall, Town Clerk Office in Horseheads, New York, the EPA Region 2 Office in New York City, and EPA's website for the Site at www.epa.gov/superfund/kentucky-avenue.

Notice of the July 23, 2016 start of a public comment period and the availability of the above-referenced documents was published in the *Elmira Gazette, on July 23, 2016.* A copy of the public notice published in the *Elmira Gazette* can be found in Appendix V. EPA accepted public comments on the Proposed Plan from July 23, 2016 through August 22, 2016.

On August 4, 2016, EPA held a public meeting at the Elmira College at Peterson Chapel to inform officials and interested citizens about the Superfund process, to present the Proposed Plan for OU4 of the Site, including the preferred remedial alternative, 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 THE RESPONSE ACTION AT OPERABLE UNIT FOUR

Section 300.5 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Section 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 pathway of exposure. Cleanup of a site can be divided into a number of OUs, depending on the complexity of the problems associated with the site.

As noted above, EPA has designated four OUs for the Kentucky Avenue Wellfield Site. OU4, which is the subject of the ROD, addresses soil and sediment contamination related to Koppers Pond, and it is the final response action planned for the Site.

5.0 SUMMARY OF KOPPERS POND CHARACTERISTICS

5.1 Overview

Koppers Pond is surrounded by an area of vacant and active industrial and governmental properties. To the north and northeast is the Landfill, to the south is the KAW facility, to the southeast is the Hardinge plant, to the east is property owned by the Fairway Spring Company, and to the west is a Norfolk Southern Corporation railroad right-of-way with active tracks. Much of the northern bank of Koppers Pond is formed by the Landfill. The Landfill was operated from the 1940s until 1973 and reportedly received municipal, commercial, and some industrial solid waste. The Landfill was closed for waste disposal in 1975, but no engineered final cover system was constructed at the time of closure.

5.2 Geology

Koppers Pond has historically been a shallow, flow-through pond. The pond historically received most of its inflow from the industrial drainageway. Koppers Pond is situated in a previously low-lying, wet area that apparently began to fill with water with the onset of discharges from the Facility. Because the topography around the pond is relatively flat, changes in the pond water level significantly affect the open water area. The pond bottom has been comprised of soft sediments that range in thickness up to 38 inches, with greater thicknesses associated with the upper western leg of the pond where the industrial drainageway discharges to the pond. In a portion of the eastern leg of the pond, the pond bottom beneath the loose sediments was identified as sand and gravel. A hard clay layer generally underlies the sediments throughout most of Koppers Pond, which would be expected from the pond's origin as a low-lying swampy area. Because of the low-permeability of this clay layer, surface water in the pond has not significantly interacted with local groundwater.

5.3 Hydrology

In 2007, during the initial RI activities, Koppers Pond covered approximately nine to 12 acres with typical water depths ranging from about 1.5 to five feet. Under these conditions, the volume of water in the pond was about six million gallons. During the sampling conducted in 2008, the open water area of the pond covered about nine acres and water depths were approximately 1.5 to four feet. Following the suspension of the OU2 groundwater recovery and treatment operations at the Facility in April 2014, which had resulted in the discharge of approximately two million gallons of treated water a day to the industrial drainageway, which fed into Koppers Pond, the pond surface elevation was significantly reduced. By late 2015 and early 2016, the pond level had significantly receded with an estimated open water area, primarily in the former southwest corner, of about 2.5 to three acres. A July 2016 inspection of the pond revealed that the pond did not have any open water; this condition is thought to be due to lower than average rain fall in March through June 2016.

5.4 Surface Water

Historical data revealed elevated concentrations of certain contaminants in discharges to the industrial drainageway. Previously observed "floc" (i.e., mass formed by the aggregation of fine suspended particles) in the industrial drainageway is no longer present, and suspected accumulations of the floc in the aboveground piping leading to the Chemung Street outfall was not observed during any of the field studies conducted between 2008 and 2013. Data collected during the OU4 RI did not reveal exceedances of New York State surface water standards. Hydrologic evaluations conducted as part of the RIs for OU2 and OU4 did not reveal significant communication between surface water in Koppers Pond and local groundwater, primarily because of the low-permeability of the clay layer below the pond. Groundwater is currently being addressed pursuant to the remedy selected in the OU2 ROD.

5.5 Sediment

Sediment sampling conducted during the OU4 RI revealed metals, PCBs, and polynuclear aromatic hydrocarbons (PAHs) in pond sediments. These contaminants were detected throughout the pond, although concentrations generally tended to be higher in the western leg of the pond as compared to the central portion and eastern leg of the pond. Vertical profile sampling did not reveal consistent patterns of concentrations with the depth interval of the sediment. A comparison of the sediment data collected between 1995 and 2013 generally reveals a marginal decreasing trend in concentrations of the metal contaminants detected. PCB concentrations tend to be higher in deeper sediments. The maximum concentration of PCBs detected in the sediment was detected at a depth between 25-29 inches at a concentration of 11 parts per million (ppm). The most recent surface (0 to 6- inch) sediment sampling conducted in 2013 revealed total PCBs at concentrations less than 1 ppm for each of the samples collected.

PAH concentrations tend to be higher in the shallow (0 to 6 inch) sediments, and PAH concentrations are not markedly different in historical sediment data (1995 and 1998) from those observed in samples collected in 2008 and 2010. Benzo (a) anthracene and benzo (b) fluoranthene have been detected at a maximum concentrations of 867 ppm and 1,099 ppm, respectively.

5.6 Mudflat Soils

Mudflats were defined in the Feasibility Study (FS) as the low-lying areas along the perimeter of the pond (particularly on the western side) that are inundated under High Water Level (HWL) conditions but exposed under Average Water level (AWL) conditions. Exposed sediments or soils are defined as the areas formerly submerged during the RI under AWL conditions but which, because of subsequent low water elevations, are no longer submerged.

Surface soil samples were collected from periodically inundated low-lying areas (mudflats) around the pond in 2007. Each of these samples showed metals concentrations lower than corresponding average values for pond sediments. PCB concentrations in mudflat soil ranged from non-detect to 0.04 ppm.

5.7 Fish

Metals and PCBs have been detected in fish samples collected in Koppers Pond and its outlet channels. Metals concentrations in fish samples collected in 2003 and 2008 show variable patterns with no overall trends in concentrations. Generally, metals were not detected at elevated concentrations in fish tissue samples. On a lipid-normalized basis, PCB concentrations in fish samples collected in 2003 and 2008 showed decreasing concentrations in the bottom-feeding species, but increases in the other species sampled at Koppers Pond, such as largemouth bass and black crappie. Overall, however, the highest concentration of PCBs detected in 2003 was 2.4 ppm, while the highest concentration detected in 2008 was slightly lower at 2.06 ppm.

Because of elevated PCB levels in fish found in sampling conducted in 1988, the NYSDOH issued a fish consumption advisory for Koppers Pond. The NYSDOH advisory, which is still in effect, recommends that women under 50 years and children under 15 years not eat any fish from Koppers Pond. For all others, the recommendation is to eat no more than one meal of carp from Koppers Pond per month and four or less meals per month of all other fish species from Koppers Pond. Under low water conditions, the pond would not support a fish population that would make it a viable source of fish for human consumption.

6.0 CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

Koppers Pond is surrounded by both vacant and active industrial and governmental properties that are zoned industrial and manufacturing. To the north is the Old Horseheads Landfill that forms much of the northern bank of the pond. To the south is the EWB's KAW facility, to the southeast is the Hardinge facility, to the east is Ferrell Spring Company, and to the west is a Norfolk-Southern Corporation (Norfolk-Southern) railroad right-of-way with active tracks. Access to Koppers Pond is limited by the railroad tracks and by the adjacent industrial and governmental properties, which are partially fenced. No recreational or other use of the pond is authorized by any of the property owners. EPA expects that the land-use pattern at and surrounding Koppers Pond will not change in the foreseeable future. Recent changes in pond hydrology are not expected to affect potential future land use.

7.0 SUMMARY OF SITE RISKS

As part of the RI/FS, a baseline risk assessment was conducted 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 OU4 of the 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 human health risk assessment (HHRA) and a baseline ecological risk assessment (BERA). It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed if remedial action is determined to be necessary. This section of the ROD summarizes the results of the baseline risk assessment for OU4 of the Site.

7.1 Baseline Human Health Risk Assessment

The Site-specific HHRA estimated cancer risks and noncancer health hazards from exposures to chemicals at Koppers Pond. The HHRA quantitatively evaluates cancer risks and noncancer hazards. A Site-specific HHRA was developed for OU4. Consistent with EPA's policies and guidance, the baseline HHRA quantified cancer risks and noncancer hazards as the total exposure to Chemicals of Potential Concern (COPCs) in the absence of remedial action and institutional controls, such as the current fish consumption advisory.

<u>Risk Assessment Definitions and Process</u>.

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

- *Hazard Identification* – uses the analytical data collected to identify the COPCs at the site for each medium with consideration of a number of factors explained below;
- *Exposure Assessment* - estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting fish) 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 contaminants with concentrations which exceed acceptable levels, defined by the National Contingency Plan (NCP) as an excess lifetime cancer risk greater than 1×10^{-6} – 1×10^{-4} or a Hazard Index (HI) greater than 1.0; 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.

The cancer risk and noncancer hazard estimates in the HHRA are based on RME scenarios and were developed by taking into account various health protective estimates about the frequency and duration of an individual's exposure to chemicals selected as COCs as well as the toxicity of the contaminants.

Risk drivers are those COPCs identified in the HHRA that drive the need for a remedial action. This subset of COPCs is referred to as COCs, and is the primary focus of the response action identified in this ROD.

Each of these steps, as applied to OU4 of the Site, are described below.

7.1.1 *Hazard Identification*

In this step, the COPCs in each medium were identified based on such factors as toxicity, frequency of occurrence, fate and transport of the contaminants in the environment, concentrations, mobility, persistence, and bioaccumulation. Analytical information that was collected to determine the nature and extent of contamination revealed the presence of chemicals found to be present in surface water, sediments, and fish tissue at Koppers Pond and its outlet tributaries. PCBs in fish at the Koppers Pond are at concentrations of potential concern. Based on this information, the risk assessment focused on contaminants which may pose significant risk to human health in fish. A comprehensive list of all COPCs can be found in the HHRA in the Administrative Record file for this action.

7.1.2 *Exposure Assessment*

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

Typically, exposures are evaluated using a statistical estimate of the exposure point concentration (EPC), which is usually an upper bound estimate of the average concentration for each contaminant, but in some cases it may be the maximum detected concentration. A summary of the EPCs for the COCs in each medium can be found in Appendix II – Table 1, while a comprehensive list of the EPCs for all COPCs can be found in the HHRA, available in the Administrative Record file for this action.

Exposure pathways were identified for each potentially exposed population and each potential exposure scenario. At the time that the BHHRA was completed in 2013, EPA recognized the presence of litter and off-road vehicles tracks suggesting that periodic trespassing occurs in the area. At that time individuals were observed fishing from the banks of the pond. As a result, exposure pathways evaluated included direct contact (incidental ingestion and dermal contact with impacted sediments) and ingestion of fish. The main exposure pathways and receptors and all exposure pathways evaluated in the HHRA are found in Appendix II - Table 2.

7.1.3 *Toxicity Assessment*

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

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

Toxicity data for the HHRA were provided by the Integrated Risk Information System (IRIS) database, the Provisional Peer Reviewed Toxicity Database (PPRTV), or another source that is identified as an appropriate reference for toxicity values consistent with the May 2013 Tier 3 Toxicity Value White Paper (http://www.epa.gov/oswer/ risk assessment/pdf/tier3-toxicityvalue-whitepaper.pdf). This information is presented in Appendix II – Tables 3 and 4 (noncancer toxicity data summary) and Appendix II - Table 5 and 6 (cancer toxicity data summary). Additional toxicity information for all COPCs is presented in the HHRA, available in the Administrative Record file for this action.

7.1.4 *Risk Characterization*

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

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

HQ = Intake/RfD

Where: HQ = hazard quotient;

Intake = estimated intake for a chemical (mg/kg-day); and

RfD = reference dose (mg/kg-day).

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

The key concept for a noncancer HI is that a “threshold level” (measured as an HI of less than 1) exists below which noncancer health effects are not expected to occur.

As previously stated, the HI is calculated by summing the HQs for all chemicals for likely exposure scenarios for a specific population. An HI greater than 1.0 indicates that the potential exists for non-carcinogenic health effects to occur as a result of site-related exposures, with the potential for health effects increasing as the HI increases. When the HI is calculated for all chemicals for a specific population that exceeds an HI = 1.0, separate HI values are then calculated for those chemicals which are known to act on the same target organ. These discrete HI values are then compared to the acceptable limit of an HI = 1.0 to evaluate the potential for noncancer health effects on a specific target organ. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media. A summary of the non-carcinogenic hazards associated with these chemicals for each exposure pathway is contained in Appendix II - Table 7.

Noncancer HI values exceeding the goal of protection of an HI = 1 are: 20 for the young child; 19 for adolescent; and 15 for the adult. The non-carcinogenic hazards are attributable to exposures to PCBs in fish. All other non-carcinogenic hazards associated with exposure to sediments for various receptors are below EPA's goal of protection of an HI = 1.

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

Risk = LADD x SF

Where: Risk = a unit less probability (e.g., 1×10^{-6}) of an individual developing cancer;

LADD = lifetime average daily dose averaged over 70 years (mg/kg-day); and

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} (one in a million) to 10^{-4} (one in ten thousand).

Results of the HHRA presented in Appendix II – Table 7 indicate that the cancer risks from consumption of fish, based on PCBs, under future conditions results in a cancer risk of 2.8×10^{-4}, or approximately three in ten thousand, which exceeds the goal of protection of 1×10^{-6}. This carcinogenic risk represents the total cancer risk by combining risks for a young child (less than 6 years with a cancer risk of 6.8×10^{-5}), adolescent (ages 7 to 13 with a cancer risk of 6.6×10^{-5}) and an adult (13 years and older with a cancer risk of 1.5×10^{-4}).

Exposure to COPCs in sediments or surface water under current and future conditions does not exceed the cancer risk range or the goal of protection of an HI = 1 for multiple chemicals.

In summary, both the noncancer HI and cancer risks from exposure to PCBs in fish under the future scenario exceed the NCP risk range. The future noncancer HI values exceed the goal of protection of an HI = 1 are as follows: 20 for the young child; 19 for adolescent; and 15 for the adult. Ingestion of fish under future conditions results in a cancer risk for the young child, adolescent, and adult consuming fish was of 2.8×10^{-4}, or approximately three in ten thousand, which exceeds the NCP risk range and goal of protection of an HI = 1. The results for noncancer health hazards and cancer risks from ingestion of fish from the HHRA are summarized in Appendix II – Table 7 for the RME scenario.

7.1.5 Uncertainties in the Risk Assessment

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include the following: environmental chemistry sampling and analysis; environmental parameter measurement; fate and transport modeling; exposure parameter estimation; and toxicology data. Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals 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 analyzed.

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the COPCs, the period of time over which such exposure would occur, and the fate and transport models used to estimate the concentrations of the COCs at the point of exposure.

The HHRA evaluated cancer risks and noncancer hazardous under current and future conditions. Since the HHRA was completed in 2013, conditions at Koppers Pond have changed. Under the current low water conditions, the pond would not support a fish population that would make it a viable source of fish for human consumption, and the calculated risks as presented in the HHRA would not occur under current conditions. The EPA Superfund program considers both current and future conditions to support remedy selection decisions. As such, the future conditions assumed in the HHRA remain as a potential future condition at the pond should discharges to the industrial drainageway revert, partially or entirely, to prior levels though, e.g., resumption of expanded Facility operations or the need to resume groundwater treatment under OU2, as previously described. As discussed in the HHRA, the cancer risk range and goal of protection of an HI=1 were exceeded under potential future conditions for ingestion of fish based on exposures to the COC, PCBs.

In addition, the decrease in water elevations results in an increased potential for sediment exposure that were previously inaccessible by trespassers. After further evaluation, the updated risks do not change the overall conclusion that the cancer risks do not exceed the cancer risk range of 10^{-4} to 10^{-6} and the noncancer hazards do not exceed the goal of the protection of an HI =1 for this exposure pathway.

Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposures, 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 potentially exposed populations, and it is highly unlikely to underestimate actual risks related to OU4 of the Site. An estimate of central tendency risk can be obtained by substituting average or median values for upper bound values. This is most useful for the exposure pathway which results in the highest estimated carcinogenic risk (i.e., ingestion of fish).

More specific information concerning risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the HHRA, available in the Administrative Record file for this action.

7.2 Supplemental Baseline Ecological Risk Assessment

A supplemental baseline ecological risk assessment (sBERA) was conducted to evaluate the potential for ecological effects from exposure to chemicals of potential ecological concern (COPECs) in the environmental media of Koppers Pond and its outlet channels. In the sBERA, EPA concludes that COPECs do not pose an ecological concern for any of the evaluated receptors, except for exposure to cadmium by the muskrat. The risk to muskrats was initially based upon food chain modeling, which included a literature based bioaccumulation value for benthic macroinvertebrate. Food chain modeling subsequently conducted using site-specific fish tissue data resulted in the calculation of risk to the muskrat using a no-observed-adverse-effect-level toxicity reference value. The decrease in the Koppers Pond water depth has resulted in the conversion of sediments in the shallow portions of Koppers Pond to soils that allowed access to sediments that were previously inaccessible to certain potential receptors (e.g. wading birds). Under these low water level conditions, larger areas of exposed sediments or soils are present. In order to ensure that additional risk was not identified based upon exposed sediments under these conditions, food chain modeling was conducted for the muskrat and wading birds incorporating the exposed sediment and all shallow areas accessible to wading birds. The re-evaluation did not change the overall conclusions. In addition, the presence of forbs and grasses resulting from low water levels could be indicative of a terrestrial environment and the presence of additional terrestrial receptors that were not evaluated in the sBERA.

7.3 Summary of Human Health and Ecological Risks

The results of the HHRA indicate that the potential future consumption of fish from Koppers Pond presents an unacceptable human health exposure risk. The sBERA indicated that, under certain conditions, the exposed sediments or soils at Koppers Pond pose an unacceptable risk to ecological receptors.

7.4 Basis for Taking Action

Based upon the results of the RI, the BHHRA and sBERA, EPA has determined that the response action selected in this ROD is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

8.0 REMEDIAL ACTION OBJECTIVES

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

The following RAOs have been established for OU4, Koppers Pond:

- Minimize ecological receptors' exposure to contamination in exposed sediments or soils; and
- Reduce the future health risks and hazards associated with future consumption of fish from Koppers Pond by reducing the concentration of contaminants in fish.

The second RAO addresses the circumstances under which the pond again becomes a viable source of fish. New York State's 6 NYCRR Part 375-6.6 ecological soil cleanup objective (SCO) for cadmium of 4 ppm has been selected as the cleanup level. Although the Proposed Plan also identified preliminary remediation goals for chromium and copper, because cadmium is generally widespread and co-located with other metals, including chromium and copper, it is expected that addressing cadmium in the exposed sediments and soils would also address other metals. Furthermore, the fish consumption exposure route defined in the HHRA would expect that PCB concentrations in fish tissue would need to be below 0.07 ppm to address human health risks associated with fish consumption. Addressing sediments concentrations that exceed the remediation goal would also adequately address the general widespread low levels of metals and PCB contamination present in the exposed sediments and soils, thereby addressing the fish consumption RAO.

Because the fluctuating water levels in the pond result in varying amounts of sediments being exposed, flexibility needs to be incorporated into remedial efforts intended to achieve the RAOs. The alternatives developed below are designed to provide the flexibility to address sediments that may be either exposed or inundated, depending upon variations of climate, season, or local (e.g., human-derived uses) conditions.

9.0 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, 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).

Detailed descriptions of the remedial alternatives for addressing the contamination associated with Koppers Pond can be found in the July 2016 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 required to design the remedy, negotiate the performance of the remedy with any potentially responsible parties, or procure contracts for design and construction.

9.1 Remediation Areas

As mentioned previously, water elevations in the pond have decreased considerably since the OU4 RI commenced, to the point where no open water was observed in the summer of 2016. This variation in water level is predominately due to climatic and hydrologic conditions, including prolonged dry periods, the cessation of permitted discharges from the Facility to the industrial drainageway, and the suspension of the discharge of the treated water to the industrial drainageway from the OU2 groundwater treatment plant. Variability in water elevations in the pond is expected over time. The FS identified three water level conditions as a means of identifying areas of the pond based upon a range of hydrologic conditions (Figure 2):

- High Water Level (HWL) – Pond water elevation of approximately 887 to 888 feet ft-amsl, with water depths of 2.5 to 6 feet over a pond surface (open-water) area of about 10 to 12 acres;

- Average Water Level (AWL) – Pond water elevation of approximately 886 ft-amsl, with water depths of 1.5 to 4 feet over a pond surface (open-water) area of about 8 to 10 acres; and

- Low Water Level (LWL) – Pond water elevation of approximately 883 to 884 ft-amsl, with water depths of 0.5 to 2 feet over a pond surface (open-water) area of about 2.5 to 3 acres.

When developing remedial alternatives for OU4, EPA considered the potential for variability in water level elevations. Because of uncertainty in future pond water levels, the alternatives have been developed with the flexibility to address the range of observed hydrologic conditions. For remedial planning and cost estimated purposes, EPA considers Koppers Pond to be comprised of two areas. The area containing sediments and exposed soils is approximately nine acres with a corresponding elevation of approximately 886 ft-amsl (AWL) or less and consists of a combination of sediments and exposed soils depending on the water elevation. The mudflats area is the second area, which comprises approximately three acres with a corresponding elevation of approximately 886 ft-amsl to 888 ft-amsl.

Each of the alternatives for evaluation address the entire AWL area for both sediments and exposed soils. Under the July 2016 conditions at Koppers Pond, no fishery is present. The return of a fishery could be possible if higher water levels are sustained for a sufficient period to allow for fish populations to rebound or possibly recolonize the pond. While the specific depth of water required to support such a condition has not been established, the FS assumed that water levels would need to meet or exceed the AWL condition to sustain fish populations. Under such a scenario, fish consumption from Koppers Pond could be possible in the future. Given the expected variability in the water elevations over time, if natural hydraulic inputs into the pond are suitable, the remedial design would take into consideration reasonable measures in the pond (e.g., raising the elevation of the dams at the outlets), if appropriate.

10.0 DESCRIPTION OF REMEDIAL ALTERNATIVES

Alternative 1: No Action

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

The NCP requires that a "No Action" alternative be developed as a baseline for comparing other remedial alternatives. Under this alternative, there would be no physical remedial measures to address the contamination at Koppers Pond. This alternative does not include any monitoring or institutional controls.

Alternative 2: Monitored Natural Recovery, Access Restrictions, and Institutional Controls

Capital Cost:	$270,000
Total O&M Costs:	$640,000
Present-Worth Cost:	$910,000
Construction Time:	3 months

Monitored natural recovery (MNR) would rely on naturally occurring processes to reduce the toxicity, mobility, and volume of contaminants at Koppers Pond. The dominant natural recovery process at Koppers Pond is burial by cleaner material. Long-term monitoring of sediment and fish, including sediment toxicity testing, pore water testing, and acid volatile sulfide/simultaneously extracted metals testing of sediments to monitor contaminant bioavailability would be included in this alternative to confirm that contaminant reduction is occurring and that the reduction is achieving the remedial action objectives. A fishery management program to provide chemical monitoring and other assessments of a fish population, including the potential for periodic harvesting and restocking of fish, would be evaluated.

Engineering controls, such as chain-link security fencing would be installed around the perimeter of Koppers Pond to supplement the existing fencing. Institutional controls, such as deed notices and environmental restrictive covenants to restrict activities in Koppers Pond that could cause or contribute to the spread of contaminants, could be implemented as long-term control measures as part of this Alternative.

Alternative 3: Capping, Access Restrictions, and Institutional Controls

Capital Cost:	$1,659,000
Total O&M Costs:	$ 262,000
Present-Worth Cost:	$1,921,000
Construction Time:	6 months to a 1 year

This alternative would include the placement of a geotextile membrane and six-inch thick soil and sand cap over the AWL area to provide a uniform and continuous bottom surface, which is estimated will cover approximately nine acres of sediments and exposed soils. This alternative includes soil and sediment consolidation/grading within the historic footprint of Koppers Pond to accommodate the placement of capping material. As part of the remedial design, pre-design investigations would be undertaken to evaluate the need for modifications of the pond's outlet structures to help maintain the design pond's surface water elevation. During the remedial design, the necessary capacity for flood management would be evaluated, and the necessary mitigation measures would be developed, as determined to be appropriate. A restoration plan may be required to address impacts to wetlands. Chain-link security fencing would be installed around the perimeter of Koppers Pond to supplement the existing fencing. After construction of the cap is completed, the remedy would be monitored. To the extent necessary, long-term monitoring of sediment and fish would be conducted to confirm that contaminant reduction is occurring and that the reduction achieves the remedial action objectives. If determined to be necessary during the remedial during, development of a fishery management program.

Along with the engineered control, namely the fencing around the perimeter of the pond, institutional controls would be implemented, such as restrictions on activities on the property that could cause or contribute to the spread of contaminants. Also, pursuant to Section 121(c) of CERCLA, a review of Site conditions would be conducted no less often than once every five years until cleanup levels are achieved.

Alternative 4: Excavation, On-Site Containment, and Institutional Controls

Alternative 4A: Excavation of the Western Portion and Consolidation to the Eastern Portion

Capital Cost:	$ 3,203,000
Total O&M Costs:	$ 195,000
Present-Worth Cost:	$ 3,398,000
Construction Time:	6 months to 1 year

Alternative 4B: Excavation of the Eastern Portion and Consolidation to the Western Portion

Capital Cost:	$ 2,929,000
Total O&M Costs:	$ 195,000
Present-Worth Cost:	$ 3,124,000
Construction Time:	6 months to 1 year

This alternative would involve the removal through excavation of the sediments in either the western or eastern portion of the pond and the placement of the excavated material in the non-excavated portion of the pond, thereby replacing any existing aquatic habitat with a combination of wetland and upland habitat. Under the conceptual design, the elevation of the two outlet channels would be lowered to the extent necessary to allow any pond water to drain. Temporary earthen dams would be constructed at the upper western end of the pond (i.e. at the mouth of the industrial drainageway) and across the pond to separate the eastern and western portion. A temporary bypass and piping system would be constructed and operated to the extent necessary to divert any flow from the industrial drainageway around the pond, discharging downstream of the western outlet channel. Sediments from the excavated portion of the pond would be dried as necessary and relocated into the non-excavated portion. A drainage ditch would be constructed connecting the industrial drainageway to the western outlet channel and eliminating the eastern outlet channel. Two feet of clean soil cover would be installed over the consolidated sediments and that portion of the pond would be restored as upland habitat. The excavated portion of the pond would be restored as a low-lying wetland area. During the remedial design, the capacity need for flood management would be evaluated and the necessary mitigation measures would be developed, as determined appropriate. A restoration plan may be required to address impacts to wetlands. A fishery management program to provide chemical monitoring and other assessments of the fish population, including the potential for periodic harvesting and restocking of fish, would be evaluated.

Institutional controls would be implemented, in the form of deed restrictions as part of this alternative to ensure the long-term integrity of the waste containment area.

Alternative 5: Excavation and Off-Site Disposal

Capital Cost:	$ 4,824,000
Present-Worth Cost:	$ 4,824,000
Construction Time:	6 months to 1 year

This alternative involves the complete removal through excavation of all contaminated, exposed soils and sediments, estimated to be 28,600 cubic yards, from Koppers Pond. Temporary dams in the upper western end of the pond and across the entrances of the two outlet channels would be constructed as necessary and, similarly, bypass piping and a pumping system would be installed as necessary to divert any flow from the industrial drainageway around the pond, discharging downstream of the temporary dams of the outlet channels. Handling of the excavated material would include the management of the excavated sediments and exposed soils at the Site, including allowing the sediments to dry and treating them using stabilization agents, as necessary, and transporting them to an approved, off-Site facility for disposal. Restoration activities would include revegetation in the impacted areas. After construction is completed, no institutional or engineering controls would be required for this alternative.

11.0 COMPARATIVE ANALYSIS OF ALTERNATIVES

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

The following "threshold" criteria are the most important and must be satisfied by any alternative in order to be eligible for selection:

1. *Overall protection of human health and the environment* addresses whether a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

2. *Compliance with ARARs* addresses whether a remedy would meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes and regulations or provide grounds for invoking a waiver. Other federal or state advisories, criteria, or guidance are TBCs. Compliance with TBCs is not required under the NCP, but the NCP recognizes that they may be very useful in determining what is protective of a site or how to carry out certain actions or requirements.

The following "primary balancing" criteria are used to make comparisons and to identify the major tradeoffs 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. It also addresses the magnitude and effectiveness 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 through treatment* is the anticipated performance of treatment technologies, with respect to these parameters, that a remedy may employ.

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 during the construction and implementation period.

6. *Implementability* is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

7. *Cost* includes estimated capital, O&M, and present worth of those costs.

The following "modifying" criteria are used in the final evaluation of the remedial alternatives after the formal comment period, and 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 report, and Proposed Plan, the State concurs with, opposes, or has no comments on the proposed remedy.

9. *Community acceptance* refers to the public's general response to the alternatives described in the Proposed Plan and underlying RI/FS reports.

A comparative analysis of the alternatives considered in this ROD, based upon the evaluation criteria noted above, follows.

11.1 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 future risk associated with each exposure pathway at a site to acceptable levels. Overall protection of human health and the environment at Koppers Pond would be achieved by reducing PCB concentrations in future fish populations and minimizing exposure to contaminated soils or sediments. Each of the alternatives presented except Alternative 1 (No Action) and Alternative 2 (MNR) would provide adequate protection of human health and the environment through active remediation. Alternative 2 relies on natural processes, such as sedimentation, to cover the surface sediment with cleaner sediment to reduce the concentrations of contaminants at the sediment surface. However, Alternative 2 would not address the exposed soils. Alternative 3 relies on capping to isolate soil and sediment contamination in place, while Alternatives 4A and 4B rely on a combination of excavation and capping to achieve protectiveness. Alternatives 2, 3, 4A, and 4B also rely on monitoring for the protection of human health and the environment. Alternative 5 relies on excavation of all affected soils and sediments to address risks.

11.2 Compliance with applicable or relevant and appropriate requirements (ARARs)

Compliance with ARARs is the other threshold requirement for remedy selection under CERCLA regulations. There are currently no federal or state promulgated standards for contaminant levels in sediments. EPA has identified New York State's 6 NYCRR Part 375 as a "to-be-considered", or an 'other guidance' that EPA considers in determining how to address contaminated sediments. Furthermore, the sediments have been or have the potential to be characterized as contaminated, exposed soils as a result of the fluctuations in water elevations at Koppers Pond. Because the contaminated, exposed soils and sediments would not be actively addressed under Alternatives 1 and 2, cleanup levels would not be achieved under these alternatives. Alternatives 3, 4A, 4B, and 5 would either cap or remove, or a combination thereof, the sediments and exposed soils in the approximately nine-acre area with a corresponding elevation of approximately 886 feet-amsl or less. Alternatives 3, 4A, 4B, and 5, which include the placement of material within Koppers Pond, would need to be implemented in compliance with the Clean Water Act.

11.3 Long-Term Effectiveness and Permanence

Alternative 1 would involve no active remedial measures and, therefore, would not be effective in eliminating the long-term potential exposure to contaminants. Alternative 2 would not address contaminated soils and, as such, would not be effective in the long term. Alternative 3, 4A, and 4B would be effective in the long term by isolating contaminated soils and sediments under a cap. Alternative 4A and 4B eliminate the pond in its current configuration, consolidate impacted sediments/soils into an on-site containment area, and replace any future aquatic habitat with a combination of wetlands and upland habitat. Under Alternatives 4A and 4B, the replacement of any aquatic habitat with wetlands and uplands habitat would be permanent. Alternative 5 would be effective in the long term and would provide permanent remediation by removing contaminated soils and sediments and securely disposing of them in an approved off-Site facility. Alternatives 3, 4A, and 4B would require O&M to ensure the long-term integrity of the cap and fence. Depending on the amount of open water and future conditions in the pond, the fish consumption advisory would provide some measure of protection of human health until PCB concentrations in future fish populations are reduced to the point where the fish consumption advisories can be relaxed or lifted. For Alternatives 3 and 4, institutional controls would be required to restrict activities that could compromise the integrity of the cap.

11.4 Reduction of Toxicity, Mobility, or Volume through Treatment

Alternative 1 would provide no reduction in toxicity, mobility, or volume. Alternatives 2, 3, 4, and 5 would not use any treatment technologies to reduce the toxicity, mobility or volume of contaminants through treatment. Alternative 2 relies on naturally occurring processes (*e.g.*, sedimentation) to reduce the toxicity or mobility of contaminants in sediments. Although mobility is not typically reduced by MNR, the sediments in Koppers Pond are not prone to erosional conditions. In addition, these MNR processes would provide no reduction in toxicity, mobility, or volume for soils. Under Alternative 3, and 4A and 4B, the mobility of contaminants would be eliminated via capping, but the toxicity and volume of the contaminants would not be eliminated under these alternatives. In addition to reducing mobility, Alternative 5 would also reduce the toxicity and volume of contaminants through excavation and off-Site disposal.

11.5 Short-Term Effectiveness

Alternatives 1 (No Action) and 2 (MNR) do not involve any capping, excavation, or dredging activities that could present a risk to workers or the public. Alternatives 3 through 5 would each have similar risks to remediation/construction workers related to the potential for exposure to contaminants, work on or around heavy equipment, work in water/wet environments, and impacts caused from the increased construction-related traffic. It is estimated that under Alternative 2 it would require 3 months to install fencing and under Alternatives 3, 4A and 4B, and 5 it would require 6 months to 1 year to complete the capping and/or excavation. In all cases, it is anticipated that these potential risks could be mitigated through the use of engineering controls, safe work practices, and personal protective equipment.

The presence of open water during implementation of excavation and capping activities could increase concentrations of contaminants in the water column and fish tissue during the dredging period and for a short period of time after dredging. Alternatives 3 through 5 all result in varying levels of impacts to the aquatic habitat in the pond, including complete elimination of the aquatic habitat associated with the pond and replacing this habitat with a combination of wetlands and uplands habitat under Alternative 4. Alternatives 3 and 5 rely on natural processes to restore the impacted aquatic habitat impacts. Under Alternative 4, the replacement of aquatic habitat with wetlands and uplands habitat in the consolidated portion of the pond would be permanent. Alternatives 4A and 4B would result in the loss of open water capacity and adjacent wetlands. The pond and surrounding area provide water storage during flood events that can lessen the impacts of downstream flooding. Eliminating the pond and adjacent wetlands would increase potential downstream flooding.

11.6 Implementability

Alternative 1 would be the easiest alternative to implement, as there are no construction activities to implement. There are no implementability issues for Alternative 2 because it does not involve any active remediation, only monitoring, and land use controls in the form of institutional and engineering controls. Alternatives 3, 4, and 5 would employ technologies known to be reliable and that can be readily implemented. Alternative 3 (Capping) would be easier to implement than Alternatives 4 and 5 because it involves the placement of a six-inch cap rather than the removal of sediments and soils from Koppers Pond. The volume of fill added to the pond by capping is not expected to affect the pond level elevation or increase the potential for downstream flooding significantly because of the resulting consolidation of underlying soft sediments.

Under Alternatives 2, 3, 4, and 5, the implementation of institutional controls would be feasible to implement.

11.7 Cost

The estimated capital costs, O&M, and present worth of those costs are discussed in detail in the July 2016 FS Report. The cost estimates are based on the best available information and are provided in the table below. Alternative 1 had no associated costs as no action would be taken. The present worth costs range from $910,000 for Alternative 2 to $ 4,824,000 for Alternative 5.

Alternative	Capital Cost	Total O&M Cost	Present Worth Cost
1	$0	$0	$0
2	$270,000	$640,000	$910,000
3	$1,659,000	$262,000	$1,921,000
4A	$3,203,000	$195,000	$3,398,000
4B	$2,929,000	$195,000	$3,124,000
5	$4,824,000	$0	$4,824,000

11.8 State Acceptance

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

11.9 Community Acceptance

EPA solicited input from the community on the remedial alternatives proposed for OU4 at the Site. Verbal comments received from community members at the August 4, 2016, public meeting generally related to the type of cap to be used and background studies of plant life or other wildlife in the area, including impacts on birds and any wetland areas. During the comment period from July 23, 2016, through August 22, 2016, one comment letter from CBS Corporation and Beazer East, Inc. were received via email and U.S. mail. A copy of the comment letter is provided as Attachment 4 to Appendix V. A summary of significant comments contained in the letter and the comments provided at the public meeting on August 4, 2016, as well as EPA's responses to those comments, are provided in the Responsiveness Summary (Appendix V).

12.0 PRINCIPAL THREAT WASTE

The NCP establishes an expectation that 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 should exposure 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 that are described above. The manner in which principal threat wastes are addressed provides a basis for making a statutory finding as to whether the remedy must employ treatment as a principal element.

The findings of the investigations of Koppers Pond did not indicate the presence of principal threat wastes. Remedies for other portions of the Site did employ treatment as a principal element. As noted above, VOC-contaminated soils at the Facility were treated with SVE, and VOC-contaminated groundwater was treated through air stripping.

13.0 SELECTED REMEDY

13.1 Summary of the Rationale for the Selected Remedy

Based upon the requirements of CERCLA, the results of the OU4 investigations, the detailed analysis of the alternatives, and public comments, EPA has determined that Alternative 3 best satisfies 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).

Alternative 1 (No Action) was not selected because it is not protective of human health and the environment. Alternative 2 (MNR) was not selected because it does not address the exposed soils, and as such the RAOs would not be achieved under this Alternative. While Alternatives 4A and 4B provide a reduction in the mobility of contaminants, Alternative 5 would provide a reduction in toxicity, mobility, or volume of contaminants; each would achieve the RAOs and provide protection of human health and the environment in a reasonable timeframe. However, the present worth costs for each of these alternatives is significantly greater than the present worth cost of Alternative 3. Alternative 3 will effectively achieve the RAOs and will reduce the PCB in fish and meet the ecological concentrations soil cleanup objectives. Alternative 3 also provides the necessary flexibility to make adjustments to the design of the cover system to address changing water level conditions in Koppers Pond. The cap, providing a uniform and continuous bottom surface, ensures effective remediation over an area comprised of a combination of exposed soils and sediments. Alternative 3 will achieve RAOs and remediation goals in a short period of time while providing flexibility to the design of the cover system, given the future uncertainty of the water conditions in the pond.

13.2 Description of the Selected Remedy

The major components of the selected remedy for OU4 at the Site include the following:

- Placement of a geotextile membrane and six-inch thick soil and sand cap over the pond to provide a uniform and continuous bottom surface, which is estimated will cover approximately nine acres of sediments and exposed soils;
- Consolidation/grading of sediments/exposed soils within the historic footprint of Koppers Pond to accommodate the placement of capping material;
- Modification of the pond outlets structures to help maintain pond surface water elevation if results of pre-design investigations indicate modifications are warranted;
- Implementation of flood management mitigation measures if determined to be necessary during remedial design;
- If determined to be necessary during the remedial during, development of a fishery management program;
- Restoration of wetlands that may be impacted by the implementation of the remedy as determined to be necessary during remedial design;
- Installation of chain-link security fencing around the perimeter of the pond to supplement the existing fencing;
- To the extent necessary, long-term monitoring of sediment and fish, to confirm that a decrease in contaminant concentrations is occurring and that the reduction is achieving the remedial action objectives;
- Development of a Site Management Plan to ensure proper management of the remedy post-construction. The Site Management Plan will include provisions for any maintenance and long-term monitoring required for the remedy, as well as periodic certifications; and
- Implementation of institutional controls such as restrictions on activities in Koppers Pond that could cause or contribute to the spread of contaminants.

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 the EPA Region 2's Clean and Green Energy Policy[2] and NYSDEC's Green Remediation Policy. This would include consideration of green remediation technologies and practices.

13.3 Summary of the Estimated Selected Remedy Costs

The estimated capital, O&M, and present worth of those costs of the selected remedy are discussed in detail in the July 2016 FS Report. The cost estimates, which are based on available information, are order-of-magnitude engineering cost estimates that are expected to be within +50 to -30 percent of the actual cost of the project. Changes to the cost estimate can occur as a result of new information and data collected during the design of the remedies.

A cost estimate summary for the selected remedy is presented in Table 11. The estimated capital, annual O&M, and total present worth costs for the selected remedy are $1,659,000, $262,000 and $1,921,000, respectively.

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[2] See http://www.epa.gov/greenercleanups/epa-region-2-clean-and-green-policy and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf

13.4 Expected Outcomes of the Selected Remedy

The selected remedy will achieve RAOs and remediation goals in a short period while providing flexibility to adapt to fluctuations in the water conditions of Koppers Pond. Given the future uncertainty of water level conditions in Koppers Pond, the selected remedy provides the flexibility to make adjustments to the design of the cover system that will result in a uniform and continuous six-inch thick cap over a combination of exposed soils and sediment that encompass the entire nine-acre AWL area. This cover system will address exposed soils and sediments that exceed the remediation goal and will also result in addressing PCBs to background concentrations. Placing the cap over the area will minimize ecological receptors' exposure to contamination in sediments or soils and reduce the future health risks and hazards associated with the potential for future consumption of fish from Koppers Pond by reducing the concentration of contaminants in fish.

14.0 STATUTORY DETERMINATIONS

EPA has determined that the selected remedy complies with the CERCLA and NCP provisions for remedy selection, meets the threshold criteria, and provides the best balance of tradeoffs among the alternatives with respect to the balancing and modifying criteria. These provisions require the selection of remedies that are protective of human health and the environment, comply with ARARs (or justify a waiver from such requirements), are cost effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies which employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances as a principal element (or justifies not satisfying the preference). The following sections discuss how the OU4 remedy meets those statutory requirements.

14.1 Protection of Human Health and the Environment

The selected remedy will protect the environment because it reduces ecological receptors' exposure to contamination in sediments or soils through the capping and isolating of contaminated soil and sediments. Protection of human health will be achieved by reducing the future health risks and hazards associated with the potential for consumption of fish from Koppers Pond by reducing the concentration of contaminants in future fish populations. Engineering and institutional controls will also assist in the protecting human health over both the short- and long-term by helping to control and limit exposure to hazardous substances.

14.2 Compliance with ARARs

The selected remedy complies with chemical-specific, location-specific and action-specific ARARs. A complete list of the ARARs, TBCs and other guidance that concern the selected remedy is presented in Tables 8, Table 9 and Table 10, which can be found in Appendix II.

14.3 Cost-Effectiveness

A cost-effective remedy is one where costs are proportional to its overall effectiveness (NCP Section 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.

Each of the alternatives underwent a detailed cost analysis. In that analysis, capital, total O&M costs, and present-worth costs were calculated. The present-worth costs were calculated for the estimated life of each alternative. The total estimate present worth cost for implementing the selected remedy is $1,921,000.

Based on the comparison of overall effectiveness to cost, the selected remedy meets the statutory requirement that Superfund remedies be cost effective (NCP Section 300.430(f)(1)(ii)(D)) in that it represents reasonable value for the money to be spent. 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. The overall effectiveness of the selected remedy has been determined to be proportional to the costs, and the selected remedy therefore represents reasonable value for the money to be spent.

14.4 Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) 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.

14.5 Preference for Treatment as a Principal Element

The selected remedy does not meet the statutory preference for remedies that employ treatment as a principal element. The findings of the Site investigations of Koppers Pond did not indicate the presence of principal threat wastes.

14.6 Five-Year Review Requirements

This remedy will result in hazardous substances, pollutants, or contaminants remaining at OU4, Koppers Pond above levels that would otherwise 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 remains protective of human health and environment.

15.0 DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for OU4 of the Site was released on July 23, 2016. The Proposed Plan identified Alternative 3 as the preferred alternative for remediating Koppers Pond.

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

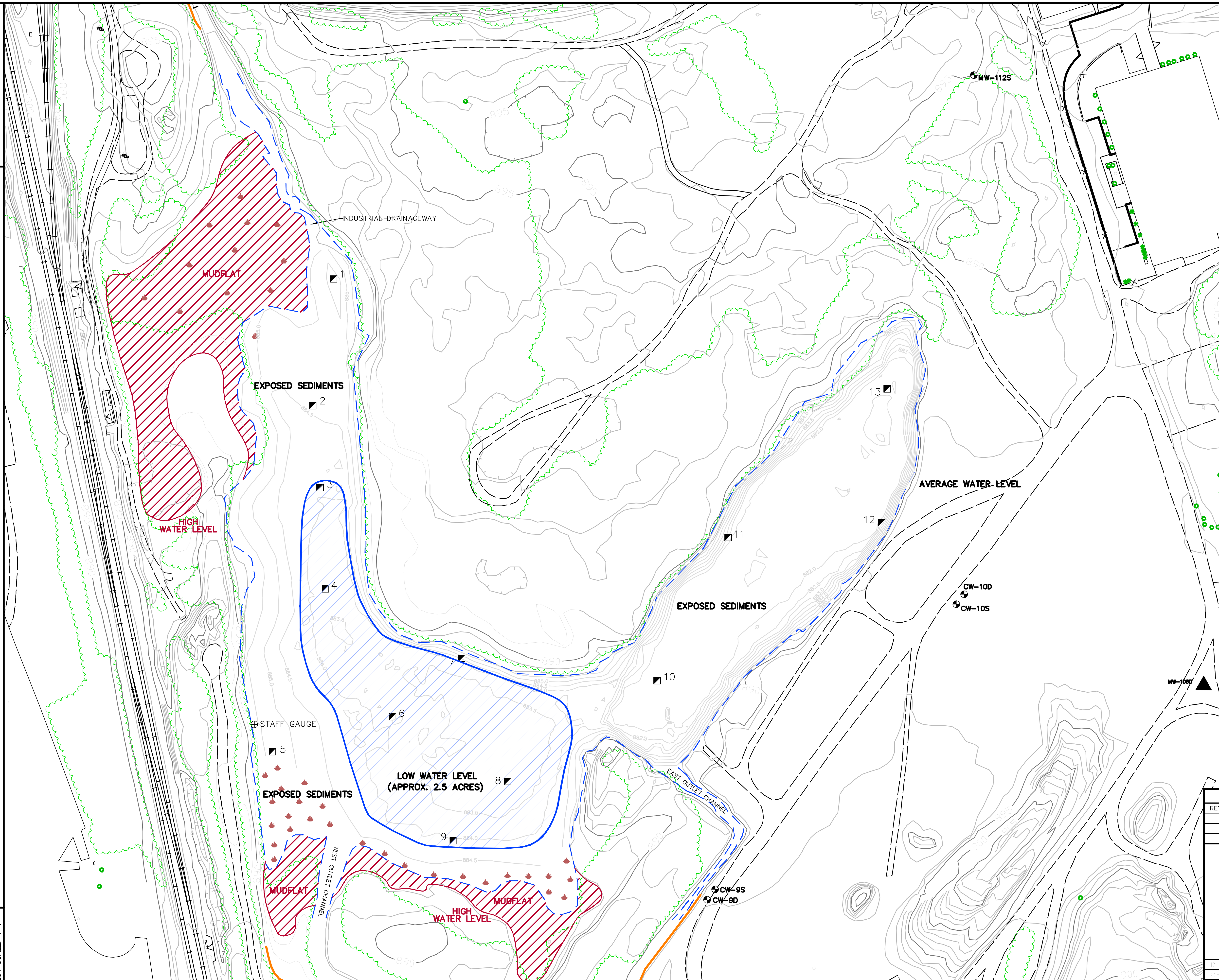
KENTUCKY AVENUE WELLFIELD SUPERFUND SITE
OU4 – KOPPERS POND

RECORD OF DECISION

APPENDIX I

FIGURES

FIGURE 1
SITE LOCATION MAP
KOPPERS POND
KENTUCKY AVENUE WELLFIELD SITE
HORSEHEADS, NEW YORK



LEGEND

MW-112S	MONITORING WELL LOCATION
886	EXISTING ELEVATION CONTOUR
885.0	SEDIMENT ELEVATION CONTOUR
	UTILITY POLE
	TYPICAL LOW WATER CONDITIONS
	TYPICAL AVERAGE WATER CONDITIONS
	TYPICAL HIGH WATER CONDITIONS
12	SEDIMENT SAMPLE LOCATION
	STAFF GAUGE

NOTE

1. CONTOUR ELEVATIONS IN THE POND ARE BASED ON WATER ELEVATION OF 885.75', SURVEYED ON MAY 6, 2008.

REFERENCE:

1. MAPPING COMPLETED BY STEREOPHOTO GRAMMETRIC METHODS BY WEILER ASSOCIATES FROM 1:4800 SCALE AERIAL FLOWN 11-09-91.

SCALE

70 0 70 140 FEET

REVISIONS

REV.	DESCRIPTION	DATE	APPROVED

FIGURE 2
KOPPERS POND: WATER LEVEL CONDITIONS
KOPPERS POND
KENTUCKY AVENUE, WELLFIELD SITE
HORSEHEADS, NEW YORK

SIZE E | SCALE: 1" = 50' | REV. —

DRAWN BY: D.J. Martino DATE: 04-01-16
CHECKED BY: R.R. Maurer DATE: 04-01-16
APPROVED BY: R.R. Maurer DATE: 04-01-16

DRAWING NUMBER 07502E3

PLOT SCALE: 1=1

KENTUCKY AVENUE WELLFIELD SUPERFUND SITE

OU4 – KOPPERS POND

RECORD OF DECISION

APPENDIX II

TABLES

TABLE 1
SUMMARY OF CHEMICALS OF CONCERN AND MEDIUM SPECIFIC EXPOSURE POINT CONCENTRATIONS
Koppers Pond
Kentucky Avenue Wellfield Site
Horseheads, New York

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

		Detected Concentrations				Exposure Point Concentration for RME and CTE Individual			
Exposure Point (1)	Chemicals of Concern	Minimum	Maximum (Concentration) (Qualifier)	Units (1)	Frequency of Detection	Value	Units (1)	Statistic (2)	Rationale
Koppers Pond	Total PCBs	525.2	2060	ug/Kg (wet weight)	17/17	826.5	ug/Kg (wet weight)	95% Approximate Gamma UCL	ProUCL

(1) Units for fish are micrograms/kilogram (ug/kg wet weight).

(2) ProUCL, a statistical software package developed by EPA, was used to calculate UCL Statistics. ProUCL version 5.0 was used to calculated the Exposure Point Concentration. Pro-UCL recommended the H-UCL statistic for the lognormal distribution of these data.

TABLE 2
CONCEPTUAL SITE MODEL - HUMAN HEALTH
RISK ASSESSMENT
Koppers Pond
Kentucky Avenue Wellfield Site
Horseheads, New York

Scenario Timeframe	Media	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Fish	Fish	Koppers Pond	Angler	Adult - (13 years and older)	Ingestion	Qualitative	Under current conditions, the Pond no longer supports a fishery due to no open water space (Koppers Pond RI/FS Group, 2016).
				Angler	Adolescent (7 to 13 years)	Ingestion	Qualitative	
				Angler	Child (6 years and younger)	Ingestion	Qualitative	
Future	Fish	Fish	Koppers Pond	Angler	Adult - (13 years and older)	Ingestion	Quantitative	In the future is it possible that anglers may fish in the Pond and share their catch with relatives including young children and adolescents.
				Angler	Adolescent (7 to 13 years)	Ingestion	Quantitative	
				Angler	Child (6 years and younger)	Ingestion	Quantitative	
Current/Future	Surface Water	Surface Water	Koppers Pond	Teenage Trespasser/Wader	Teen: 12 to 18 years	Dermal Contact	Quantitative	Although the area is posted 'No Trespassing' and access is limited by railroad tracks, there is evidence (e.g., litter and tracks of all-terrain vehicles) of use. It is assumed that teenage trespassers are the most likely individuals that visit the area. Because the pond is not an established recreational destination and access is restricted, young children alone, adults, or adults with young children would not typically visit the area.
			Outlet Channel			Incidental Ingestion		
Current/Future	Surface Water	Surface Water	Koppers Pond	Teenage Trespasser/Wader	Teen: 12 to 18 years	Dermal Contact	Noine	The pond is not operated as a recreational area and has limited access. It is assumed that only wading or other incidental contact with surface water occurs.
			Outlet Channel			Incidental Ingestion		
Current/Future	Sediment	Sediment	Koppers Pond	Teenage Trespasser/Wader	Teen: 12 to 18 years	Dermal Contact Incidental Ingestion	Quantitative	Although the area is posted 'No Trespassing' and access is limited by railroad tracks, there is evidence (e.g., litter and tracks of all-terrain vehicles) of use. It is assumed that teenage trespassers are the most likely individuals that visit the area. Because the pond is not an established recreational destination and access is restricted, young children alone, adults, or adults with young children would not typically visit the area.
			Outlet Channel			Dermal Contact Incidental Ingestion		
Current/Future	Sediment	Vapor	Koppers Pond	Teenage Trespasser/Wader	Teen: 12 to 18 years	Inhalation	None	Based on results of the HHRA of Operable Unit 3 (CDM, 1995), volatile organic compounds, if present, will likely be detected at low frequencies and at concentrations that do not pose a concern. Sediment areas are not expected to dry out; therefore, no suspended particles are anticipated. With these rationales, inhalation of vapor and particulate are considered incomplete pathways.
		Particles						
		Vapor	Outlet Channel			Inhalation		
		Particles						

Table 3
NONCANCER TOXICITY DATA SUMMARY - ORAL- FOR CHEMICALS OF CONCERN
Koppers Pond
Kentucky Avenue Wellfield Site,
Horseheads, New York

		Oral Reference Doses		Dermal (1)		Absorbed RfD for Dermal (1)				RfD Target Organs	
Chemicals of Concern	**Chronic / Subchronic**	**Value**	**Units (3)**	**Value**	**Reference**	**Value**	**Units (1)**	**Primary Target Organ**	**Combined Uncertainty/Modifying Factor**	**Sources (2)**	**Date**
Total PCBs	Chronic	2E-05	mg/kg-day	NA		NA		Ocular, immune system	300	IRIS	10/2008

(1) Dermal is not evaluated for this pathway.
(2) Abbreviations: IRIS - Integrated Risk Information System; NA - not appropriate; mg/kg-day - milligrams/kilogram bodyweight/day).

TABLE 4
NONCANCER TOXICITY DATA SUMMARY- INHALATION - FOR CHEMICALS OF CONCERN
Koppers Pond
Kentucky Avenue Wellfield Site
Horseheads, New York

		Reference Concentration (1)		
Chemicals of Concern	**Chronic / Subchronic**	**Value**	**Units**	**Primary Target Organ**
Total PCBs	Chronic	NA	NA	NA

(1) Inhalation route not appropriate to include in the assessment of fish consumption

(2) Abbreviations: NA - not appropriate

Table 5
CANCER TOXICITY DATA SUMMARY - ORAL - FOR CHEMICALS OF CONCERN
Koppers Pond
Kentucky Avenue Wellfield Site,
Horseheads, New York

Chemicals of Concerns	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal	Absorbed Cancer Slope Factor for Dermal		Weight of Evidence/ Cancer Guideline Description (1)	Oral Cancer Slope Factor	
	Value	Units (2)		Value	Units		Source(s) (2)	Date(s)
Total PCBs (high risk)	2E+00	$(mg/kg\text{-}day)^{-1}$	NA	NA	NA	**Probable Human Carcinogen (B2)**	IRIS	2008
Total PCBs (low risk)	1E+00	$(mg/kg\text{-}day)^{-1}$	NA	NA	NA	**Probable Human Carcinogen (B2)**	IRIS	2008

(1) Weight of Evidence Based on 1986 Cancer Guidelines provided in the 1996 Reassessment of PCB Cancer Toxicity.
(2) Abbreviations: NA = not available; mg/kg-day = milligrams/kilogram bodyweight/day; IRIS - Integrated Risk Information System;

TABLE 6
CANCER TOXICITY DATA SUMMARY - INHALATION - FOR CHEMICALS OF CONCERN
Koppers Pond
Kentucky Avenue Wellfield Site,
Horseheads, New York

Chemicals of Concern	Inhalation Unit Risk Factor (1)		Weight of Evidence/ Cancer Guideline Description (2)	Oral Cancer Slope Factor	
	Value	Units (2,3)		Source(s) (3)	Date
Total PCBs (high risk)	5.7E-04	$\mu g/m^3$	**Probable Human Carcinogen (B2)**	IRIS	2008

(1) Inhalation route not appropriate to include in the assessment of fish consumption. Inhalation toxicity information provided for completeness.

(2) Cancer Weight of Evidence Classifications are based on EPA's Cancer Guidelines 1986.

(3) Abbreviations: NA = not available; ug^3 = micrograms/cubic meter; IRIS - Integrated Risk Information System;

Table 7
RISK CHARACTERIZATION SUMMARY
CANCER RISKS AND NONCANCER HAZARDS
Koppers Pond
Kentucky Avenue Wellfield Site,
Horseheads, New York

Scenario Timeframe: Current / Future
Receptor Population: Angler
Receptor Age: Young Child (1 to 6 Years)

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish	Fish	Fish	Total PCBs	6.8E-05				6.8E-05	Immune	20			20
			Total	6.8E-05				6.8E-05		20			20
											Total HI - Immune System		20

Scenario Timeframe: Current / Future
Receptor Population: Angler
Receptor Age: Adolescent (7 to 13 Years)

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish	Fish	Fish	Total PCBs	6.6E-05				6.6E-05	Immune	19			19
			Total	6.6E-05				6.6E-05		19			19
											Total HI - Immune System		19

Scenario Timeframe: Current / Future
Receptor Population: Angler
Receptor Age: Adult (> 13 years)

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish	Fish	Fish	Total PCBs	1.5E-04				1.5E-04	Immune	15			15
			Total	1.5E-04				1.5E-04		15			15
											Total HI - Immune System		15

Table 8
Chemical-Specific ARARs, TBCs, and other Guidelines

Medium	Authority	Regulation	Requirement Synopsis
Surface Water	Clean Water Act (Federal Water Pollution Control Act, as amended), 33 USC 1251	40 CFR 129	Provides authority for USEPA to establish AWQC used by states to set standards.
	New York ECL Article 15, Title 3 and Article 17, Titles 3 and 8	6 NYCRR 703	Establishes New York State water quality standards for surface water and groundwater.
Soils	New York ECL Article 27, Titles 13 and 14, et al.	6 NYCRR 375	Established New York State soil cleanup objectives for protection of human health, groundwater, and ecological resources.

Table 9
Location-Specific ARARs, TBCs, and Other Guidance

Topic	Authority	Regulation	Requirement Synopsis
Floodplains and Wetlands	Clean Water Act Section 404	33 CFR 320	A permit is required to discharge dredged or other fill materials into waters of the United States, including jurisdictional wetlands, navigable streams (including the floodway), and certain lakes.
		33 CFR 230	Requires that impacts to aquatic ecosystems (including wetlands) be minimized.
	Executive Order 11988: Floodplain Management	40 CFR 6.302(b)	Any adverse impacts associated with direct or indirect development of a floodplain should be avoided to the maximum extent possible.
	Executive Order 11990: Protection of Wetlands	40 CFR 6 Appendix A	Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.
	New York ECL Article 24, Title 7 Freshwater Wetlands Act	6 NYCRR 663; 6 NYCRR 665	Identifies New York State regulated wetlands and regulated activities.
Sensitive Ecosystems and Habitats	Fish and Wildlife Coordination Act, 16 USC 661	40 CFR 6.302	Must consult with USFWS if actions impact fish and wildlife resources.
Sensitive Ecosystems and Habitats (cont'd)	Migratory Bird Treaty Act, 16 USC 703	50 CFR 21	Prohibits actions taken or funded by Federal agencies that result in the killing, hunting, taking, or capturing or any migratory birds.
	New York ECL Article 11, Title 5	6 NYCRR 182	Complements Federal RTE regulations and provides for New York State list of species of special concern.

Table 10
Action-Specific ARARs, TBCs, and Other Guidance

Topic	Authority	Regulation	Requirement Synopsis
Solid Waste Management	Resource Conservation and Recovery Act	40 CFR 258	RCRA Criteria for Municipal Solid Waste Landfills - Establishes minimum national criteria for management of non-hazardous waste. Applicable to remedial alternatives that generate non-hazardous
	New York ECL Article 27	6 NYCRR 360	New York State standards for solid waste management facilities. Applicable to remedial alternatives that generate non-hazardous
Hazardous Waste Management	Resource Conservation and Recovery Act	40 CFR 260	RCRA Hazardous Waste Management System - General. Defines terms and general standards. Applicable to remedial alternatives that generate hazardous waste.
		40 CFR 261	RCRA - Identification and Listing of Hazardous Waste. Identifies solid wastes subject to regulation as hazardous wastes.
		40 CFR 262	RCRA - Standards Applicable to Generators of Hazardous Waste. Establishes requirements for on-site management of any hazardous wastes generated in remedial action.
Hazardous Waste Management	New York ECL Article 27	6 NYCRR 370 6 NYCRR 371	New York State requirements for hazardous waste management. Applicable to remedial alternatives that generate hazardous wastes.
		6 NYCRR 372	New York State requirements for hazardous waste manifest system and related standards.
PCBs	Toxic Substances Control Act	40 CFR 761	Established requirements for management of PCB wastes.
Clean Water Regulations	New York State ECL Article 15, Title 5 Article 17, Title 3	6 NYCRR 608	Use and Protection of Waters. Prohibits excavation or fill placement in navigable waters of the State or adjacent wetlands without a permit.

Table 10
Action-Specific ARARs, TBCs, and Other Guidance

Topic	Authority	Regulation	Requirement Synopsis
Clean Water Regulations (cont'd)	New York ECL Article 17, Title 8 Water Resources Law	6 NYCRR 750-758	Provides New York State standards for storm water runoff, surface water, and groundwater discharges. Generally, prohibit discharge of any pollutant to the waters of New York without a SPDES permit.
	New York ECL Article 17, Title	6 NYCRR 701	Prohibit discharges that cause or contribute to a condition in contravention of applicable standards.
	New York ECL Article 11, Title 5 Fish and Wildlife Law	6 NYCRR 701	Prohibits discharge of substances in quantities injurious to fish life, protected wildlife, or waterfowl inhabiting those waters or injurious to the propagation of fish, protected wildlife, or waterfowl.
Health and Safety	Occupational Safety and Health Act	29 CFR 191	Specify requirements for health and safety protection for workers potentially exposed to contaminants in hazardous waste site remediation. Also includes employee "Right-to-Know" regulations.
		29 CFR 1926	Specify the type of safety equipment and procedures to be followed during construction activities, including earthwork construction.
Hazardous Materials Transportation	Hazardous Materials Transportation Act	49 CFR 171-179	These regulations establish definitions and provisions for transporting hazardous materials; marking, labeling and placarding requirements; as well as general requirements for shipments and packaging.
Clean Water Regulations	Clean Water Act (Federal Water Pollution Control Act, as amended), 33 USC 1251	40 CFR 122	Establishes NPDES program. Discharges to navigable waters are regulated by permit, with effluent limitations and monitoring requirements applied to specific constituents. Permitting is required for point-source discharges and for storm water discharges associated with industrial activity, including waste disposal areas.

Table 11

Cost Estimate Summary for the Selected Remedy

Alternative 3: Capping, Access Restrictions, and Institutional Controls

Activity Description	**Units**	**Quantity**	**Unit Cost ($)**	**Total Cost ($)**
Remedial Construction				
Mobilization and Demobilization	LS	1	30,000	30,000
Site Preparation				
Site Utilities and Facilities	LS	1	15,000	15,000
Surface Water and Erosion Controls	LS	1	50,000	50,000
Stabilized Entrance and Site Access Road	LS	1	8,000	8,000
Facility Fencing	LF	4,300	28	120,400
Subaqueous Capping (assumed 3 acres)				
Geotextile	SY	14,520	12	174,240
Sand Cover	Ton	3,600	50	180,000
Soil Cover (assumed 6 acres)				
Grading	SY	29,040	2	58,080
Geotextile	SY	29,040	3	87,120
Soil Cover/Fill	CY	4,840	30	145,200
Topsoil	CY	4,840	38	183,920
Site Restoration	LS	1	40,000	40,000
Subtotal - Remedial Construction				1,091,960
Other Remedial Action Costs				
Construction Oversight	Task	1	109,200	109,200
Institutional Controls	LS	1	75,000	75,000
Subtotal - Other Remedial Action Costs				184,200
Contingency (30 percent)				383,000
Total Remedial Action Capital Costs (Rounded)				**$ 1,659,000**
Post-Remedial Monitoring, Inspection, and Maintenance				NPV Factor
Pond/Cover Monitoring	Year	30	7,500	15.37
Site Inspection and Maintenance	Year	30	5,000	15.37
Five-Year Reviews	Event	6	25,000	2.78
NPV at 5% Discount Rate* (Rounded)				**$ 262,000**
Total Life-Cycle Cost				**$ 1,921,000**

* The 30-year discount rate of 5%, versus the rate of 7% called for pursuant to EPA policy, was applied in developing present worth costs in the FS in reflection of the real interest rates referenced in the OMB Circular No. A-94, revised in December 2014.

KENTUCKY AVENUE WELLFIELD SUPERFUND SITE
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RECORD OF DECISION

APPENDIX III

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OUID: 04
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Action: OU4 - KOPPERS POND

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
682564	7/22/2016	ADMINISTRATIVE RECORD INDEX FOR OU4 - KOPPERS POND FOR THE KENTUCKY AVENUE WELL FIELD SITE	5	ARI / Administrative Record Index		R02: (US ENVIRONMENTAL PROTECTION AGENCY)
128788	11/15/2004	TRANSMITTAL OF REMEDIAL ACTION REPORT FOR INDUSTRIAL DRAINAGEWAY KENTUCKY AVENUE WELLFIELD SITE	2	LTR / Letter	R02: Rodrigues, Isabel (US ENVIRONMENTAL PROTECTION AGENCY)	R02: Brausch, Leo, M (VIACOM INCORPORATED)
128789	11/16/2004	REMEDIAL ACTION REPORT, VOLUME I OF II, INDUSTRIAL DRAINAGEWAY KENTUCKY AVENUE WELLFIELD SITE	1100	RPT / Report	R02: (VIACOM INCORPORATED)	R02: (CUMMINGS RITER CONSULTANTS INCORPORATED)
128790	11/16/2004	REMEDIAL ACTION REPORT, VOLUME II OF II, INDUSTRIAL DRAINAGEWAY KENTUCKY AVENUE WELLFIELD SITE	1132	RPT / Report	R02: (VIACOM INCORPORATED)	R02: (CUMMINGS RITER CONSULTANTS INCORPORATED)
128787	9/1/2005	FINAL REMEDIAL ACTION ADDENDUM FOR INDUSTRIAL DRAINAGEWAY KENTUCKY AVENUE WELLFIELD SITE	5	RPT / Report	R02: (US ENVIRONMENTAL PROTECTION AGENCY)	
425000	12/6/2007	REVISED REMEDIAL INVESTIGATION / FEASIBILITY STUDY WORK PLAN FOR OU4 KOPPERS POND FOR THE KENTUCKY AVENUE WELL FIELD SITE	1334	WP / Work Plan	R02: (KOPPERS POND RI/FS GROUP)	R02: (CUMMINGS RITER CONSULTANTS INCORPORATED)
425001	4/16/2008	KOPPERS POND RI/FS GROUP'S RESPONSE TO US EPA AND NYSDEC COMMENTS REGARDING THE REVISED REMEDIAL INVESTIGATION / FEASIBILITY STUDY WORK PLAN FOR OU4 KOPPERS POND FOR THE KENTUCKY AVENUE WELL FIELD SITE	19	LTR / Letter	R02: Rodrigues, Isabel (US ENVIRONMENTAL PROTECTION AGENCY)	R02: Brausch, Leo, M (BRAUSCH ENVIRONMENTAL LLC)
425002	5/1/2008	KOPPERS POND RI/FS GROUP'S RESPONSE TO US EPA AND NYSDEC ADDITIONAL COMMENTS REGARDING THE REVISED REMEDIAL INVESTIGATION / FEASIBILITY STUDY WORK PLAN FOR OU4 KOPPERS POND FOR THE KENTUCKY AVENUE WELL FIELD SITE	2	LTR / Letter	R02: Rodrigues, Isabel (US ENVIRONMENTAL PROTECTION AGENCY)	R02: Brausch, Leo, M (BRAUSCH ENVIRONMENTAL LLC)

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425483	2/26/2009	KOPPERS POND RI/FS GROUP'S RESPONSES TO THE JANUARY 2009 COMMENTS ON THE SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT FOR OU4 FOR THE KENTUCKY AVENUE WELL FIELD SITE	19	RPT / Report		R02: (US ENVIRONMENTAL PROTECTION AGENCY), R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)
425480	3/18/2009	KOPPERS POND RI/FS GROUP'S RESPONSES TO THE US EPA JANUARY 2009 COMMENTS ON THE PATHWAYS ANALYSIS REPORT FOR OU4 FOR THE KENTUCKY AVENUE WELL FIELD SITE	8	RPT / Report		R02: (US ENVIRONMENTAL PROTECTION AGENCY), R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)
425484	5/29/2009	REVISED SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	102	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (AMEC EARTH & ENVIRONMENTAL INCORPORATED)
425481	6/1/2009	PATHWAYS ANALYSIS REPORT FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	43	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (AMEC EARTH & ENVIRONMENTAL INCORPORATED)
425482	6/1/2009	TRANSMITTAL OF THE REVISED SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	2	LTR / Letter	R02: Rodrigues, Isabel (US ENVIRONMENTAL PROTECTION AGENCY)	R02: Brausch, Leo, M (BRAUSCH ENVIRONMENTAL LLC)
425479	6/8/2009	MEMORANDUM ON EXPOSURE SCENARIOS AND ASSUMPTIONS FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	31	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (AMEC EARTH & ENVIRONMENTAL INCORPORATED)
351651	8/6/2009	DRAFT TECHNICAL MEMORANDUM NO. 1: RESULTS FROM THE 2009 FIELD SAMPLING PROGRAM TO SUPPORT THE ECOLOGICAL RISK ASSESSMENT FOR THE FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	25	RPT / Report		

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DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
425491	3/13/2010	RESPONSE TO AGENCY COMMENTS TO THE DRAFT ERAGS STEPS 3 THROUGH 5 SUPPORT THE ECOLOGICAL RISK ASSESSMENT FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	18	LTR / Letter		R02: (US ENVIRONMENTAL PROTECTION AGENCY), R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)
425486	3/16/2010	RESPONSE TO AGENCY COMMENTS TO THE TECHNICAL MEMORANDUM NO. 2: RESULTS FROM THE 2009 FIELD SAMPLING PROGRAM TO SUPPORT THE ECOLOGICAL RISK ASSESSMENT FOR THE FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	9	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (US ENVIRONMENTAL PROTECTION AGENCY), R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)
425493	3/29/2010	CORRESPONDENCE REGARDING WESTINGHOUSE ELECTRIC CORPORATION SITE NO. 8-08-007 REVIEW OF ECOLOGICAL RISK ASSESSMENT STEPS 3 THROUGH 5 FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	6	MEMO / Memorandum	R02: Dunham, Matthew (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)	R02: , Crance, Mary Jo (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)
425492	5/12/2010	CORRESPONDENCE REGARDING BIOLOGICAL TECHNICAL ASSISTANCE GROUP REVIEW FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	2	MEMO / Memorandum	R02: Rodrigues, Isabel (US ENVIRONMENTAL PROTECTION AGENCY)	R02: Pitruzzello, Vincent (US ENVIRONMENTAL PROTECTION AGENCY)
425487	6/10/2010	TECHNICAL MEMORANDUM NO. 2: RESULTS FROM THE 2009 FIELD SAMPLING PROGRAM TO SUPPORT THE ECOLOGICAL RISK ASSESSMENT FOR THE FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	58	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (INTEGRAL CONSULTING INCORPORATED)
425485	6/11/2010	TRANSMITTAL OF THE TECHNICAL MEMORANDUM NO. 2 FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	2	LTR / Letter	R02: Rodrigues, Isabel (US ENVIRONMENTAL PROTECTION AGENCY)	R02: Brausch, Leo, M (BRAUSCH ENVIRONMENTAL LLC)
425488	8/10/2010	TRANSMITTAL OF ECOLOGICAL RISK ASSESSMENT STEPS 3 THROUGH 5 FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	2	LTR / Letter	R02: Rodrigues, Isabel (US ENVIRONMENTAL PROTECTION AGENCY)	R02: Brausch, Leo, M (BRAUSCH ENVIRONMENTAL LLC)

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DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
425489	8/10/2010	CLARIFICATIONS AND CORRECTIONS IN RESPONSE TO SUPPLEMENTAL COMMENTS FROM US EPA BTAG TO AUGUST 2010 VERISON FOR OU4 ERAGS STEPS 3 THROUGH 5 REPORT FOR THE KENTUCKY AVENUE WELLFIELD SITE	9	LTR / Letter		R02: (US ENVIRONMENTAL PROTECTION AGENCY), R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)
425490	8/10/2010	ECOLOGICAL RISK ASSESSMENT STEPS 3 THROUGH 5 FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	107	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (INTEGREYTED CONSULTANTS, LLC)
393226	3/23/2011	BASELINE HUMAN HEALTH RISK ASSESSMENT FOR OU4 KOPPERS POND FOR THE KENTUCKY AVENUE WELL FIELD SITE	199	RPT / Report	R02: (US ENVIRONMENTAL PROTECTION AGENCY)	R02: (INTEGRAL CONSULTING INCORPORATED)
425476	3/21/2012	SUPPLEMENTAL BASELINE ECOLOGICAL RISK ASSESSMENT, ERAGS STEPS 6 THROUGH 8, KOPPERS POND FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	7205	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (INTEGREYTED CONSULTANTS, LLC)
425475	3/26/2012	TRANSMITTAL OF THE SUPPLEMENTAL BASELINE ECOLOGICAL RISK ASSESSMENT, ERAGS STEPS 6 THROUGH 8, KOPPERS POND FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	2	LTR / Letter	R02: Rodrigues, Isabel (US ENVIRONMENTAL PROTECTION AGENCY)	R02: Brausch, Leo, M (BRAUSCH ENVIRONMENTAL LLC)
659502	6/5/2012	BASELINE HUMAN HEALTH RISK ASSESSMENT FOR OU4 KOPPERS POND FOR THE KENTUCKY AVENUE WELL FIELD SITE	216	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (INTEGRAL CONSULTING INCORPORATED)
425477	7/5/2012	TRANSMITTAL OF THE REMEDIAL INVESTIGATION REPORT FOR OU4 FOR THE KENTUCKY AVENUE WELL FIELD SITE	2	LTR / Letter	R02: Rodrigues, Isabel (US ENVIRONMENTAL PROTECTION AGENCY)	R02: Brausch, Leo, M (BRAUSCH ENVIRONMENTAL LLC)
425478	7/6/2012	REMEDIAL INVESTIGATION REPORT FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	395	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (CUMMINGS RITER CONSULTANTS INCORPORATED)
351675	7/6/2012	REMEDIAL INVESTIGATION REPORT APPENDIX A PART I FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	20	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (CUMMINGS RITER CONSULTANTS INCORPORATED)

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351676	7/6/2012	REMEDIAL INVESTIGATION REPORT APPENDIX A PART 2 FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	1	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (CUMMINGS RITER CONSULTANTS INCORPORATED)
351677	7/6/2012	REMEDIAL INVESTIGATION REPORT APPENDIX A PART 3 FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	1	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (CUMMINGS RITER CONSULTANTS INCORPORATED)
351678	7/6/2012	REMEDIAL INVESTIGATION REPORT APPENDIX A PART 4 FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	1	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (CUMMINGS RITER CONSULTANTS INCORPORATED)
351679	7/6/2012	REMEDIAL INVESTIGATION REPORT APPENDIX A PART 5 FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	1	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (CUMMINGS RITER CONSULTANTS INCORPORATED)
351680	7/6/2012	REMEDIAL INVESTIGATION REPORT APPENDIX A PART 6 FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	1	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (CUMMINGS RITER CONSULTANTS INCORPORATED)
351681	7/6/2012	REMEDIAL INVESTIGATION REPORT APPENDIX B - J FOR OU4 FOR THE KENTUCKY AVENUE WELLFIELD SITE	4495	RPT / Report	R02: (KOPPERS POND RI/FS GROUP)	R02: (CUMMINGS RITER CONSULTANTS INCORPORATED)
396003	7/18/2016	FINAL FEASIBILITY STUDY REPORT FOR OU4 KOPPERS POND FOR THE KENTUCKY AVENUE WELL FIELD SITE	151	RPT / Report		R02: (WOODARD & CURRAN INCORPORATED)
395965	7/21/2016	PROPOSED PLAN FOR OU4 KOPPERS POND FOR THE KENTUCKY AVENUE WELL FIELD SITE	17	WP / Work Plan		R02: (US ENVIRONMENTAL PROTECTION AGENCY)

KENTUCKY AVENUE WELLFIELD SUPERFUND SITE
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APPENDIX IV

NEW YORK 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) 402-9020
www.dec.ny.gov

SEP 30 2016

Mr. Walter E. Mugdan, Director
Emergency and Remedial Response Division
United States Environmental Protection
Agency, Region 2
290 Broadway, Floor 19
New York, New York 10007-1866

RE: Westinghouse Electric Corporation
Kentucky Avenue Wellfield/Koppers Pond
Site No. 808007
Record of Decision – OU4
New York State Concurrence

Dear Mr. Mugdan:

The New York State Department of Environmental Conservation (DEC) and the New York State Department of Health (DOH) have reviewed the Record of Decision (ROD) (dated September 2016) for the subject site. We understand the remedy for this site addresses contaminated soil and sediment, designated as United States Environmental Protection Agency (EPA) Operable Unit 4 (DEC Operable Unit 04). The remedy includes:

- capping of Koppers Pond with a geotextile and six-inch thick soil and sand cap to provide a uniform and continuous bottom surface, amounting to approximately nine acres of sediments and exposed soils;
- to accommodate placement of the capping material, some consolidation and grading is anticipated within the pond footprint;
- an evaluation of the pond outlet structures during the design phase to maintain the design surface water elevation. Capacity for flood management will also be evaluated and appropriate mitigation measures would be developed;
- a chain-link security fence will be installed around the perimeter to supplement existing fencing;
- long-term monitoring of sediment and fish will be conducted as necessary to confirm reduction is occurring and achieving remedial action objectives; and
- a review of site conditions will be conducted no less often than once every five years until cleanup levels are achieved.

Based on this information, we concur with the ROD for remediation of Westinghouse Electric Corporation - Kentucky Avenue Koppers Pond Operable Unit 04.

If you have any questions or need additional information, please contact the Project Manager for this site, Mr. Matthew Dunham, at (518) 402-9814.

Sincerely,

Robert W. Schick, P.E.
Director
Division of Environmental Remediation

ec: Pietro Mannino, USEPA
Thomas O'Connor, USEPA
Krista Anders, NYSDOH
Justin Deming, NYSDOH
Michael Ryan, NYSDEC
Michael Cruden, NYSDEC
Bart Putzig, NYSDEC
Matthew Dunham, NYSDEC
Bernette Schilling, NYSDEC, Region 8, Avon

KENTUCKY AVENUE WELLFIELD SUPERFUND SITE
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APPENDIX V

RESPONSIVENESS SUMMARY

KENTUCKY AVENUE WELLFIELD SUPERFUND SITE
OU4 – KOPPERS POND

RECORD OF DECISION

Attachment 1- July 2016 Proposed Plan

Attachment 2- Public Notice – Commencement of Public Comment period

Attachment 3 – August 4, 2016 -Public meeting Transcript

Attachment 4 – Written Comments submitted during Public Comment period

RESPONSIVENESS SUMMARY
FOR THE
RECORD OF DECISION
KENTUCKY AVENUE WELLFIELD SUPERFUND SITE
OPERABLE UNIT 4 – KOPPERS POND
CHEMUNG COUNTY, NEW YORK

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 July 2016 Proposed Plan for the Kentucky Avenue Wellfield Superfund Site (Site), Operable Unit 4 – Koppers Pond, and the U.S. Environmental Protection Agency's responses to those comments and concerns. All comments and concerns summarized in this document have been considered in EPA's final decision in the selection of a remedy for OU4 at the Site.

SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

The Proposed Plan for OU4 was released to the public on July 23, 2016, along with the Remedial Investigation (RI), the Feasibility Study (FS), the Baseline Human Health Risk Assessment (HHRA), and the Supplemental Baseline Ecological Risk Assessment (sBERA) reports for OU4. These documents were made available to the public at information repositories maintained at the Horseheads Town Hall, Town Clerk Office in Horseheads, New York, the EPA Region 2 Office in New York City, and EPA's website for the Kentucky Avenue Wellfield Site located at www.epa.gov/superfund/kentucky-avenue. A notice that announced the commencement of the public comment period, the public meeting date, a description of the preferred alternative, the EPA contact information, and the availability for the above-referenced documents was published in the *Elmira Star-Gazette*, a local newspaper, on July 23, 2016. The public comment period, which was scheduled for thirty days, ran from July 23, 2016 to August 22, 2016.

On August 4, 2016, EPA held a public meeting at the Elmira College in Peterson Chapel in Cowles Hall to inform officials and interested citizens about the Superfund process, to present the Proposed Plan for OU4 at the Site, including an explanation of the remedial alternatives and the preferred alternative, 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 EPA RESPONSES

Comments and/or questions were received at the public meeting and one written comment letter was received via electronic mail during the comment period from July 23, 2016 through August 22, 2016. A copy of the comment letter is provided in Attachment 4 of this Responsiveness Summary. A summary of the significant comments provided at the public meeting and in writing, as well as EPA's responses to them, are provided below.

Comment # 1: CBS Corporation (CBS) and Beazer East, Inc. (Beazer) commented that EPA's selected remedy should not include measures meant to address or mitigate against fish consumption, since no visible fish population currently exists or will exist in the future at Koppers Pond. The commenters state that the only scenario whereby Koppers Pond would return to open water and support a fish population again would be through artificial means, such as the discharge of large quantities of water, over a long period of time, from the groundwater extraction and treatment plant located at the former Westinghouse facility and the restocking of the resulting pond. The comment further states that the treatment plant, which was constructed pursuant to the Record of Decision issued by EPA to address groundwater contamination at the Site, has been shut down since April 2014 and renewed operation is unlikely. CBS, as the party that implemented the groundwater remedy, states in the comment that it believes that the requirements of the OU2 Record of Decision addressing groundwater contamination at the Site have been fulfilled and that groundwater conditions at the former Westinghouse facility no longer require or justify operation of the extraction and treatment system. The commenters note that a recent substantial rainfall in the Koppers Pond area, and the resulting storm water discharge to the pond, resulted in little to no change in the pond hydrology. The commenters provide recent photographs showing the absence of an open water area and vegetation covering the pond.

Response to Comment #1: Consistent with EPA's guidance for conducting risk assessments to support remedy selection decisions, the human health risk assessment evaluated cancer risks and noncancer hazards under current and future conditions. As indicated in the Proposed Plan, under current hydrologic conditions in the pond, exposures to the pond including the ingestion of fish are not complete pathways. Furthermore, the Proposed Plan states that a July 2016 inspection of the pond revealed that the pond did not have any open water. However, resumption of the treatment system discharge or other significant discharges to the industrial drainageway could restore conditions that would once again support a fish population. As discussed in the HHRA, the cancer risk range and the goal of protection of an HI=1 were exceeded under potential future conditions.

EPA is currently conducting an evaluation of groundwater quality conditions at the Site and, to date, a determination has not been made regarding the further pumping of extraction wells at the Westinghouse facility with its related discharge to the drainageway. Furthermore, EPA disagrees with the commenter's characterization that the requirements of the OU2 Record of Decision addressing groundwater contamination at the Site have been fulfilled. The OU2 Record of Decision calls for the restoration of the aquifer. Based on groundwater data collected at the Site, this remedial action objective has not been met.

Comment # 2: CBS and Beazer commented that the Site does not pose a human health risk and that the preferred alternative should not include any measures to address or mitigate against fish consumption. They contend that the consumption of fish from Koppers Pond was the only human health risk identified in the human health risk assessment prepared for the Site and that because there is no longer any pond to support a fish population, it is extremely unlikely that pond conditions, and thus fish, will return to the Site, let alone a fish population large enough to present any health risk to humans who might catch and consume fish. They further suggested that even if conditions were to allow for a viable fishery, there is no reason to believe that such fish would contain levels of PCBs or metals that would pose an unacceptable human health risk. To the contrary, PCB levels in the biologically active zone of pond sediments were shown in the May

2013 sampling to meet EPA's target concentration of 1 mg/Kg (a.k.a. 1 parts per million, or ppm) total PCBs.

Response to Comment # 2: As indicated in the Response to Comment # 1, the human health risk assessment evaluated both current and future conditions. Furthermore, the commenter implies that because the May 2013 PCB-concentrations in sediments in the top six inches of sediments were below 1 mg/Kg, there is no need to for a remedial action objective to reduce human health risk associated with fish consumption. The commenter fails to acknowledge that the fish consumption route identified in the human health risk assessment would necessitate that PCB concentrations in fish tissue be below 0.07 ppm to adequately address human health risks associated with fish consumption; in order to be below this fish tissue concentration, it is expected that concentrations of PCBs in the sediments would need to be lower than the average concentration found during the 2013 sediment sampling. As a result, a remedial action objective addressing fish consumption is warranted. It is EPA's expectation that addressing sediment concentrations exceeding the remediation goal would also adequately address the generally widespread, low-level PCB contamination present in the exposed soils and sediments, thereby addressing the fish consumption remedial action objective.

Comment # 3: CBS and Beazer commented that the hypothetical and insignificant ecological risk at the Site does not justify the costly and highly disruptive alternative proposed in the Proposed Plan. They believed that the placement of the cap over the entire area formerly covered by water would destroy the current ecosystem at the Site resulting in a net environmental loss that does not justify the very high cost to mitigate the minimal ecological risk and would result in unnecessary greenhouse gas emissions. They suggested that same level of risk reduction can be achieved with minimal cost through a "green" capping strategy of allowing natural revegetation at the Site to continue and that EPA should adopt a monitored natural recovery approach that allows this "green" cap to achieve the RAO naturally.

Response to Comment # 3: Each of the remedial alternatives presented in the feasibility study and Proposed Plan were subject to a detailed analysis and comparative analysis against the nine evaluation criteria established in the National Contingency Plan (NCP) [40CFR 300.430 (e) (9) (iii)]. Although a monitored natural recovery alternative (Alternative 2) was presented in the feasibility study and Proposed Plan, the use of a "green" cap, as described in the comment, was not included. Based on the requirements of CERCLA, the results of the OU4 investigations, the detailed analysis of alternatives, and public comments, EPA determined that the proposed alternative would best satisfy the requirements of CERCLA and provides the best balance of tradeoffs among the remedial alternatives. EPA believes that the selected remedy will achieve RAOs and remediation goals while providing flexibility to adapt to potential fluctuations in the water conditions of Koppers Pond. Given the future uncertainty of water level conditions in Koppers Pond, the selected remedy provides the flexibility to make adjustments to the design of the cover system that will result in a uniform and continuous six-inch thick cap over a combination of exposed soils and sediment that encompass the entire nine-acre AWL area. This cover system will address exposed soils and sediments that exceed the remediation goal and will also result in addressing PCBs to background concentrations. The placement of the cap over the area will minimize ecological receptors' exposure to contamination in sediments or soils and reduce the potential future health risks and hazards associated with future consumption of fish from Koppers Pond by reducing the availability of contaminants to future fish populations.

EPA and NYSDEC have established green remediation policies and practices that consider environmental effects of remedy implementation and incorporate options to minimize the environmental footprints of cleanup actions (http://www.epa.gov/superfund/superfund-green-remediation and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf). It is EPA's expectation that green remediation procedures and practices will be considered during the design and construction of the selected remedy.

Comment # 4: A commenter asked whether the geotextile membrane acted as a barrier to the chemicals in the underlying sediments or whether it performed other functions, such as reducing contaminant concentrations through absorption/transformation over time.

Response to Comment # 4: The geotextile membrane is intended to act as a demarcation barrier between the underlying material and the clean fill. The membrane is not intended to be impermeable or serve any other function. The proposed alternative does not rely on reduction in chemical concentrations in the exposed sediments or soils, rather it relies on containment to isolate contamination below the cap. Specific details of the cap design and the specifications of the capping material, such as specifying a minimum percent organic carbon content to the extent necessary, would be evaluated and determined during the remedial design phase.

Comment # 5: A commenter asked whether background studies looked at plant life or other wildlife in the area, including impacts on birds and the wetland areas.

Response to Comment # 5: As part of the Baseline Ecological Risk Assessment (BERA), surveys of the aquatic and terrestrial environments in and near Koppers Pond were conducted. For example, a detailed survey of the pond for the slender pondweed (*Stuckenia filiformis alpinus*), an aquatic plant identified as endangered in New York State, was conducted at Koppers Pond. However, the detailed survey did not identify the presence of slender pondweed in Koppers Pond. The BERA assessed exposure of a range of ecological receptors including invertebrates, amphibians, reptiles, birds, and mammals to contaminants through various pathways, including direct exposure to sediment, ingestion of forage (plants), and ingestion of prey.

Comment # 6: A commenter asked whether the cap would affect food sources for the bottom feeders in the pond.

Response to Comment # 6: As discussed in the Response to Comment # 4, above, the specifications for the materials that would be necessary for construction of the cap would be evaluated and developed during the remedial design phase; this evaluation would consider the positive and potential negative impacts the cap material could have on habitat.

Comment # 7: A commenter asked whether the water from the pond would be drained.

Response to Comment # 7: Given the recent hydrology of the pond area, it is likely that most of the work would be done "in the dry", i.e., with water removed from a large portion or all of the pond. However, the manner in which the cap will be installed, and the necessity to remove water from the pond to install the cap, will be evaluated during the remedial design phase.

KENTUCKY AVENUE WELLFIELD SUPERFUND SITE
OU4 – KOPPERS POND

RESPONSIVENESS SUMMARY

Attachment 1- July 2016 Proposed Plan

Kentucky Avenue Wellfield Superfund Site Operable Unit 4-Koppers Pond Chemung County, New York

July 2016

EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan describes the remedial alternatives considered to address contamination at the Koppers Pond portion (herein, Operable Unit (OU) 4) of the Kentucky Avenue Wellfield Superfund Site (Site) in Village of Horseheads, Chemung County, New York, and identifies the preferred remedial alternative with the rationale for this preference.

This Proposed Plan was developed by the U.S. Environmental Protection Agency (EPA), the lead agency for the Site, in consultation with the New York State Department of Environmental Conservation (NYSDEC). 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 Sections 300.430(f) and 300.435(c) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The nature and extent of contamination for OU4 at the Site and the remedial alternatives summarized in this Proposed Plan are described in the Remedial Investigation (RI) Report, dated July 6, 2012, and the Feasibility Study (FS) Report, dated July 18, 2016, as well as other documents in the Administrative Record file of this remedy. EPA encourages the public to review these documents to gain a more comprehensive understanding of the Site, the Superfund activities that have been conducted, and the remedial alternative that is being proposed.

The purpose of this Proposed Plan is to inform the public of EPA's preferred remedy and to solicit public comments pertaining to all of the remedial alternatives evaluated, including the preferred remedy. The preferred remedy consists of the placement of a continuous six-inch thick soil and sand cap, including a geotextile membrane to act as a demarcation layer, over Koppers Pond. The preferred remedy includes long-term monitoring and institutional controls.

Changes to the preferred remedy, or a change from the preferred remedy 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 selected 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 select an alternative other than the preferred alternative.

COMMUNITY ROLE IN SELECTION PROCESS

EPA relies on public input to ensure that 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 23, 2016 and concludes on August 22, 2016.

A public meeting will be held during the public comment period at the Elmira College at Peterson Chapel in Elmira on August 4, 2016 at 7:00 p.m. to present the conclusions of the RI/FS, to elaborate further on the reasons for recommending the preferred alternative, and to receive public comments.

Comments received at the public meeting, as well as written comments, will be documented in the Responsiveness Summary Section of the Record of Decision (ROD), the document which formalizes the selection of the remedy.

Written comments on the Proposed Plan should be addressed to:

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Western New York Remediation Section
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
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INFORMATION REPOSITORIES

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

Horseheads Town Hall
Town Clerk Office
150 Wygant Road
Horseheads, New York
Telephone: (607) 739-8783
Hours of operation:
Mon. – Fri.: 8 AM – 4 PM

USEPA – Region II
Superfund Records Center
290 Broadway, 18th Floor
New York, New York 10007-1866
(212) 637-4308

EPA's website for the Kentucky Avenue Wellfield Site:
www.epa.gov/superfund/kentucky-avenue

SCOPE AND ROLE OF ACTION

Site remediation activities are sometimes segregated into different phases, or operable units (OUs), so that remediation of different, discrete environmental media or geographic areas of a site can proceed separately, whether sequentially or concurrently. EPA has designated four OUs for the Kentucky Avenue Wellfield Site. OU1 addressed residences and commercial properties that had relied upon private drinking water wells for potable water in the area affected by groundwater contamination in the vicinity of the Kentucky Avenue Wellfield Site. OU2 addressed contamination in the public supply well known as the Kentucky Avenue Well (KAW), a source of public drinking water. OU3 addressed soil contamination at the former Westinghouse Electric Corporation's (Westinghouse's) Industrial and Governmental Tube Division facility (Facility) and sediment contamination in the industrial drainageway that runs south from the Facility. This Proposed Plan concerns OU4, the final planned phase of the response activities at the Site, and addresses soil and sediment contamination in an area referred to as Koppers Pond. Koppers Pond historically received water from various sources via the above-referenced industrial drainageway. Koppers Pond is located in the Village of Horseheads, Chemung County, New York and is situated on property owned by the Village of Horseheads, Hardinge, Inc. (Hardinge), and the Elmira Water Board (EWB). For purposes of this Proposed Plan, OU4's Koppers Pond is identified as a 12-acre area that is or was ponded, defined by a corresponding pond water elevation as discussed further below of approximately 887 to 888 feet above mean sea level (ft-amsl). While the size of the water body referred to as the Pond has reduced in recent years because of changes in the nature of discharges from the Facility, to the industrial drainageway, among other things, the full 12-acre area of the former Pond area is to be addressed in OU4. The 12 acres are generally bounded by the Old Horseheads Landfill (Landfill) to the north and northeast, the Norfolk Southern Corporation tracks to the west, and an area of the Kentucky Avenue Wellfield property to the south. Waters from Koppers Pond historically have discharged via two outlet streams to its south, which ultimately drain to Newtown Creek. (See Figure 2).

SITE BACKGROUND

Site Description

The Site is located within the Village of Horseheads and the Town of Horseheads in Chemung County, New York. The Site includes the KAW, the Facility, industrial drainageway, and the contaminated portion of the underlying aquifer, known locally as the Newtown Creek Aquifer. A Site location map is provided as Figure 1.

Westinghouse began operations at the Facility in 1952. The Facility developed and manufactured television picture tubes, vacuum switches, and similar electrical products. Beginning in 1988, Westinghouse sold off its business operations at the Facility by selling its Imaging and Sensing Technology Division to the Imaging and Sensing Technology Corporation, which continued operations until 2000. In 1989, Westinghouse sold its interest in the Toshiba-Westinghouse Electric Corporation to Toshiba Corporation. Toshiba Display Devices, Inc., and later MT Picture Display Corporation of America-New York, LLC continued to occupy a portion of the Facility until 2004. In 1994, Westinghouse sold its remaining operations to Cutler-Hammer, which continues operations at the Facility to the present. In April 2007, CBS Corporation, as the corporate successor to Westinghouse, sold the Facility to Silagi Development and Management, Inc.

The Facility is bounded by Interstate 86 on the north, State Route 14 on the east, a Conrail track to the south, and property of New York State Electric and Gas Company to the west. The Facility is characterized by areas of grass lawn, pavement and buildings. Surface runoff from precipitation is routed by shallow swales and captured by surface-water drains at various locations around the main plant building. A large portion of the runoff is routed through two plant outfall flumes and ultimately flows to the industrial drainageway. The main building at the Facility covers approximately 16 acres in the eastern portion of the property and includes two wastewater treatment plants. Treated wastewater (process and non-contact cooling water) had been discharged to the industrial drainageway via the two permitted outfalls at the Facility from the beginning of operations through 2014.

The industrial drainageway is a surface water channel that conveys surface water runoff when present from a 1,350-acre commercial and industrial watershed, and also historically received discharges from the Facility. The industrial drainageway begins at the outlet of an underground pipe (located at the Chemung Street outfall) approximately 1,500 feet southeast of the Facility. It is a seven to 10-foot wide open ditch which extends approximately 2,200 feet to the southeast where it discharges into Koppers Pond.

Historically, the water in Koppers Pond has been approximately three to six feet deep and, at its southern end, the pond discharges to two outlet streams, which then merge about 500 feet downstream to a single channel that flows past the Hardinge plant and into Halderman Hollow Creek. From there, the creek flows through mixed industrial, commercial, and residential areas and discharges into Newtown Creek approximately 1.5 miles south of Koppers Pond.

Site History

The KAW is part of the EWB public-water supply system. It was constructed in 1962 and provided approximately 10 percent of the potable water produced by the EWB until its closure in 1980 following the discovery of elevated levels of trichloroethylene (TCE). TCE contamination was first detected in the KAW in May 1980 during an inventory of local wells initiated by the New York Department of Health (NYSDOH). In July 1980, the Chemung County Health Department conducted further groundwater sampling in the area and similarly found elevated levels of TCE in the KAW and several private residences and commercial facilities. As a result of these findings, the EWB closed the KAW in September 1980 and removed it from its other sources of potable water for its users. In 1983, the Site was placed on the federal National Priorities List of hazardous waste sites. Additional sampling conducted by local, state, and federal agencies through 1985 identified TCE contamination throughout the Newtown Creek Aquifer. In March 1985, EPA initiated a removal action for the purpose of providing alternate water supplies to impacted residences not connected to the public water distribution system. Residences whose private wells were found to be contaminated with TCE in excess of the NYSDOH drinking water standards for public water supplies were supplied with bottled water and ultimately connected to the public water supply.

As mentioned before, the EPA has divided the Site into four separate phases, or OUs, for remediation purposes.

OU1: In 1986, a remedial investigation and feasibility study (RI/FS) was conducted by NYSDEC and EPA to determine the nature and extent of the groundwater contamination at the Site. The results confirmed the presence of several volatile organic compounds (VOCs), including TCE at concentrations up to 340 parts per billion and inorganic chemicals at concentrations exceeding Federal maximum contaminant levels (MCLs) and New York State standards. Based on the 1986 RI/FS, EPA selected a remedy on September 26, 1986 in a ROD that addressed OU1. The OU1 ROD called for the connection of all residences on private wells within the study area to public water supplies and monitoring at, and upgradient of the EWB's nearby Sullivan Street supply well, which are further downgradient from the KAW. The OU1 ROD also called for a supplemental source control RI/FS to be conducted to further identify the source of contamination. In July 1989, NYSDEC completed the installation of the monitoring wells upgradient of the Sullivan Wellfield to monitor regional groundwater quality of the contaminant source areas. Groundwater samples collected from those wells in January 1990 revealed the presence of TCE in excess of the Federal MCLs and State standards. The public water supply at the Sullivan Street Wellfield was also found to be contaminated by TCE. In April 1990, EPA issued a document called an Explanation of Significant Difference (ESD) that modified the remedy selected in the 1986 ROD by announcing EPA's intention to design and construct a groundwater treatment facility for the Sullivan Street Well. This treatment facility was constructed and operational by mid-1994.

Pursuant to the OU1 ROD, EPA connected an additional 46 residences and three commercial properties to the public water supply that were using private drinking water wells in the affected area of groundwater contamination. Overall a total of 95 residences and three commercial properties were connected to the public water supplies between 1985 and 1994.

OU2: In February 1990, EPA completed a supplemental RI/FS. The supplemental RI concluded that the primary source of TCE contamination at and near the KAW was the Westinghouse Facility. Based on the 1990 RI/FS results, EPA selected a remedy on September 28, 1990, selecting an interim groundwater remedy that called for the following: restoration of the KAW as a public drinking water supply; prevention of the further spread of contaminated groundwater within the Newtown Creek Aquifer by pumping of the KAW and the yet-to-be installed recovery wells between the KAW and the Facility; construction of two groundwater treatment plants, one located near the KAW and the other located between the Facility and the KAW to the above-mentioned recovered groundwater; and a long-term monitoring program to monitor contaminant migration and evaluate the effectiveness of the remedy.

On June 28, 1991, EPA issued a unilateral administrative order to Westinghouse to implement the remedy selected in the 1990 ROD. Remedial construction activities began in September 1996 and were completed in June 30, 1999. On September 1995, EPA and Westinghouse entered an administrative order on consent requiring Westinghouse to perform a removal action at the Facility. The action consisted of the removal and off-Site disposal of buried drums containing magnesium chips and titanium turnings waste from the magnesium chip burial area and two calcium fluoride sludge disposal areas at the Facility. The removal action was completed in 1996.

Following the restoration of the KAW, EWB elected not to use the KAW. At this time, the KAW remains out of service. The second treatment system, which is located at the Facility and treats groundwater extracted from two barrier wells was in operation until April 2014, when the pumping of the extraction wells were temporarily suspended to evaluate groundwater quality conditions. As part of that evaluation, groundwater monitoring is ongoing.

VOC vapors released from groundwater contamination and/or soil have the potential to move through the soil and seep through cracks, utility penetrations, or other openings, into the indoor air of overlying buildings. This process is referred to as soil vapor intrusion. EPA investigates the soil vapor intrusion pathway at homes and buildings situated at Superfund sites when the potential for vapor intrusion exists. EPA's approach for investigating, assessing and remediating vapor intrusion was developed after the issuance of the OU2 and OU3 RODs.

In October 2007, EPA conducted vapor intrusion sampling at six residences located near the Facility. Where permission was granted, EPA collected air samples from beneath, and in some cases within the buildings.

The analytical results of the October 2007 vapor intrusion sampling showed elevated TCE concentrations in the air beneath two of the six homes. As a result, sub-slab depressurization systems were installed at these two residences to mitigate the impacts of soil vapor intrusion by reducing or eliminating vapor entry into the buildings.

In addition to sampling residences for soil vapor intrusion, indoor areas in the occupied office spaces at the Facility were sampled in February 2015. VOCs were not detected above health-based levels in the four indoor air samples collected.

OU3: The OU2 ROD also called for an additional RI/FS to address source control at the Facility and to study the contaminated sediments present in the industrial drainageway and Koppers Pond. Based on the results of the additional RI/FS completed in 1996, EPA selected a remedy for OU3 on September 30, 1996. The OU3 ROD addressed soil contamination at the Facility and sediment contamination in the industrial drainageway. The major components of the selected remedy for OU3 included the excavation and off-Site disposal of contaminated soils and waste materials from the Facility, treatment of VOC-contaminated soils from the former Runoff Basin Area at the Facility using a soil vapor extraction (SVE) treatment system, and excavation and off-Site disposal of polychlorinated biphenyls (PCB)-contaminated sediments from the industrial drainageway. The OU3 ROD also required further investigations at Koppers Pond, identified as OU4, which is the subject of this Proposed Plan. In addition, in the OU3 ROD EPA determined that no further groundwater treatment beyond that specified in the OU2 interim remedy was necessary as a response action for OU3. In August 27, 2001, the OU3 remedial action began with the excavation and off-Site disposal of contaminated soils at the Facility, and this work was completed in August 23, 2005. Construction of the SVE system was completed in November 7, 2000 and operated until January 2011, at which time sampling revealed that the treatment system successfully remediated the VOC-contaminated soils. The remediation of the PCB-contaminated sediments in the industrial drainageway was completed in 2003.

OU4 - Koppers Pond: In September 2006, EPA and six potentially responsible parties entered an administrative order on consent for the performance of the RI/FS for Koppers Pond, identified as OU4. OU4 is the final planned phase of the response activities at the Site and the subject of this Proposed Plan.

KOPPERS POND CHARACTERISTICS

Koppers Pond is surrounded by an area of vacant and active industrial and governmental properties. To the north and northeast is the Landfill, to the south is the KAW facility, to the southeast is the Hardinge plant, to the east is property owned by the Fairway Spring Company, and to the west is a Norfolk Southern Corporation railroad right-of-way with active tracks. Much of the northern bank of Koppers Pond is formed by the Landfill. The Landfill was operated from the 1940s until 1973 and reportedly received municipal, commercial, and some industrial solid waste. The Landfill was closed for waste disposal in 1975, but no engineered final cover system was constructed at the time of closure.

Geology

Koppers Pond is a shallow, flow-through pond. The pond receives most of its inflow from the industrial drainageway. Koppers Pond is situated in a previously low-lying, wet area that apparently began to fill with water with the onset of discharges from the Facility. Because the topography around the pond is relatively flat, changes in the pond water level significantly affect the open water area. The pond bottom is comprised of soft sediments that range in thickness up to 38 inches, with greater thicknesses associated with the upper western leg of the pond where the industrial drainageway discharges to the pond. In a portion of the eastern leg of the pond, the pond bottom beneath the loose sediments was identified as sand and gravel. The total volume of pond sediments is an estimated 21,400 cubic yards (CY), which is equivalent to an average sediment thickness of 1.5 feet (18 inches). A hard clay layer generally underlies the sediments throughout most of Koppers Pond, which would be expected from the pond's origin as a low-lying swampy area. Because of the low-permeability of this clay layer, the surface water in the pond does not significantly interact with local groundwater.

RESULTS OF THE KOPPERS POND REMEDIAL INVESTIGATION

In addition to evaluating the historical data collected in 1995 and 1998, the OU4 RI includes sediment and surface water results from sampling conducted in 2008, 2010, and 2013. Fish samples were collected in 2003 and 2008.

In 2007, during the initial RI activities, Koppers Pond covered approximately nine to 12 acres with typical water depths ranging from about 1.5 to five feet. Under these conditions, the volume of water in the pond was about six million gallons. During the sampling conducted in 2008, the open water area of the pond covered about 9 acres and water depths were approximately 1.5 to four feet. Following the suspension of the OU2 groundwater recovery and treatment operations at the Facility in April 2014, which had resulted in the discharge of approximately 2 million gallons of treated water a day, the pond surface elevation was lowered because the volume of water in the drainageway, which fed into Koppers Pond, had significantly reduced. By late 2015 and early 2016, the pond level had significantly receded with an estimated open water area, primarily in the former southwest corner, of about 2.5 to 3 acres. A July 2016 inspection of the pond revealed that the pond did not have any open water.

The FS identified three water level conditions as a means of identifying areas of the Pond based upon a range of hydrologic conditions (Figure 2):

- High Water Level (HWL) – Pond water elevation of approximately 887 to 888 feet ft-amsl, with water depths of 2.5 to 6 feet over a pond surface (open-water) area of about 10 to 12 acres;
- Average Water Level (AWL) – Pond water elevation of approximately 886 ft-amsl, with water depths of 1.5 to 4 feet over a pond surface (open-water) area of about at 8 to 10 acres; and
- Low Water Level (LWL) – Pond water elevation of approximately 883 to 884 ft-amsl, with water depths of 0.5 to 2 feet over a pond surface (open-water) area of about 2.5 to 3 acres.

The FS further defines the terms mudflats and exposed sediments/soils as follows: "mudflats" means the low-lying areas along the perimeter of the pond (particularly on the western side) that are inundated under HWL conditions but exposed under AWL conditions; "exposed sediments or soils" means the areas formerly submerged during the RI under AWL conditions and due to subsequent low water elevations are no longer submerged. These exposed sediments or soils are not considered mudflats. Based upon inspections of water elevations in the Pond, all sediments under AWL conditions, could potentially be exposed under certain hydrologic conditions.

<u>Summary of Sampling Results</u>

Sediments

Sampling revealed metals, PCBs, and polynuclear aromatic hydrocarbons (PAHs) in pond sediments. These contaminants were detected throughout the pond, although concentrations generally tended to be higher in the western leg of the pond as compared to the central portion and eastern leg of the pond. Vertical profiling sampling did not reveal consistent patterns of concentrations with the depth interval of the sediment.

A comparison of the sediment data collected between 1995 and 2013 generally reveals a marginal decreasing trend in concentrations of the metal contaminants detected. Table 1 provides a summary of the maximum concentrations for metals detected in surface sediment samples collected during the 2013 sampling event.

PCB concentrations tend to be higher in deeper sediments. The maximum concentration of PCBs detected in the sediment of Koppers Pond was detected at a depth between 25-29 inches at a concentration of 11 parts per million (ppm). The sampling results have shown a more significant decreasing trend with depth in the concentrations of PCBs. The most recent surface (0 – 6-inch) sediment sampling conducted in 2013 revealed total PCBs at concentrations less than 1 ppm for each of the samples collected.

PAH concentrations tend to be higher in the shallow (0 to 6 inch) sediments, and PAH concentrations are not markedly different in historical sediment data (1995 and 1998) from those observed in samples collected in 2008 and 2010. Benzo(a) anthracene and benzo(b)fluoranthene have been detected at a maximum concentration of 867 ppm and 1,099 ppm, respectively.

Table 1
Maximum Concentrations of Metals and PCBs in the Surface Sediments (top six inches)

Contaminant	Maximum Concentration (ppm)
Barium	694
Cadmium	430
Chromium	321
Copper	740
Iron	32,700
Lead	1,500
Mercury	0.90
Nickel	130
Selenium	2.2
Silver	29.3
Zinc	7,200
PCBs	0.64

Mudflat Soils

Surface soil samples were collected from periodically inundated low-lying areas around the pond in 2007. These areas are referred to as mudflats. Each of these samples showed metals concentrations lower than corresponding average values for pond sediments. PCB concentrations in mudflat soil ranged from non-detect to .04 ppm.

Surface Water

Historical data revealed elevated concentrations of certain contaminants in discharges to the industrial drainageway. Previously observed “floc” in the industrial drainageway is no longer present, and suspected accumulations of the floc in the aboveground piping leading to the Chemung Street outfall was not observed during any of the field studies conducted between 2008 and 2013. Data collected during the OU4 RI did not reveal exceedances of New York State surface water standards.

The proposed remedial alternatives for OU4 do not address groundwater. Hydrologic evaluations conducted as part of the RIs for OU2 and OU4 did not reveal significant communication between surface water in Koppers Pond and local groundwater, primarily due to the low-permeability of the clay layer below the pond. Groundwater is currently being addressed pursuant to the remedy selected in the OU2 ROD.

Fish

Metals and PCBs have been detected in fish samples collected in Koppers Pond and its outlet channels. Metals concentrations in fish samples collected in 2003 and 2008 show variable patterns with no overall trends in concentrations. Generally, metals were not detected at elevated concentrations in fish tissue samples. On a lipid-normalized basis, PCB concentrations in fish samples collected in 2003 and 2008 showed decreasing concentrations in the bottom-feeding species, but increases in the other species sampled at Koppers Pond, such as largemouth bass and black crappie. Overall, however, the highest concentration of PCBs detected in 2003 was 2.4 ppm, while the highest concentration detected in 2008 was slightly lower at 2.06 ppm.

Because of elevated PCB levels in fish found in the 1988 sampling, the NYSDOH issued a fish consumption advisory for Koppers Pond. The NYSDOH advisory, which is still in effect, recommends that women under 50 years and children under 15 years not eat any fish from Koppers Pond. For all others, the recommendation is to eat no more than one meal of carp from Koppers Pond per month and up to four meals per month of all other fish species from Koppers Pond.

RISK SUMMARY

As part of the RI, a baseline human health and ecological risk assessment was developed for OU4 to estimate the risks associated with current and future land use conditions. A baseline risk assessment is an analysis of the potential adverse human health and ecological effects caused by hazardous substance releases at a site in the absence of any actions to control or mitigate exposures to these hazardous substances, including institutional controls (i.e., fish consumption advisories).

Human Health Risk Assessment

A baseline human health risk assessment (BHHRA) was conducted to estimate the cancer risks and noncancer health hazards associated with exposures to chemicals of potential concern (COPCs) present in surface water and sediment at Koppers Pond and its outlet channels, in addition to fish tissue at Koppers Pond. Consistent with

EPA policy and guidance, the human health risk assessment evaluates exposures under a reasonable maximum exposure (RME) scenario defined as highest exposure that is reasonably expected to occur at a site. The risks and hazards associated with the RME individual is the basis for decisions at Superfund sites. In addition, the assessment central tendency exposure (CTE) is an exposure that evaluates average exposures to the COPCs so as to provide additional exposure information, but the CTE is not the basis of the decision.

Human health risk assessment is a four-step process used for assessing site-related cancer risks and noncancer health hazards. The four-step process includes: hazard identification (data collection and evaluation); exposure assessment, toxicity assessment, and risk characterization (see "What Is Risk and How Is It Calculated" box on page 8).

The results of the BHHRA indicate that the cancer risk related to exposure to COPCs in sediments under current and future conditions does not exceed the cancer risk range established under the NCP of 10^{-4} to 10^{-6}, which means the probability of developing cancer is one in ten thousand to one in a million, respectively, as a result of exposure to sediments or surface water. The noncancer hazards from exposure to COPCs in sediments or surface water were below the goal of protection of a hazard quotient (HQ) for individual chemicals or a hazard index (HI) for multiple chemicals, less than or equal to one.

At the time of the BHHRA was competed in 2013, the document recognized the presence of litter and off-road vehicles tracks suggesting that periodic trespassing occurs in the area. Individuals have been observed fishing from the banks of the pond. As noted above, the OU2 groundwater recovery and treatment operations at the Facility were suspended in April 2014 in order to evaluate the effects of the cessation of pumping on groundwater quality. Since that time, the surface area and the depth of the pond have decreased significantly to the extent that Pond conditions in late 2015 and early 2016 would not support significant fish populations. However, resumption of the treatment system discharge or other significant discharges to the industrial drainageway could restore conditions that would once again support a fish population. The risk estimates below assume that fish populations return to the Pond in the future as a viable source for human consumption.

Exposure assumptions for the RME individual include a fish ingestion rate of 25 grams per day for the adult (or approximately 40 half pound meals/year); 8 grams per day for the young child (or approximately 13 half pound meals/year); and 16 grams per day for the 7 to 13 year old (or approximately 26 half pound meals/year) with an assumed total exposure period of 30 years for each.

Using these exposure assumptions, ingestion of fish results in a cancer risk of $3.1 \times 10^{-4,}$ or three in ten thousand, which exceeds the goal of protection of 1×10^{-6}. This carcinogenic risk represents the total risk by combining risks for a child (less than 6 years with a cancer risk of 7.3×10^{-5}), adolescent (ages 7 to 13 with a cancer risk of 7×10^{-5}) and an adult (13 years and older with a cancer risk of 1.6×10^{-4}). Noncancer HI values exceeding the goal of protection of an HI = 1 are: 21.1 for the young child; 20.3 for adolescent; and 15.6 for the adult. Both the cancer risks and noncancer hazards are from exposures to PCBs in the fish tissue.

The risks to the CTE or average individual through fish ingestion resulted in a total cancer risk of 2.6×10^{-5} with risks to the young child (9.1×10^{-6}), adolescent (8.8×10^{-6}) and adult (2.4×10^{-5}). The noncancer hazards for the CTE individual were 5.7 for the young child, 5.5 for the adolescent, and 4.0 for the adult where the HI remains above the goal of protection of an HI = 1. The main contributor to both the cancer risks and noncancer hazards was PCBs. The consumption rates used in this assessment were 8 grams/day for the adult or approximately 13 half pound meals/year, 3 grams/day for the young child or approximately 5 half pound meals/year, and 5 grams/day for the adolescent or approximately 8 half pound meals/year.

The BHHRA evaluated cancer risks and noncancer hazardous under current and future conditions. Since the BHHRA was completed in 2012, conditions at Koppers Pond have changed. Under the current low water conditions, the pond would not support a fish population that would make the pond a viable source of fish for human consumption, and the calculated risks as presented in the BHHRA would not occur under current conditions. The EPA Superfund program considers both current and future conditions to support remedy selection decisions. As such, the future conditions assumed in the BHHRA remain as a potential future condition at the pond as previously described. As discussed in the BHHRA, the cancer risk range and goal of the protection of an HI=1 were exceeded under potential future conditions. The main COPC was PCBs.

Ecological Risk Assessment

This section summarizes the results of the ecological risk assessment process and is based on the results of the supplemental baseline ecological risk assessment (sBERA). In the sBERA, EPA concludes that exposure to chemicals of potential ecological concern (COPECs) in the environmental media of Koppers Pond and its outlet channels do not pose an ecological concern for any of the evaluated receptors, except for exposure to cadmium by the muskrat. The risk to muskrats was initially based upon food chain modeling which included a literature-based bioaccumulation value for benthic macroinvertebrate. Food chain modeling subsequently conducted using site-specific fish tissue data did not result in the calculation of risk to the muskrat. The decrease in the Koppers Pond water depth has resulted in the conversion of sediments in the shallow portions of Koppers Pond to soils that allowed access to sediments that were previously inaccessible to certain potential receptors (e.g. wading birds). Under these low water level conditions, larger areas of exposed sediments or soils are present. In order to ensure that additional risk was not identified based upon exposed sediments under these conditions, food chain modeling was conducted for the muskrat and wading birds incorporating the exposed sediment and all shallow areas accessible to wading birds. The re-evaluation did not change the overall conclusions. In addition, the presence of forbs and grasses resulting from low water levels could be indicative of a terrestrial environment and the presence of additional terrestrial receptors that were not evaluated in the sBERA.

Based upon the results of the BHHRA and sBERA, EPA has determined that actual or threatened releases of hazardous substances at Koppers Pond, if not addressed by the preferred remedy or one of the other active measures considered, will present a current or potential threat to human health or the environment. It is EPA's current judgment that the Preferred Alternative identified in this Proposed Plan is necessary to protect human health, welfare, or the environment from actual or threatened releases of hazardous substances into the environment.

REMEDIAL ACTION OBJECTIVES

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

The followings RAOs have been established for Koppers Pond:

- Minimize ecological receptors' exposure to contamination in exposed sediments or soils; and
- Reduce the future health risks and hazards associated with future consumption of fish from Koppers Pond by reducing the concentration of contaminants in fish.

WHAT IS HUMAN HEALTH RISK AND HOW IS IT CALCULATED

Human Health Risk Assessment: A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these releases under current- and anticipated future-land uses. A four- step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios.

Hazard Identification: In this step, the chemicals of potential concern (COPCs) at the site in various media (i.e., soil, groundwater, surface water, and air) are identified based on such factors as toxicity, frequency of occurrence, and fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation.

Exposure Assessment: In this step, the different exposure pathways through which people might be exposed to the contaminants in air, water, soil, etc. that were identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil and ingestion of and dermal contact with contaminated groundwater. Factors relating to the exposure assessment include, but are not limited to, the concentrations in specific media that people might be exposed to and the frequency and duration of that exposure. Using these factors, a "reasonable maximum exposure" scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated.

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

Risk Characterization: This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks for all COPCs. Exposures are evaluated based on the potential risk of developing cancer and the potential for noncancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a 10^{-4} cancer risk means a "one-in-ten-thousand excess cancer risk"; or one additional cancer may be seen in a population of 10,000 people as a result of exposure to Site contaminants under the conditions identified in the Exposure Assessment. Current Superfund regulations for exposures identify the range for determining whether remedial action is necessary as an individual excess lifetime cancer risk of 10^{-4} to 10^{-6}, corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk. For noncancer health effects, a "hazard index" (HI) is calculated. The key concept for a noncancer HI is that a "threshold" (measured as an HI of less than or equal to 1) exists below which noncancer health hazards are not expected to occur. The goal of protection is 10^{-6} for cancer risk and an HI of 1 for a noncancer health hazard. Chemicals that exceed a 10^{-4} cancer risk or an HI of 1 are typically those that will require remedial action at a site and are referred to as chemicals of concern, or COCs, in the final remedial decision document or Record of Decision.

Table 1 presents the highest levels of COCs and COPECs present in the surface sediments/soils at the pond. As noted above, concentrations of PCBs in fish tissue indicate unacceptable risks to human health under the fish consumption assumptions identified in the BHHRA. Furthermore, numerous metals exceeded their respective soil cleanup objectives for the protection of ecological resources identified in York State's 6 NYCRR Part 375-6.6. While PCBs were detected, metals were generally widespread and co-located, with cadmium as the metal that exceeded its ecological SCO frequently and to the greatest order of magnitude, with one sample being found at two orders of magnitude above its ecological SCO. Because the fluctuating water levels in the pond result in varying amounts of sediments being exposed, flexibility needs to be incorporated into remedial efforts intended to achieve the RAOs. The alternatives developed below are designed to provide the flexibility to address sediments that may be either exposed or inundated, depending upon variations of climate, season, or local (e.g., human-derived) conditions. The ecological SCOs for cadmium, chromium, and copper of 4 ppm, 41 ppm, and 50 ppm, respectively, have been selected as the PRGs. Given that cadmium contamination is generally widespread and co-located with other metals, it is expected that addressing cadmium in the soft sediments/soils would also address other metals. Furthermore, the fish consumption exposure route defined in the BHHRA would expect that PCB concentrations in fish tissue would need to be below 0.07 ppm; addressing sediment concentrations that exceed the PRGs would also adequately address the general widespread low level PCB contamination present in the soft sediment/soils, thereby addressing the fish consumption RAO.

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, cost-effective, comply with applicable or relevant and appropriate requirements (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).

Detailed descriptions of the remedial alternatives for addressing the contamination associated with this site can be found in the FS Report, dated July 2016.

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

Remediation Area

As mentioned previously, water elevations in the pond have decreased considerably since the OU4 RI commenced. These variations in water level are predominately due to climatic and hydrologic conditions, such as prolonged dry periods, the cessation of permitted discharges from the Facility to the industrial drainageway, and the suspension of the discharge of the treated water to the industrial drainageway from the groundwater treatment plant. Variability in water elevations in the pond is expected over time. The FS identified three water level conditions as a means of identifying areas of the Pond based upon a range of hydrologic conditions (Figure 2):

- High Water Level (HWL) – Pond water elevation of approximately 887 to 888 feet ft-amsl, with water depths of 2.5 to 6 feet over a pond surface (open-water) area of about 10 to 12 acres;
- Average Water Level (AWL) – Pond water elevation of approximately 886 ft-amsl, with water depths of 1.5 to 4 feet over a pond surface (open-water) area of about at 8 to 10 acres; and
- Low Water Level (LWL) – Pond water elevation of approximately 883 to 884 ft-amsl, with water depths of 0.5 to 2 feet over a pond surface (open-water) area of about 2.5 to 3 acres.

The development of remedial alternatives for OU4 considered the potential for variability in water level elevations. As a result, each of the alternatives for evaluation address the entire approximately nine acres encompassing the AWL for both sediments and exposed soils. Under the July 2016 conditions at Koppers Pond, no fishery is present due to limited open water area and water depth. The return of a fishery could be possible if higher water levels are sustained for a sufficient period of time to allow for fish populations to rebound or possibly recolonize the pond. While the specific height of water required to support such a situation has not been established, the FS assumed that water levels would need to meet or exceed the AWL condition. Under such a scenario, fish consumption from Koppers Pond could be possible in the future.

The remedial design would take into consideration measures to maintain the function of the pond to the extent practicable, considering the expected variability in water elevations over time.

Alternative 1: No Action

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 physical remedial measures to address the contamination at Koppers Pond. This alternative does not include any monitoring or institutional controls.

Because this alternative would result in contaminants remaining above levels that 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:	*$0*
Annual Operation &Maintenance (O&M) Costs:	*$0*
Present-Worth Cost:	*$0*
Construction Time:	*Not Applicable*

Alternative 2: Monitored Natural Recovery, Access Restrictions, and Institutional Controls

The monitored natural recovery (MNR) alternative relies on naturally occurring processes to reduce the toxicity, mobility, and volume of contaminants at Koppers Pond. The dominant natural recovery process at Koppers Pond is burial by cleaner material. Long-term monitoring of sediment and fish, including sediment toxicity testing, pore water testing, and acid volatile sulfide/simultaneously extracted metals testing of sediments to monitor contaminant bioavailability would be included in this alternative to confirm that contaminant reduction is occurring and that the reduction is achieving the remedial action objectives. A fishery management program to provide chemical monitoring and other assessments of the fish population, including the potential for periodic harvesting and restocking of fish would be evaluated.

Chain-link security fencing would be installed around the perimeter of Koppers Pond to supplement the existing fencing. Institutional controls, such as fish consumption advisories and restrictions on activities in Koppers Pond that could cause or contribute to the spread of contaminants through the use of deed notices and environmental restrictive covenants would be implemented as long-term control measures as part of Alternative 2. A review of Site conditions would be conducted no less often than once every five years until cleanup levels are achieved.

Capital Cost:	*$ 270,000*
Annual O&M Costs:	*$ 640,000*
Present-Worth Cost:	*$ 910,000*
Construction Time:	*3 months*

Alternative 3: Capping, Access Restrictions, and Institutional Controls

This alternative would include the placement of a geotextile membrane and six-inch thick soil and sand cap over the pond to provide a uniform and continuous bottom surface, which equates to approximately nine acres of sediments and exposed soils. This alternative includes sediment consolidation/grading within the footprint of Koppers Pond to accommodate the placement of capping material. As part of the remedial design, pre-design investigations would be undertaken to evaluate the need for modifications of the pond outlets structure to help maintain the design pond surface water elevation. During the remedial design, the necessary capacity for flood management would be evaluated and the necessary mitigation measures would be developed, as determined to be appropriate. A restoration plan may be required to address impacts to wetlands. Chain-link security fencing would be installed around the perimeter of Koppers Pond to supplement the existing fencing. After construction of the cap is completed, the remedy would be monitored over the long term. Long-term monitoring of sediment and fish, to the extent necessary, would be conducted to confirm that contaminant reduction is occurring and that the reduction is achieving the remedial action objectives. A fishery management program to provide chemical monitoring and other assessments of the fish population, including the potential for periodic harvesting and restocking of fish would be evaluated.

Along with the engineered control, namely the fencing around the perimeter of the Pond, institutional controls would be implemented, such as fish consumption advisories and restrictions on activities in Koppers Pond that could cause or contribute to the spread of contaminants such as through deed restrictions as long-term control measures as part of this alternative. Also, pursuant to Section 121 (c) of CERCLA, a review of Site conditions would be conducted no less often than once every five years until cleanup levels are achieved.

Capital Cost:	*$ 1,659,000*
Annual O&M Costs:	*$ 262,000*
Present-Worth Cost:	*$ 1,921,000*
Construction Time:	*6 months to 1 year*

Alternative 4: Excavation, On-Site Containment, and Institutional Controls

This alternative would involve the removal through excavation of the sediments in either the western or eastern portion of the pond and the placement of the excavated material in the non-excavated portion of the pond, thereby replacing the existing aquatic habitat with a combination of wetland and upland habitat. Under the conceptual design, the elevation of the two outlet channels would be lowered to allow the pond to drain. Temporary earthen dams would be constructed at the upper western end of the pond (i.e. at the mouth of the industrial drainageway) and across the pond to separate the eastern and western portion. A temporary bypass and piping system would be constructed and operated to divert the flow of the industrial drainageway around the pond, discharging downstream of the western outlet channel. Sediments from the excavated portion of the pond would be dried and relocated into the non-excavated portion. A drainage ditch would be constructed connecting the industrial drainageway to the western outlet channel and eliminating the eastern outlet channel. Two feet of clean soil cover would be installed over the consolidated sediments and that portion of the pond would be restored as upland habitat. The excavated portion of the pond would be restored as a low-lying wetland area. During the remedial design, the capacity need for flood management would be evaluated and the necessary mitigation measures would be developed, as determined appropriate. A restoration plan may be required to address impacts to wetlands. A fishery management program to provide chemical monitoring and other assessments of the fish population, including the potential for periodic harvesting and restocking of fish would be evaluated.

Institutional controls would be implemented, in the form of deed restrictions as part of this alternative to ensure the long-term integrity of the waste containment area.

Also, pursuant to Section 121 (c) of CERCLA, a review of Site conditions would be conducted no less often than once every five years.

Alternative 4A: Excavation of the Western Portion and Consolidation to the Eastern Portion

Capital Cost:	*$ 3,203,000*
Annual O&M Costs:	*$ 195,000*
Present-Worth Cost:	*$ 3,398,000*
Construction Time:	*6 months to 1 year*

Alternative 4B: Excavation of the Eastern Portion and Consolidation to the Western Portion

Capital Cost:	*$ 2,929,000*
Annual O&M Costs:	*$ 195,000*
Present-Worth Cost:	*$ 3,124,000*
Construction Time:	*6 months to 1 year*

Alternative 5: Excavation and Off-Site Disposal

This alternative involves the complete removal through excavation of all sediments and exposed soils, an estimated 28,600 cubic yards, from Koppers Pond. Temporary dams in the upper western end of the pond and across the entrances of the two outlet channels would be constructed and bypass piping and a pumping system would be installed to divert the flow of the industrial drainageway around the pond, discharging downstream of the temporary dams of the outlet channels. Handling of the excavated material would include the management of the excavated sediments and exposed soils at the Site, including allowing the sediments to dry and treating them using stabilization agents, as necessary, and transporting them to an approved off-Site facility for disposal. Restoration activities would include revegetation in the impacted areas. After construction is completed, no institutional or engineering controls would be required for this alternative.

Capital Cost:	*$ 4,824,000*
Present-Worth Cost:	*$ 4,824,000*
Construction Time:	*6 months to 1 year*

EVALUATION OF ALTERNATIVES

In evaluating the remedial alternatives, each alternative is assessed against nine evaluation criteria set forth in federal regulation, namely, overall protection of human health and the environment, compliance with ARARs, 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 table on the page 12 for a more detailed description of the evaluation criteria.

This section of the Proposed Plan evaluates the relative performance of each alternative against the nine criteria, noting how each compares to the other options under consideration. A detailed analysis of alternatives can be found in the FS Report.

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.

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 future risk associated with each exposure pathway at a site to acceptable levels.

Overall protection of human health and the environment at Koppers Pond would be achieved by reducing PCB concentrations in fish and minimizing exposure to contaminated soils or sediments. Each of the alternatives presented except Alternative 1 (No Action) and Alternative 2 (MNR), would provide adequate protection of human health and the environment through active remediation. Alternative 2 relies on natural processes, such as sedimentation, to cover the surface sediment with cleaner sediment to reduce the concentrations of contaminants at the sediment surface. However, Alternative 2 would not address the exposed soils. Alternative 3 relies on capping to isolate soil and sediment contamination in place, while Alternatives 4a and 4b rely on a combination of excavation and capping to achieve protectiveness. Alternatives 2, 3, 4a, and 4b also rely on monitoring for the protection of human health and the environment. Alternative 5 relies on excavation of all affected soils and sediments to address risks.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Compliance with ARARs is the other threshold requirement for remedy selection under CERCLA regulations. There are currently no federal or state promulgated standards for contaminant levels in sediments. EPA has identified New York State’s 6 NYCRR Part 375 as a “to-be-considered”, or an ‘other guidance’ that EPA considers in determining how to address contaminated sediments. Furthermore, the sediments have been or have the potential to be characterized as contaminated, exposed soils as a result of the fluctuations in water elevations at Koppers Pond. Because the contaminated, exposed soils and sediments would not be actively addressed under Alternatives 1 and 2, cleanup levels would not be achieved under these alternatives. Alternatives 3, 4a, 4b, and 5 would either cap or remove, or a combination thereof, the sediments and exposed soils in the approximately nine acre area with a corresponding elevation of approximately 886 feet-amsl.

Alternatives 3, 4a, 4b, and 5, which include the placement of material within Koppers Pond, would need to be implemented in compliance with the Clean Water Act.

Long-Term Effectiveness and Permanence

Alternative 1 would involve no active remedial measures and, therefore, would not be effective in eliminating the potential exposure to contaminants. Alternative 2 would not address contaminated soils and, as such, would not be effective in the long term. Alternative 3, 4a, and 4b would be effective in the long term by isolating contaminated soils and sediments under a cap. Alternative 4a and 4b eliminate the pond in its current configuration, consolidate impacted sediments/soils into an on-site containment area, and replace the aquatic habitat with a combination of wetlands and upland habitat. Under Alternatives 4a and 4b, the replacement of aquatic habitat with wetlands and uplands habitat would be permanent. Alternative 5 would be effective in the long term and would provide permanent remediation by removing contaminated soils and sediments and securely disposing of them in an approved off-Site facility. Alternatives 3, 4a, and 4b would require O&M to ensure the long-term integrity of the cap and fence. The fishery management program under Alternatives 2, 3, 4a, and 4b would require that an evaluation be performed to determine if some reduction in residual risk could be attained by harvesting older adult fish, including the bottom-feeding carp, and restocking the pond with juvenile fish. The fish consumption advisory would continue to provide some measure of protection of human health until PCB concentrations in fish are reduced to the point where the fish consumption advisories can be relaxed or lifted. For Alternatives 2 through 4, institutional controls would be required to restrict activities that could compromise the integrity of the cap.

Because contaminants would remain at the Site under Alternatives 1 through 4, statutorily mandated five-year reviews would be required pursuant to Section 121 (c) of CERCLA.

Reduction of Toxicity, Mobility, or Volume

Alternative 1 would provide no reduction in toxicity, mobility, or volume. Alternative 2 relies on naturally occurring processes (*e.g.*, sedimentation) to reduce the toxicity or mobility of contaminants in sediments. Although mobility is not typically reduced by MNR, the sediments in Koppers Pond are not prone to erosional conditions. In addition, these processes would provide no reduction in toxicity, mobility, or volume of soils. Under Alternative 3, and 4a and 4b, the mobility of contaminants would be eliminated via capping but the mobility of the contaminants would be eliminated via excavation with off-Site disposal, or on-Site consolidation and capping, respectively. In addition to reducing mobility, Alternative 5 would also reduce the toxicity and volume of contaminants through excavation and off-site disposal.

Short-Term Effectiveness

Alternatives 1 (No Action) and 2 (MNR) do not involve any capping, excavation, or dredging activities that could present a risk to workers or the public. Alternatives 3 through 5 would each have similar risks to remediation/construction workers, including the potential for exposure to contaminants, working on or around heavy equipment, working in water/wet environments, and increased construction-related traffic. It is estimated that Alternative 2 would require 3 months to install fencing and Alternatives 3, 4a and 4b, and 5 would require 6 months to 1 year to complete the capping and/or excavation. In all cases, it is anticipated that these potential risks could be mitigated through the use of engineering controls, safe work practices, and personal protective equipment.

Excavation and capping activities would likely increase concentrations of contaminants in the water column and fish tissue during the dredging period and for a short period of time after dredging. Alternatives 3 through 5 all result in varying levels of impacts to the aquatic habitat in the pond, including complete elimination of the aquatic habitat associated with the pond and replacing this habitat with a combination of wetlands and uplands habitat under Alternative 4. Alternatives 3 and 5 rely on natural processes to restore the impacted aquatic habitat impacts. Under Alternative 4, the replacement of aquatic habitat with wetlands and uplands habitat would be permanent.

Alternative 4 would result in the loss of open water and adjacent wetlands. The pond and surrounding area provide water storage during flood events that can lessen the impacts of downstream flooding. Eliminating the pond and adjacent wetlands would increase potential downstream flooding.

Implementability

Alternative 1 would be the easiest alternative to implement, as there are no construction activities to implement. There are no implementability issues for Alternative 2 because it does not involve any active remediation. Alternatives 3, 4, and 5 would employ technologies known to be reliable and that can be readily implemented. Alternative 3 (capping) would be easier to implement than Alternatives 4 and 5 because it involves the placement of a six-inch cap rather than the removal of sediments and soils from Koppers Pond. The volume of fill added to the pond by capping is not expected to affect the pond level or increase the potential to downstream flooding because of the resulting consolidation of underlying soft sediments.

Under Alternatives 2, 3, 4, and 5, the implementation of institutional controls would be feasible to implement.

Cost

The estimated capital cost, operation and maintenance (O&M), and present worth cost are discussed in detail in the FS Report. The cost estimates are based on the best available information. Alternative S1 (No Action) has no cost because no activities are implemented. The present worth cost for Alternatives 2 through 5 are provided below. The estimated capital, O&M, and present-worth costs for each of the alternatives are as follows:

Alternative	Capital Cost	Annual O&M Cost	Present Worth
1	$0	$0	$0
2	$270,000	$640,000	$910,000
3	$1,659,000	$262,000	$1,921,000
4a	$3,203,000	$195,000	$3,398,000
4b	$2,929,000	$195,000	$3,124,000
5	$4,824,000	$0	$4,824,000

State/Support Agency Acceptance

NYSDEC concurs with the preferred alternative.

Community Acceptance

Community acceptance of the preferred alternative will be evaluated after the public comment period ends and will be described 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

Based upon an evaluation of the remedial alternatives, EPA, with the concurrence of NYSDEC, proposes Alternative 3, Capping, Access Restrictions, and Institutional Controls as the Preferred Alternative. Alternative 3 consists of the placement of a geotextile membrane and six-inch thick soil and sand cap over the pond to provide a uniform and continuous bottom surface, which equates to approximately nine acres of sediments and exposed soils. This alternative includes sediment consolidation/grading within the footprint of Koppers Pond to accommodate the placement of capping material.

As part of the remedial design, pre-design investigations would be undertaken to evaluate the need for modifications of the pond outlet structure to help maintain the designed pond surface water elevation. During the remedial design, the necessary capacity for flood management would be evaluated and the necessary mitigation measures would be developed, as determined to be appropriate. A restoration plan may be required to address impacts to wetlands. A fishery management program to provide chemical monitoring and other assessments of the fish population, including the potential for periodic harvesting and restocking of fish would be evaluated under this alternative.

Chain-link security fencing would be installed around the perimeter of Koppers Pond to supplement the existing fencing. Long-term monitoring of sediment and fish, to the extent necessary, would be conducted to confirm that contaminant reduction is occurring and that the reduction is achieving the remedial action objectives.

Under this alternative, institutional controls, such as fish consumption advisories and restrictions on activities in Koppers Pond which could cause or contribute to the spread of contaminants, will be implemented through the use of deed restrictions that will serve as long-term control measures. The estimated present-worth costs of the preferred alternative is $1,921,000.

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 the EPA Region 2's Clean and Green Energy Policy[1] and NYSDEC's Green Remediation Policy. This would include consideration of green remediation technologies and practices. Because the remedy would result in contaminants remaining on Site above levels that 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 remedial actions may be implemented to remove, treat, or contain the contaminants. The site review would include evaluation of data collected from the long-term monitoring, a site-wide visual inspection, and a report prepared by EPA.

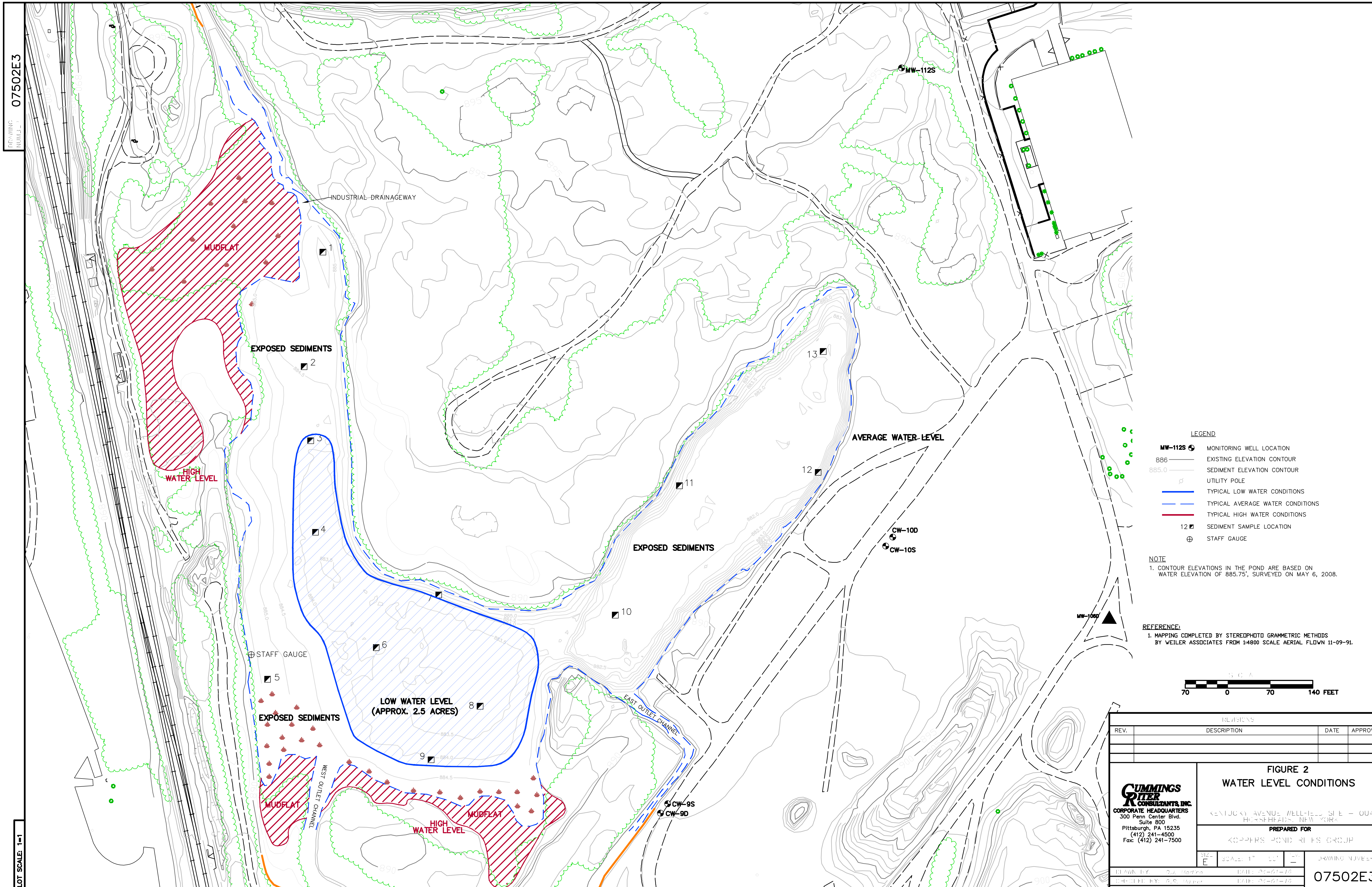
[1] See http://www.epa.gov/greenercleanups/epa-region-2-clean-and-green-policy and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf

Basis for the Remedy Preference

Alternatives 3, 4a, 4b, and 5 would effectively achieve the remedial action objects. Alternative 3 is protective because it would reduce the PCB concentrations in fish and meet the ecological soil cleanup objectives. Given the future uncertainty of water level conditions in Koppers Pond, Alternative 3 provides the flexibility to make adjustments to the design of the cover system. The cap, providing a uniform and continuous bottom surface, ensures effective remediation over an area comprised of a combination of exposed soils and sediments. The estimated present-worth cost of the preferred alternative is $1,921,000.

Alternative 3 is preferred because it will achieve RAOs and PRGs in a short period of time while providing flexibility to adapt to fluctuations in the water conditions of the Pond. Given the future uncertainty of water level conditions in the Pond, Alternative 3 provides the flexibility to make adjustments to the design of the cover system. The cap, providing a uniform and continuous bottom surface, ensures effective remediation over an area comprised of a combination of exposed soils and sediments. 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) be protective of human health and the environment; 2) comply with ARARs; 3) be cost effective; 4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The preferred alternative would not satisfy the preference for treatment as a principal element because contaminants would remain underneath the cap; however long-term monitoring and five-year reviews would be performed to assure the effectiveness 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.

FIGURE 1
SITE LOCATION MAP
KENTUCKY AVE. WELLFIELD SITE - OU4
HORSEHEADS, NEW YORK
Prepared For:
KOPPERS POND RI/FS GROUP



07502E3
INDUSTRIAL DRAINAGEWAY
MUDFLAT
EXPOSED SEDIMENTS
HIGH WATER LEVEL
LOW WATER LEVEL (APPROX. 2.5 ACRES)
AVERAGE WATER LEVEL
EXPOSED SEDIMENTS
EXPOSED SEDIMENTS
STAFF GAUGE
WEST OUTLET CHANNEL
EAST OUTLET CHANNEL
MUDFLAT
HIGH WATER LEVEL
MUDFLAT
MW-112S
CW-10D
CW-10S
CW-9S
CW-9D
PLOT SCALE: 1=1
LEGEND
MW-112S MONITORING WELL LOCATION
886 EXISTING ELEVATION CONTOUR
885.0 SEDIMENT ELEVATION CONTOUR
UTILITY POLE
TYPICAL LOW WATER CONDITIONS
TYPICAL AVERAGE WATER CONDITIONS
TYPICAL HIGH WATER CONDITIONS
12 SEDIMENT SAMPLE LOCATION
STAFF GAUGE
NOTE
1. CONTOUR ELEVATIONS IN THE POND ARE BASED ON WATER ELEVATION OF 885.75', SURVEYED ON MAY 6, 2008.
REFERENCE:
1. MAPPING COMPLETED BY STEREOPHOTO GRAMMETRIC METHODS BY WEILER ASSOCIATES FROM 1:4800 SCALE AERIAL FLOWN 11-09-91.
70 0 70 140 FEET
REVISIONS
REV. DESCRIPTION DATE APPROVED
CUMMINGS RITER CONSULTANTS, INC.
CORPORATE HEADQUARTERS
300 Penn Center Blvd.
Suite 800
Pittsburgh, PA 15235
(412) 241-4500
Fax: (412) 241-7500
FIGURE 2
WATER LEVEL CONDITIONS
PREPARED FOR
SIZE E
DRAWN BY: D.J. Martino DATE: 04-01-16
CHECKED BY: B.R. Maurer DATE: 04-01-16
APPROVED BY: B.R. Maurer DATE: 04-01-16
DRAWING NUMBER
07502E3

KENTUCKY AVENUE WELLFIELD SUPERFUND SITE
OU4 – KOPPERS POND

RESPONSIVENESS SUMMARY

Attachment 2- Public Notice – Commencement of Public Comment period

U. S. Environmental Protection Agency to Hold Public Meeting for Cleanup of Operable Unit # 4- Koppers Pond of the Kentucky Avenue Wellfield Superfund Site, Horseheads, New York

The United States Environmental Protection Agency (EPA) announces the opening of a 30-day public comment period on the Proposed Plan and Remedial Investigation/Feasibility Study (RI/FS), which addresses the cleanup of contaminated sediments and soils at Koppers Pond, designated as Operable Unit 4 of the Kentucky Avenue Wellfield Superfund site in Horseheads, New York. As part of the public comment period, EPA will hold a public meeting on **August 4, 2016, at 7:00 p.m., at Elmira College in the Peterson Chapel in Cowles Hall located at the corner of Washington Avenue and Park Place, Elmira, New York.** The meeting, which will address the proposed cleanup plan, will allow community members to comment on the proposed plan, and other cleanup alternatives that were considered, to EPA officials.

Based on the results of the RI/FS, EPA proposes a combination of capping, access restrictions, and institutional controls as the Preferred Remedial Alternative. The Preferred Remedial Alternative in the Proposed Plan includes placement of a geotextile membrane and 6-inch thick soil and sand cap over an approximately 9 acre area encompassing the Pond. The Preferred Remedial Alternative also includes a long-term monitoring plan and implementation of institutional controls to limit site use.

Documents supporting the preferred remedy are in the administrative record at Town Clerk office, Horseheads Town Hall, 150 Wygant Road, Horseheads, New York, at the EPA Records Center, 290 Broadway, 18th floor, New York, NY, and EPA's website for the Kentucky Avenue Wellfield Site: www.epa.gov/superfund/kentucky-avenue.

Comments regarding EPA's preferred remedy or documents in the administrative record must be submitted by August 22, 2016, to Isabel Fredricks, Remedial Project Manager, U.S. EPA, 290 Broadway, 20th Floor, New York, NY 10007-1866, rodrigues.isabel@epa.gov.

KENTUCKY AVENUE WELLFIELD SUPERFUND SITE
OU4 – KOPPERS POND

RESPONSIVENESS SUMMARY

Attachment 3 – August 4, 2016 -Public meeting Transcript

KENTUCKY AVENUE WELLFIELD SUPERFUND SITE

OU4 KOPPERS POND

PROPOSED PLAN PUBLIC MEETING

AUGUST 04, 2016

* * * *

HELD AT: Elmira College, Elmira, New York

APPEARANCES:

MICHAEL BASILE-EPA
Community Involvement Coordinator

ISABEL R. FREDRICKS-EPA
Remedial Project Manager

PETER MANNINO, Chief
Western New York Remediation Section Emergency &
Remedial Response Division

BART PUTZIP-NYSDEC

LINDA VERA-NYSDEC, Region 8

REPORTED BY: DELORES HAUBER

Shorthand Reporter, Notary Public

MR. BASILE: Good evening. My name is Michael Basile. I'm going to skip using the microphone. We'll use the microphone for the Power Point presentation. I just want to, first of all, as the community involvement coordinator welcome you to Elmira College. And before we begin, I want to thank Elmira College for graciously permitting us to use the meeting facility. Normally for the Kentucky Avenue Wellfield Superfund here in Elmira we use the Thomas Edison High School, but they were undergoing some projects getting ready for the school year, so we turned to Elmira College at the last minute and they were gracious enough to let us use this beautiful facility.

I welcome you to the public hearing where the EPA will present proposed plan for the last operable unit cleanup portion of the Kentucky Avenue Wellfield, better known as Koppers Pond. I know you all signed in. I'm glad that you did that. That's how we can reach you if we hold other public meetings. This evening's meeting will be recorded. It's a responsibility we have with the government. We propose a plan. And during the questions and answers period, the court stenographer Delores will be asking you when you stand to ask a question, state your name, spell your whole name and also give us your address so that we could enter that into the record. We have an agenda in front of you. And you'll notice on the bottom of the agenda we have a repository for all activities that surround the Kentucky Avenue Wellfield/Koppers Pond portion of the Superfund site and that is at the Horseheads Town Hall. So if you are ever looking for information or want to take some time to look at documents relating to the other operative units that the EPA has been involved in, feel free to avail yourself of the opportunity to visit the Horseheads Town Hall.

Our project manager this evening will be making a presentation about the proposed plan. She will talk about the superfund process. She will also identify all the alternatives that we at EPA and the State of New York have reviewed and that we will present to you the plan that we're proposing and then we'll go into a question and answer period. I ask that you hold your questions until the end so she will be able to make the presentation.

There are some individuals in the audience that won't have speaking parts, but I want you to realize they are here and present. From EPA and New York City on 290 Broadway is Mr. Pete Mannino. He is the Western New York section chief. He is right here down in front. For New York State DEC Bart Putzip. Bart is with DEC out of Albany. And we also have Linda Vera from New York State DEC Region 8 specialist from Avon, New York.

At this time I would like to introduce Isabel Fredricks who will present the proposed plan in a PowerPoint presentation and again, I just ask you to please hold your questions for the end. Isabel.

MS. FREDRICKS: Thank you. I'm sorry, I would move down there, but we can't. Okay. My name is Isabel Fredricks. I'm the project manager for the Kentucky Avenue Wellfield Superfund site and this is going to be more related to the Koppers Pond than to the Superfund. The CERCLA or Superfund was passed by Congress in 1980 and it was to address the disposal of toxic and waste from sites funding to clean up the sites. It also empowers the EPA to ask the responsible parties to remediate the sites.

Under the Superfund the national priority list, which we call NPL, includes all sites that the EPA will either clean up or will oversee the cleanup by the responsible parties. The Kentucky Avenue was added to the list in 1983. This shows just the Superfund process where we start, when we begin with investigations and then we go, based on the investigation we go to the NPL listing process. Then we have the remedial investigation and feasibility study which that is where we are right now at Koppers pond. Then we go to the remedation, the remedial design and remedial action for the cleanup of the site. With construction completion, we have post construction completion where if necessary every five years we go back and determine if the remedy is still protected. And we might delete the site from the NPL list and sometimes reuse the site, too.

For the Kentucky Avenue, EPA divided the site into four different phases or operable units. This began in 1986 when an investigation was conducted by New York State EPA to determine the nature and extent of the groundwater contamination in the area of the site. As a result the EPA issued a requisition for the operable unit 1 for the Phase 1. And as a result 95 properties were connected and also three commercial properties were connected to the public water supply between 1985 and 1994.

Now we concluded that phase.

Phase 2, as a result a groundwater treatment facility was constructed by the responsible party at the facility. And this treatment system was in operation until 2014 when the construction was suspended to evaluate the groundwater quality conditions. The groundwater monitoring is still ongoing.

The third phase addressed the excavation of contaminated soils in the facility. Also the treatment of VOCs in the soils using the soil vapor extraction treatment system. We also excavated an off-site disposal of contaminated sediments in the drainageway south of the facility.

And the last phase that we are talking about today addresses the Koppers Pond which is the final planned phase of this site. And the proposed plan is what we will be discussing. So one of the processes that we do is a remedial investigation feasibility study. So the purpose of the remedial investigation, EPA determines the nature and the extent of the contamination by doing sampling and assess also the risks to human health and the environment. While collecting the data, EPA initiates a feasibility study which evaluates the options to remediate the site.

The major activity to Koppers Pond was the sampling of the surface water for sediment, fish sampling and ecological and human health risks due to contamination. For the sediment we found metals, PCBs and PAHs in the sediments. From 1995 to 2013 the data revealed that there was a marginal decrease in metal concentrations in the sediments. PCB concentrations were higher in depths of 25 to 29 inches. PAH concentrations were higher in the zero to six inch shallow sediments.

This just sums up the maximum concentrations found in the sediments in the pond of metals and PCBs. The surface water was also sampled and we never found any exceedance of the New York State surface water standards. The mudflats, which are areas of the pond, the low lying areas that periodically will get inundated, there were also samples and they show low concentration of metals and very low concentrations of PCBs.

In addition we did sample the fish from the pond from 2003 to 2008. Metals were not detected at elevated concentrations, but PCB concentrations in the bottom-feeding fish were found and the highest concentration in 2003 was 2.4 ppm and in 2008 was 2.06.

Once the data was collected, an ecological assessment was conducted to evaluate the risk to the ecological receptors from the site contaminants in sediments from the exposure of the receptors to the contaminants of the water and fish ingestion. We also, based on the result of the study, no risk was found based on the study.

In addition a baseline human health risk assessment was conducted to determine the current and future risk of people exposed to contaminants and the risks found associated with ingestion of fish from the pond.

So tonight the reason we are here is to present our proposed plan which will address different alternatives to remediate this contamination of the pond. This proposed plan was issued on July 23rd and we asked the public to comment on the alternatives and also not only the proposed alternatives, but also preferred alternative that we proposed of the plan. The public comment will be ending August 22nd and EPA will consider all the comments before finalizing the remedial alternative.

Based on the data collected and results of the human health and the risk, ecological risks, remedial actions are developed that will protect the public and the environment from exposure of contaminants at the pond. The remedial action objectives were based on site specific risk based levels, applicable or relevant and appropriate requirements and to be considered applicable to this site. The goals of this remedial action objective is to minimize ecological receptors exposure to contamination in exposed sediments or soils. And also reduce the future health risks associated with the consumption of fish from the Koppers Pond.

During the remedial investigation the water levels of the pond changed. In 2007 the pond was about 12 acres of water that ranged from one to five feet deep. In 2008 we had nine acres of water one to five to four feet deep. By late 2015 and early 2016 the pond level receded and an open area was approximately three acres of water. In 2016, just a few weeks ago, the pond did not have any open water.

So based upon the conditions that varied on the pond during the FS, we identified three water levels to be addressed at this site. So we have the high water level which is about 10 to 12 acres. The average water level and then the low water level that is two to three acres of water. I can't see very well from here. Well, the pond is from here to here. This was the pond like a U shape and the drainage of the groundwater was coming from the facilities right here. So now this is almost what it looks like now. Most in this area is the mudflats are dry and the three acres of water was in this area, they have also recently dried up.

So in the feasibility study we look at several alternatives to address the contamination of the pond. There's the National Contingency Plan that requires the EPA develop a no action alternative as a baseline for comparing other alternatives. Under this alternative there will be no remedial action conducted on the site and there is no cost associated with the site.

The second alternative is monitored natural recovery which is possible by which the contaminants concentration is reduced by naturally-occurring chemical biological processes. In addition this alternative will consist of long-term monitoring of sediments and fish, monitoring of fish. Includes an installation of a fence in addition to the existing fence. And also institutional controls such as fish consumption advisories and restrictions of activities on the pond. The cost of this alternative, capital costs $270,000. The present worth $640,000 and the total present worth cost is about $900,000.

The third alternative is capping, access restrictions and institutional controls. This alternative includes placement of a geotextile membrane and also six inch thick soil and sand over the membrane. There will be a long-term sediment, monitoring of the sediments and the fish. Also includes installation of a fence and institutional controls of fish consumption advisories and restrictions of activities on the pond. The cost of this one would be capital cost $1.6 million and the total present worth is $1.9 million.

Alternative four is excavation and

on-site containment and institutional controls. So this involves the excavation of the western portion of the pond and into the eastern excavation and move to the western portion of the pond. Two feet clean soil will be placed over the consolidated sediments. The excavated portion of the pond would be a low-lying wetland area and will be restored as a wetland area. We also have a fishery monitoring management program and institutional controls like the other ones.

On alternative four we have A and B where the A will be the excavation of the western portion of the pond and consolidation to the eastern and B would be the excavation of the eastern portion into the western portion of the pond. The cost of the first alternative with the western portion, its capital cost is $3.2 million and the total present worth is $3.4 million. For alternative B excavation of the eastern portion of the pond, capital cost is $2.9 million and total present worth is $3.1

million.

During the evaluation of the remedial alternatives in the FS, each alternative was assessed against the nine evaluation criteria presented here. So overall protection of human health and the environment involves whether or not and how alternatives reduce or control the threats to people and environment. The compliance with applicable or relevant and appropriate requirements, means the federal and state environmental regulations. The long-term effectiveness and permanence checks the ability of the alternatives to maintain protection of human health and the environment over time. The reduction of toxicity, mobility and volume, the alternatives will reduce the contaminants ability to move in the environment. And the short-term effectiveness, this is the length of time needed to implement the remedy. The ability that the alternative can be implemented in the area and the ability of goods and services. The cost includes estimated capital cost and/or operation and maintenance as well as the present worth costs. The state support agency acceptance is when the state agrees with the EPA on the recommendations. And then the community acceptance, this is to see if the community agrees with EPA alternatives.

The EPA's preferred alternative is the capping alternative three that we discussed before. And this alternative will include the geotextile membrane on the nine acres of the pond and the six inches of soil or sand cap. The sediment consolidation, grading within the footprint of the pond to accommodate any placement of the capping material. During the remedial design and predesign, investigations to evaluate the need to modify the pond outlet structure. And if necessary a restoration plan may be required to address impacts to the wetlands. The fence will be installed. A fishery management program will be implemented. Institutional controls will be implemented such as fish consumption advisories and deed restrictions. And the New York State concurs with EPA on selection of remedial alternative of our preferred alternative. Sorry.

The next steps will be we will ask the public to comment on the proposed alternative until August 22nd. The comments received from today's meeting and written comments will be included all in the record of decision and be able to include also responses to the comments on the record of decision. Additional information like Tom mentioned is available at the town clerk's office in Horseheads and also the EPA representative in New York at 290 Broadway and also on the website as mentioned. Written comments should be sent to me and that is the address. And this presentation will also be available on the website that we have there. That's it. Any questions?

MR. BASILE: Anyone have any questions? I'll give the mic to you. Any questions at this time?

MS. LAMBERT: Hi. My name is Catherine Lambert, C-A-T-H-E-R-I-N-E, L-A-M-B-E-R-T. And my address is 220 Triphammer Road, Ithaca, New York 14850. My question is I wanted to know a little more about the geo membranes, how the capping will exactly work. First off I was wondering does it simply act as a barrier to the chemicals in the underlying sediments or somehow absorbs or transforms the contamination?

MR. MANNINO: So I can answer that question for you. The membrane is intended to be a demarcation barrier. It's not meant to be permeable or serve any other function. It's simply to demarcate the area by which we will be placing clean fill on top.

MS. LAMBERT: So then the reduction in contamination simply happens over time?

MR. MANNINO: So the remedy, the preferred alternative is not relying on a reduction in chemical concentrations in the soil. It's relying on the containment of the contamination.

MS. LAMBERT: And I have another question. Your background studies looked at the water sediment contamination and then also the fish biological samples. Was there any look at the plant life or other wildlife in the area, impacts on birds and the wetland parts of the area?

MS. VERA: I think the ecological study included some of the vegetation findings. Not being the risk assessor, I can't tell you, but there was some. And I know there was an extra study looking at vegetation. They considered in the area they couldn't find any, but the federal study was on vegetation too.

MS. LAMBERT: Seemed like the primary concern was the aquatic areas of the contamination. Has there been any look at how adding this cap, the layers of soil and sand is going to affect the food sources for the bottom feeders in the pond?

MR. MANNINO: So as Isabel mentioned,

once the public comment period closes, EPA will review all the comments and in consultation with New York State DEC select the preferred remedy. We call that a record of decision. We go through the remedial design phase and it's during that phase that we would develop all the specifications for the materials that would be necessary for the construction of the cap. And so the makeup of that soil and the cap, soil and the sand material would be evaluated. Carbon content, organic content, for example, would be evaluated during the design phase.

MS. LAMBERT: Thank you.

MR. BASILE: Are there any other questions? Does anyone have any other questions?

MR. TAYLOR: You're not going to drain the pond? Bill Taylor.

MR. BASILE: Mr. Taylor, could you give an address.

MR. TAYLOR: 3533 Michigan Avenue. It's an eighth of a mile away from the pond. You're not going to drain the water?

MR. MANNINO: The answer to that question is during the design phase we will evaluate the best way to place the sand in on top. There is the potential that water would be pumped and diverted in order to allow for the proper placement of that material, but during the design phase, we would also evaluate the potential for that cap to be placed while water were present there.

MR. TAYLOR: What I'm getting at is there's stories that they can take the water and throw it in the air and throw some stuff in the water and it will go back down again to clean the water.

MR. MANNINO: I believe one of Isabel's slides shows that as part of the data that was collected during the remedial phase surface water data was collected. That data demonstrates that it meets surface water quality criteria so it's clean water. However, once again during the design we would evaluate if water is being transported from one area to another how to do that in a safe manner. Whether it's diverted or put into another location. With respect to misting, I couldn't rule it out today, but I don't think that is really a very feasible or practical approach to addressing this specific area.

MR. BASILE: Does anyone else have a question? Are there any other questions? If not, I want to thank you for taking the time to come out this evening. Please understand that we are in the public comment period. As Isabel indicated, we will accept comments through August 22nd. Our staff will remain here when we adjourn if you have any questions you would like to bring up to them individually. And once again you'll definitely hear about once we have made a decision and sign that record of decision this meeting was talking about. It will be in the form of a news release in the newspaper to display the record of decision. But please feel free if you learned something this evening or if you are thinking about something over the weekend you forgot to ask us, you can contact us by e-mail, you can phone us or write your comments down and submit them to us. This is an integral part of our program, community relations, and we want to get as much public input as possible. I thank you for taking the time. Enjoy the of your summer and stay cool. Thank you very much.

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C E R T I F I C A T I O N

I hereby certify that the proceedings and evidence are contained fully and accurately in the notes taken by me on the above cause and that this is a correct transcript of the same to the best of my ability.

Delores Hauber

DELORES HAUBER

KENTUCKY AVENUE WELLFIELD SUPERFUND SITE
OU4 – KOPPERS POND

RESPONSIVENESS SUMMARY

Attachment 4 – Written Comments submitted during Public Comment period

William D. Wall
Vice President, Senior Counsel
Telephone: 412-642-3580
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CBS Corporation
20 Stanwix Street
Pittsburgh, PA 15222

Sent via Electronic Mail and Overnight Mail

August 22, 2016

Ms. Isabel Rocha Fredricks
Kentucky Avenue Site Project Coordinator
U.S. Environmental Protection Agency, Region 2
Emergency and Remedial Response Division
290 Broadway, 20th Floor
New York, NY 10007-1866

Subject: Koppers Pond – Comments to the Proposed Plan

Dear Ms. Fredricks:

The following comments are provided on behalf of CBS Corporation ("CBS") and Beazer East, Inc. ("Beazer") with respect to the Proposed Plan published by EPA in July 2016 for Operable Unit 4 of the Kentucky Avenue Wellfield Site (aka "Koppers Pond" or the "Site").

1. The Proposed Plan maintains the fiction that the area known as Koppers Pond can now or in the future support a fish population. Recent visits to the Site and photographs of the area confirm the absence of a pond. Instead, what was once an open body of water is now a robust, verdant and burgeoning vegetative landscape. See the photographs presented in Attachments 1 through 3. The only scenario whereby the Site would return to open water and support a fish population again is through artificial means such as a long term, high volume continuing discharge from the OU2 groundwater recovery and treatment facility and restocking of the resulting pond. However, the OU2 system has been shut down since April 2014 and renewed operation is unlikely. CBS (the party that implemented the OU2 groundwater remedy) takes the position that the requirements of the applicable Record of Decision (ROD) have been fulfilled and that groundwater conditions at the former Westinghouse facility (the "Facility") are such that operation of the system is no longer required or justified. Even with a recent substantial rainfall in the Koppers Pond area and the resulting stormwater discharge into the Site, there has been little to no change in the current pond hydrology. Koppers Pond has completed its transition from open water to a meadow. In light of these changes, EPA's selected remedy for Koppers Pond should not include measures meant to address or mitigate against fish consumption, as no viable fish population currently exists or will in the future exist at Koppers Pond.

2. The Site does not present a human health risk. The consumption of fish from Koppers Pond was the only human health risk identified in the human health risk assessment prepared for the Site. There no longer is any pond to support a fish population and it is extremely unlikely that pond conditions, and thus fish, will return to the Site. Moreover, the human health risk assessment was conducted at a time when Koppers Pond was much larger, and even in those larger conditions, the human health risk assessment noted that Koppers Pond was incapable of sustaining fish production – and thereby consumption – levels sufficient to pose meaningful risk to humans. Now, in its current state, Koppers Pond cannot sustain any fish population, let alone a fish population large enough to present any health risk to humans who might catch and consume fish. In light of these changes and the data presented in the human health risk assessment for this Site, the discussion of fish and the associated human health risk in the Proposed Plan is no longer relevant. Even if flows were restored to the pond in sufficient volume to allow for a viable fishery, there is no reason to believe such fish would contain levels of PCBs or metals that would pose an unacceptable human health risk. To the contrary, PCB levels in the biologically active zone of pond sediments were shown in the May 2013 sampling to meet EPA's target concentration of 1 mg/kg total PCBs. Accordingly, a Remedial Action Objective of reducing the health risk associated with consumption of fish at the Site is also irrelevant and unnecessary. EPA's selected remedy for Koppers Pond should not include any measures meant to address or mitigate against fish consumption, as the Pond does not currently, and will not in the future, present any human health risk due to fish consumption.

3. The hypothetical and insignificant ecological risk at the Site does not justify the costly and highly disruptive remedy that was selected in the Proposed Plan. The selected remedy calls for the placement of a geotextile and soil cap over the exposed soils, which ostensibly would include the entire area formerly covered by water. Placement of such a cover system would destroy completely the burgeoning ecosystem at the Site resulting in a net environmental loss in the name of mitigating a hypothetical and insignificant ecological risk. The ecological-based New York State Soil Cleanup Objectives (SCOs) (6 NYCRR Subpart 375-6) are not reliable indicators of potential ecological risk but at best are highly conservative surrogates for risk-based PRGs. Such a remedial approach is akin to the proverbial sledgehammer to swat a flea. The greenhouse gas contribution alone from the heavy construction vehicles required to install the cap militates against the selected remedy. Further, the minimal ecological risk being addressed does not justify the very high cost associated with implementation of the proposed cap system. The same level of risk reduction can be achieved with minimal cost through a "green" capping strategy of allowing the natural revegetation at the Site to continue. The accumulation of biomass over just a few years through the natural yearly lifecycle of the various plants comprising the ecosystem at the Site will form a natural cover or "green" cap. Such an approach will achieve the RAO of "minimizing ecological receptor's exposure to contamination in exposed sediments or soils" without the wholesale destruction of the existing ecosystem and environmental damage associated with the proposed cap system. Accordingly, we recommend and support the use of a "green" cap in lieu of the proposed geotextile/soil cap system. EPA's selected remedy for Koppers Pond should adopt a monitored natural recovery approach that allows this "green" cap to achieve the RAO naturally with periodic monitoring to ensure the RAO continues to be met.

Thank you for the opportunity to present the above comments.

Yours truly,

William D Wall

William D. Wall
Vice President, Senior Counsel

Cc: Dean Reed
Leo Brausch
Cynthia Hutchinson, Esq.
Jane Patarcity
Charles McChesney, Esq.
Nelson Johnson, Esq.
Bryan Maggs, Esq.
John Groff, Esq.

ATTACHMENT 1

PHOTOGRAPHS

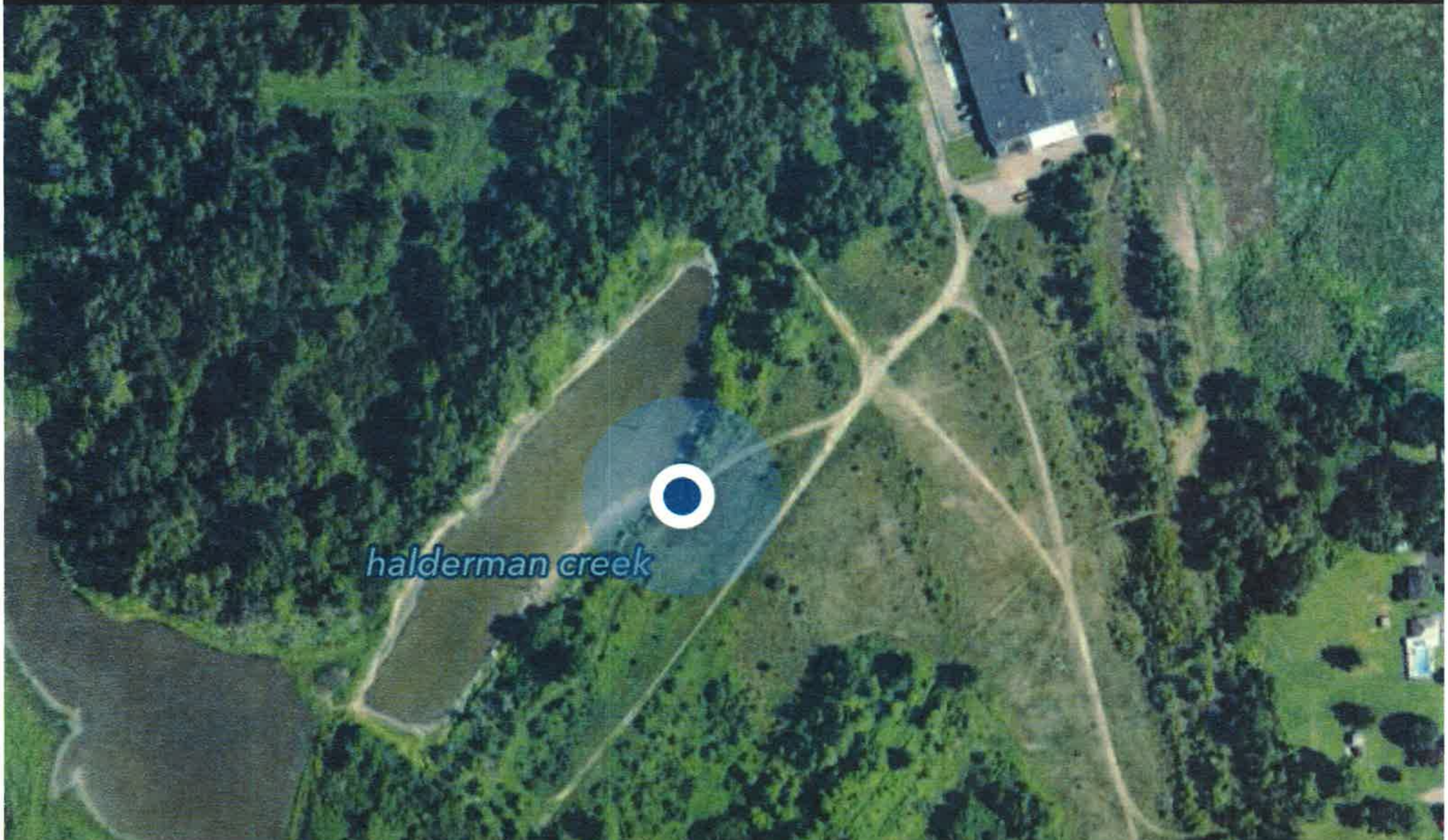
July 6, 2016

ATTACHMENT 2

PHOTOGRAPHS

August 5, 2016

295 Hemlock St Horseheads NY 14845




295 Hemlock St Horseheads NY 14845
halderman creek


halderman creek

ATTACHMENT 3

PHOTOGRAPHS

AUGUST 17, 2016

Photo #1- Looking South West

Photo #2- Looking North East

Photo #3- Looking West

Photo #4- Looking North East

Photo #5- Looking North


Photo #1
Photo #2 & #3
Photo #4
Photo #5