



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**REGION 5**  
**77 W. JACKSON BLVD**  
**CHICAGO, IL 60604**

**MEMORANDUM**

**DATE:**

**SUBJECT:** Request for Approval on a Time-Critical Removal Action and emergency exemption at the Portage Creek Area of the Allied Paper Inc./Portage Creek/Kalamazoo River Superfund Site located in Kalamazoo, Kalamazoo County, Michigan

**FROM:** Richard C. Karl, Director  
Superfund Division

*R. Karl*

**THRU** Dana Tulis, Acting Director  
Office of Emergency Management (5104A)

**TO:** Mathy Stanislaus, Assistant Administrator  
Office of Solid Waste and Emergency Response

**I. PURPOSE**

This Action Memorandum serves: (1) to document the determination of an imminent and substantial threat to public health and the environment in the "Portage Creek Area" of the Allied Paper/Portage Creek/Kalamazoo River Superfund Site (the Site); (2) to request your approval to spend up to \$15,819,314 to conduct the time-critical response action described in this Action Memorandum to address the documented threat; and (3) to grant exemptions from both the \$6 million and 12-month statutory limits of 42 U.S.C. § 9604(c)(1) for Fund-financed removal actions.

The Site, which is located in Allegan and Kalamazoo County, Michigan, is pervasively contaminated with polychlorinated biphenyl (PCB), primarily as the result of historic waste practices associated with several paper mills. The Site was listed on the National Priorities List (NPL) on August 30, 1990, and includes four disposal areas, five former paper mill properties, an approximately 80-mile stretch of the Kalamazoo River from Morrow Dam to Lake Michigan, and a three-mile stretch of Portage Creek.

The removal action described in this Action Memorandum involves what the United States Environmental Protection Agency (U.S. EPA) Region 5 has designated as the "Portage Creek Area" of the Site. The Portage Creek Area is located in the City of Kalamazoo, Michigan, beginning at East Cork Street and flowing north approximately

three miles to the confluence of the Kalamazoo River. Activities associated with this removal action are anticipated to occur in segments along a 1.8 mile stretch of Portage Creek. Work activities will move downstream primarily between East Stockbridge Avenue bridge to East Walnut Street bridge, South Pitcher Street bridge to the railroad crossing west of Rochester Street, and the bend in Portage Creek East of Rochester Street to the confluence with the Kalamazoo River (Figure 1, site location map).

The response actions proposed in this Action Memorandum will mitigate threats to public health, welfare, and the environment presented by the presence of an uncontrolled release of PCB, a hazardous substance, from in-stream sediments, riverbank soils, and floodplain soils located within the Portage Creek Area. This removal action is time-critical in order to address the potential for continuing release of contamination into the food chain and the potential for direct human exposure to the contamination. The proposed response actions include dredging and/or excavation of sediment, riverbank soils and floodplain soils, containment, monitoring, water treatment, stabilization and off-Site disposal of excavated material in accordance with federal PCB regulations at 40 C.F.R. § 761.61. Off-site disposal will be completed in accordance with U.S. EPA's Off-Site Rule as discussed in Section VI.A.4 of this Action Memo.

These response activities will require approximately 264 on-site working days and two or more construction seasons to complete. These response actions will result in the removal of approximately 17,000 cubic yards of waste material, containing approximately 2,123 pounds of PCB from the Creek.

Subsequent to the completion of this removal action in the Portage Creek Area, Region 5 will complete its evaluation of the risks to human health and the environment presented by the presence of PCB within the first reach (referred to as Area 1) of OU5 (which includes the Portage Creek Area). This evaluation will consider data collected and analyses performed as part of the removal action described in this Action Memorandum. U.S. EPA will then issue a Record of Decision (ROD) for Area 1 of OU5 (*i.e.* Morrow Dam to the Plainwell Dam) and, as part of that ROD, will determine whether additional response actions are necessary within the Portage Creek Area or elsewhere to address risks to human health and the environment not addressed through this time-critical removal action.

Your signature approving this Action Memorandum serves as approval for expenditures by U.S. EPA, as the lead technical agency, for taking actions described herein to abate the imminent and substantial endangerment posed by hazardous substances at the Portage Creek Area of the Site. The proposed removal of hazardous substances described herein will be pursuant to Section 104(a)(1) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9604(a)(1), and Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR 300.415. There are no nationally significant or precedent-setting issues associated with this response.

## **II. SITE CONDITIONS AND BACKGROUND**

CERCLIS ID: # MID006007306

Category: Time-Critical Removal Action

The Site lies within the Great Lakes Basin in the Kalamazoo River watershed of Michigan's Lower Peninsula. The watershed drains 2,020 square miles of southwest Michigan. It reaches 162 miles into south-central Michigan, and ranges in width from 11 to 29 miles. The river itself drops 540 feet in elevation from its headwaters to its mouth, producing a slow to moderate stream gradient. The main channel of the Kalamazoo River flows northwest for 123 miles before ultimately emptying into Lake Michigan near Saugatuk, Michigan. The State of Michigan estimates that the river contributes 42 pounds of PCB annually to Lake Michigan. The Site is the second-most significant source of PCB to Lake Michigan, after the Fox River.

Portage Creek is located in the City of Kalamazoo, Michigan. The Creek has an average width of approximately 32 feet, an average depth of approximately 2.3 feet and covers a surface area of approximately 8.2 acres. The Portage Creek Area removal project begins at East Alcott Street and will proceed north approximately two miles to the confluence of the Kalamazoo River. The Creek is bounded by developed and undeveloped residential, commercial, industrial and public properties for its entire length through the City of Kalamazoo. Numerous railroad and street bridges cross over Portage Creek as it flows to the Kalamazoo River. Within the Portage Creek Area, more than 50 storm water outfalls discharge into Portage Creek and approximately 18 bridges cross over the Creek. The outfalls and bridge embankments are of various sizes and some are in assorted states of disrepair. Portions of Portage Creek's shoreline have improvements consisting of sheet pile or concrete retaining walls, building foundations, fencing, and tree lined or manicured vegetated banks. The banks in the Portage Creek Area range in height from approximately 18 inches to 10 feet. Certain locations in the Portage Creek Area have limited access and may require heavy equipment to gain access onto the Creek bed to remove contaminated sediments.

Prior to this removal action, in 1998 and 1999, U.S. EPA conducted a time-critical removal action to address PCB contamination in and around the Bryant Mill Pond (described below and depicted on Figure 1) an adjacent section of Portage Creek that flows between East Cork Street and East Alcott Street.

#### **A. Site Description**

##### **1. Removal site evaluation**

The Administrative Record for the Site contains numerous reports which summarize the investigations conducted to date. Over 29 samples from the Portage Creek Area (between E. Alcott Street and the confluence with the Kalamazoo River) have PCB concentrations greater than 50 milligrams per kilogram (mg/kg) ranging in depth from surface sediment to 44 inches deep. Nearly half of the samples with concentrations greater than 50 mg/kg are located in Portage Creek adjacent to the UpJohn Park

recreational area. Those samples range in sediment depth from surface sediment to 44 inches deep. The highest concentration of PCB in Portage Creek adjacent to the UpJohn Park area is 300 mg/kg. The highest sample results show a concentration of 590 mg/kg for the Portage Creek Area and came from a location between E. Walnut Street and E. Dutton Street. Detailed information from the reports most relevant to this time-critical removal action is set forth below:

a) Remedial Investigation/Feasibility Study (RI/FS)

Between 1990 and 2000, several PRPs for the Site conducted a Site-wide Remedial Investigation/Feasibility Study (RI/FS) pursuant to an administrative agreement with the State of Michigan. The RI field work included an assessment of the Portage Creek Area. The PRPs' surface water investigation of Portage Creek included a load calculation for the Portage Creek Area, which derived from flow measurements and surface water sampling at the Michigan Avenue bridge. Flow measurements were recorded between 50 cubic feet per second (cfs) and 75 cfs, while corresponding PCB concentrations varied from 0.035 micrograms per liter (ug/L) to 0.22 ug/L. Reported PCB concentrations from water samples in Portage Creek were highest in June, July and August. The flow-stratified estimate of annual PCB loading from Portage Creek was calculated to be 4.2 kg. (Note, however, this load calculation was estimated prior to U.S. EPA's 1999 time-critical removal action at the upstream Bryant Mill Pond section of Portage Creek, which is South of E. Alcott Street and upstream of the current Portage Creek Area removal action.)

In 1993, sediment samples were collected from the Creek and frozen for future analysis. 151 samples were collected from 38 locations along 13 transects of the Portage Creek Area. The samples were collected from various increments within the sediment cores between 0 - 46 inches deep. The samples were analyzed in 1997: 13 samples contained PCB concentrations greater than 10.0 mg/kg and two samples contained concentrations greater than 50.0 mg/kg. The highest concentration detected was 79 mg/kg from sample PPT 1-4 at an interval of 0 - 12 inches near the confluence of Portage Creek and the Kalamazoo River.

b) PRP-Supplemental Remedial Investigation/Feasibility Study

Pursuant to a 2007 administrative agreement between U.S. EPA, Georgia Pacific, LLC and Millennium Holdings for the Supplemental Remedial Investigation/Feasibility Study (SRI/FS), and prior to the bankruptcy of Millennium Holdings, the Respondents conducted further investigations in Area 1 OU5, including Portage Creek. Sediment samples were collected from Portage Creek at 44 locations with cores being segmented into various intervals for analysis. In all, 225 samples were collected and analyzed, revealing PCB concentrations ranging from non-detect to 300 mg/kg from a field duplicate sample with a corresponding parent sample result of 150 mg/kg. The next highest result was a concentration of 230 mg/kg. A summary of the investigation results are presented in the Portage Creek Sediment Data from Phase 2 SRI Sampling Report (dated April 16, 2009).

c) MDNRE Portage Creek Sampling

In early November 2010, the Michigan Department of Natural Resources and Environment (MDNRE) collected an additional 80 sediment and floodplain soil samples from the Portage Creek Area. Sediment samples were collected from various depths ranging from top of sediment to approximately 80 inches deep. Total PCB concentrations in sediment from these samples ranged from non-detect to 590 mg/kg. Floodplain soils were sampled at various depths ranging from top of surface to approximately 36 inches deep. Total PCB concentrations in floodplain soil ranged from 0.26 mg/kg to 72.0 mg/kg. The data and sample locations have been summarized on a series of eight maps prepared by Camp Dresser & McKee (dated March 4, 2011).

#### d) Human Health Risk Assessments

The Michigan Department of Natural Resources (MDNR) first issued a public health advisory regarding PCB contamination in the Kalamazoo River in 1977. This advisory remains in place today and warns against eating a variety of fish species from the river.

In December 1991, working under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR), the Michigan Department of Public Health (MDPH) prepared a Public Health Assessment (PHA) for the Kalamazoo River Site. The PHA indicated that the Site was a public health hazard because of the probable exposure to hazardous substances at concentrations that might result in adverse health effects. Potential human exposure pathways of concern included incidental ingestion, inhalation of contaminated soils, and ingestion of contaminated biota.

In April 2003, MDNR completed work on the human health risk assessment for the Site. Although the human health risk assessment's data and analysis pertain to the entire OU5 and not solely to the Portage Creek Area, the risk analysis is relevant to Region 5's imminent and substantial endangerment determination for this Action Memorandum. The primary human health risks identified in the assessment are summarized here:

- Cancer risks and noncarcinogenic Hazard Quotients (HQ) exceed U.S. EPA and/or Michigan Department of Environmental Quality (MDEQ) acceptable risk limits<sup>1</sup> (cumulative carcinogenic risk greater than  $10^{-4}$ , and the non-carcinogenic hazard quotient is greater than 1) for both sport and subsistence fishermen. Carcinogenic risk from the consumption of fish ranges from  $9.0 \times$

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<sup>1</sup> MDEQ has established a cancer risk target value of 1 in 100,000 ( $10^{-5}$ ). Where cumulative cancer risks exceed this threshold, MDEQ risk managers may determine that some action to reduce exposure and risk may be necessary. The MDEQ risk target falls in the middle of U.S. EPA's risk range of 1 in 1,000,000 ( $10^{-6}$ ) to 1 in 10,000 ( $10^{-4}$ ). U.S. EPA generally considers risks within this range "acceptable," but considerations such as size of affected population may indicate that some action to reduce risk is appropriate. Above this range, U.S. EPA risk managers will ordinarily determine that such action is necessary. Both MDEQ and U.S. EPA have HQ thresholds of 1.



$10^{-5}$  to  $1.7 \times 10^{-3}$  depending on the river segment being evaluated. Noncarcinogenic HQs for the consumption of fish range from 1.7 to 80 for reproductive effects and 5.3 to 280 for immunological effects.

- Cancer risks for recreational users on the floodplain soil in the vicinity of the Portage Creek Area exceed MDEQ's threshold based on maximum PCB exposure concentrations.
- HQs for recreational users on the floodplain soil in the vicinity of the Portage Creek Area exceed the U.S. EPA and MDEQ threshold of 1 for reproductive effects based on maximum PCB exposure concentrations.

#### e) Ecological Risk Assessment

MDEQ finalized the Ecological Risk Assessment (ERA) in April 2003. However, the MDEQ ERA underwent a peer review process and a revised draft ERA was resubmitted to the U.S. EPA on April 22, 2011 and is currently under review. Like the Human Health Risk Assessment, the ERA's data and analysis pertain to the entire OU5. Nevertheless, the 2003 ERA's findings are also relevant to Region 5's imminent and substantial endangerment determination at the Portage Creek Area. Accordingly, the primary findings from the ERA are explained below.

The ERA focused primarily on assessing population-level risks associated with PCB contamination in abiotic media and biota. Because of the potential for PCB to accumulate in biological tissues and exert adverse effects in upper trophic level biota, the ERA specifically considered bioaccumulation, food chain effects, and adverse effects in upper trophic level organisms.

The ERA focused on assessing the risks from PCB exposures via direct contact with contaminated surface water, streambed sediment, floodplain (exposed) sediment, and surface soil, as well as ingestion of PCB contaminated food items.

The ERA concluded that PCB contamination at the Site presents a high to moderate ecological risk for eight animal species. The study identifies the estimated risks for all representative species of concern, based on estimated PCB dose (birds and mammals) or on the Site-wide average PCB concentration (aquatic receptors).

More particularly, the ERA found that PCB contamination of surface water and streambed sediment (and floodplain soils that are frequently inundated or have the potential to erode into the river) is likely to adversely affect sensitive piscivorous predators such as mink through consumption of PCB contaminated prey, especially fish. Other piscivorous predators, such as bald eagles, also appear to be at high risk based on the exposure assumptions presented in the ERA. Terrestrial and semi-aquatic biota may also be at risk from PCB contaminated floodplain sediment and surface soil, depending on life history (e.g. foraging behavior, diet, mobility) and sensitivity to PCB.

Omnivorous birds (represented by the robin) that consume substantial numbers of soil invertebrates, such as earthworms, appear to be at moderate but still significant risk.

The U.S. EPA Inland Sensitivity Atlas Maps do not indicate the presence of endangered or threatened species in the two mile segment of the proposed Portage Creek Area project. Nevertheless, the United States Fish and Wildlife Service has identified two federally endangered species, two federally threatened species, and one federal candidate species that can be present in Allegan or Kalamazoo Counties, *i.e.* at or near the Superfund Site in general. The Karner blue butterfly and the Indiana bat both are endangered. The bald eagle and Pitcher's thistle (a plant) are both threatened in this region. The eastern massasauga rattlesnake is the lone candidate species (BBL 2000b).

The MDNR lists seven species as endangered or threatened (not including the federally-listed species) in or near the Site. Endangered species include the zigzag bladderwort, wild American ginseng, and the log fern (plants), the creek chubsucker (fish), prairie warbler (bird), ottoe skipper (insect), and the spotted turtle (reptile) (BBL 2000b).

## **2. Physical location**

The location of the Site in general and the Portage Creek Area in particular are described in Section II (Site Conditions and Background), above.

The Portage Creek Area of the Site was screened for Environmental Justice (EJ) concerns using Region 5's EJ Assist Tool (which applies the interim version of the national EJ Strategic Enforcement Assessment Tool (EJSEAT)). Census tracts with a score of 1, 2, or 3 are considered to be high-priority potential EJ areas of concern according to U.S. EPA Region 5. The Portage Creek Area of the Site is in census tracts with scores of 2 and 3 (Attachment 1). Therefore, Region 5 considers this area to be a high-priority potential EJ area of concern.

## **3. Site characteristics**

Between 1954 and the early 1970s, several paper companies doing business along the Kalamazoo River recycled large quantities of carbonless copy paper originally manufactured by National Cash Register (NCR). The carbonless copy paper required deinking before repulping could occur. Until 1971, carbonless copy paper contained PCB as an ink carrier. The average PCB concentration in a sheet of carbonless copy paper was approximately 34,000 mg/kg, or 3.4 percent by mass. The de-inking and repulping of carbonless copy paper resulted in a 30% bulk paper loss, *i.e.*, a large, contaminated, waste stream. Typically, the wastewater from these processes contained large quantities of suspended particles -- primarily cellulose and clay -- the solid components of which contained high concentrations of PCB. PCB were present in the recycling process until well after production of carbonless copy paper containing PCB stopped in the early 1970s. Paper products made from re-pulped stock--including cereal boxes--contained elevated levels of PCB until approximately 1985.

Allied de-inked and re-pulped large amounts of carbonless copy paper at: 1) the former Bryant Paper Mill A; 2) the Monarch Mill; and 3) the King Mill. The Bryant Paper Mill A and Monarch Mill are located directly upstream of the Portage Creek Area project.

Allied's waste streams (as well as those of its predecessors and successors) included, among other hazardous substances, large quantities of PCB at high concentrations. Allied's predecessors initially discharged wastewater supernatant from the Monarch Mill and the Bryant Mill A operations directly into Portage Creek. Clarifiers were added to the Bryant Mill and Monarch Mill operations in, respectively, 1954 and 1953, but bypasses of the clarifier systems continued to occur whenever the pumping station could not handle the flow of wastewater. Until 1970, wastewater from the bleaching process at these de-inking mills discharged directly to the "Bryant mill pond," *i.e.* a 29-acre mill pond within that portion of Portage Creek that flows through the Allied mill facility and which served as a sedimentation basin for the facility's waste paper residuals.

Allied discontinued de-inking operations at the Bryant Mill A in 1971. The building was demolished around 1978. Allied ceased de-inking operations at the Monarch Mill in 1958 and, as of 1965, the Monarch Mill was using 100% virgin fiber. The Monarch Mill was closed and subsequently razed in 1980.

#### **4. Release or threatened release into the environment of a hazardous substance, pollutant or contaminant**

PCB are a hazardous substance, as that term is defined by Section 101(14) of CERCLA. PCB are also listed as a hazardous substance under Section 311(b)(2) of the Clean Water Act, as set forth in 40 C.F.R. § 116.4 Table A. The Portage Creek Area has PCB levels up to 590 mg/kg for in-stream sediments, and 72 mg/kg in floodplain soils. Uncontrolled erosion of in-stream sediments and bank soils are the primary source of PCB releases into the waters of Portage Creek and the Kalamazoo River.

#### **5. NPL status**

The "Portage Creek Area" discussed in this action memo is an area of the Kalamazoo River Operable Unit (referred to as OU5) of the Allied Paper/Portage Creek/Kalamazoo River Superfund Site, which was listed on the NPL on August 30, 1990.

#### **6. Maps, pictures and other graphic representations**

Figure 1 depicts the location of the Portage Creek Area proposed for removal activities and Figure 2 depicts the excavation areas and surrounding urban influence associated with Portage Creek.



## **B. Other Actions to Date**

### **1. Previous Actions**

In 1998, U.S. EPA initiated a removal action at the former Bryant Mill Pond in Operable Unit (OU) 1 of the Site. Removal activities were conducted in the portion of the former Bryant Mill Pond including the area north of E. Alcott Street Dam, east and west to the embankments of the Portage Creek floodplain which were under 790' Mean Sea Level in elevation, and extended upstream to a point east of the southeast corner of the Bryant Historical Residual Dewatering Lagoon (north of E. Cork Street). The removal action was completed in December 1999 and resulted in the removal of approximately 150,000 cubic yards of PCB contaminated material and approximately 21,000 pounds of PCB being removed from streambed and floodplain soils. The Bryant Mill Pond area is upstream of this proposed time-critical removal action and, prior to the 1998-1999 removal action, was a significant contributing source to the contamination in the Portage Creek Area.

In 2007 and 2008, U.S. EPA oversaw a removal action at the Kalamazoo River's Plainwell Impoundment, which is part of OU 5. Two PRPs agreed to conduct this removal. The removal action was complete in 2009 and resulted in the removal of approximately 130,000 cubic yards of sediment containing PCB. The Plainwell Impoundment is located approximately 17 miles downstream of the Portage Creek Area.

In 2009 and 2010, U.S. EPA oversaw a removal action at the Kalamazoo River's Plainwell #2 Dam which is also part of OU5. The removal was conducted by a responsible party. The removal was completed at the end of 2010. Approximately 15,700 cubic yards of PCB-containing soil and sediment were removed from 11,000 linear feet of riverbank and more than 672,000 square feet of riverbank were restored. The Plainwell #2 Dam is located 13.5 miles downstream of the Portage Creek Area.

### **2. Current Actions**

Georgia-Pacific, another former mill owner and operator with liability at the Site, is completing the SRI/FS on OU5 which covers the Kalamazoo River and Portage Creek portion of the Site. U.S. EPA anticipates that this PRP will submit its supplemental remedial investigation report for Area 1 of OU5 in the Spring of 2011. Subsequently, a Record of Decision for OU5's Area 1 will be prepared in 2012. Any final remedial action required for the Portage Creek Area will be addressed through the ROD for Area 1.

## **III. THREATS TO PUBLIC HEALTH OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES**

The conditions present in the Portage Creek Area of OU5 constitute a substantial threat to public health, welfare, and the environment, based upon the factors set forth in 40 C.F.R. 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). These criteria include, but are not limited to, the following:

**Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants:**

PCBs are a hazardous substance, as that term is defined by Section 101(14) of CERCLA. PCBs are also listed as a hazardous substance under Section 311(b)(2) of the Clean Water Act, as set forth in 40 C.F.R. § 116.4 Table A. The Toxic Substances Control Act (TSCA) states that "exposure of human beings or the environment to PCBs may be significant, depending upon the quantity of PCBs,...the likelihood of exposure to humans and the environment...." U.S. EPA has determined that PCBs are a probable human carcinogen. These chemicals have the potential to biomagnify, which means that they have the potential to increase in concentration as they are transferred from one link in the food chain to another.

The Kalamazoo River and Portage Creek have been designated as a site of environmental contamination under Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), due to PCB contamination. The Kalamazoo River and Portage Creek have also been identified as an Area of Concern by the International Joint Commission on the Great Lakes due to the detrimental impact the release of PCB have on Lake Michigan (BBL 2000).

The Michigan Department of Community Health has issued a species-specific no consumption fish advisory annually since 1977 for the Kalamazoo River portion of this Site due to the PCB contamination. A fish advisory is currently in place on parts of the Kalamazoo River and Portage Creek (MDCH 2010). For the general population, on the Kalamazoo River between Morrow Pond Dam and Allegan Dam and on Portage Creek below Monarch Mill Pond, the advisory recommends no consumption of carp, catfish, suckers, smallmouth bass, and largemouth bass, and no more than one meal per week of all other species.

Based on the State's recent sampling, Portage Creek has PCB levels up to 590 mg/kg for in-stream sediments, and 72 mg/kg in floodplain soils. Uncontrolled erosion of in-stream sediments and soils from the Creek banks is a source of PCB loading to the Kalamazoo River.

Furthermore, significant levels of PCB contamination have been found in Portage Creek adjacent to the UpJohn Park recreational area and the Youth Center area (included in the Portage Creek Area). Specifically, this area has PCB contamination up to 110 mg/kg in the top 12 inches of sediment and up to 300 mg/kg in the 12-24 inch interval of sediment. This area is of particular concern since children use its playground routinely. This area has low banks and unrestricted access to the Creek. The potential exists for a sensitive population (*i.e.*, children) to come into direct contact with elevated levels of PCB contamination in the Creek adjacent to UpJohn Park. The recreational area and the Youth Center are connected by a footbridge across Portage Creek.

**High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate:**

Total PCB concentrations of up to 590 mg/kg have been found in the sediments, bank and floodplain soils of the Portage Creek Area. As explained above, the sediments, bank and floodplain soils that are located in-stream or near the Creek's edge are susceptible to erosion and scouring. During high water events, inundation of the floodplain soils and increases in the Creek's velocity create conditions that are likely to cause additional releases of PCB to the Kalamazoo River and, ultimately, Lake Michigan. The water quality of the Kalamazoo River and Portage Creek has significant impacts on Lake Michigan.

**Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released:**

Portage Creek is often subjected to extreme weather conditions in the winter and spring, which enhances the chance of erosion and the threat of a release of PCB. The breakup of ice in the late winter, and the movement of ice floes downstream, may cause scouring of the banks and creek bottom. Likewise, heavy spring rains and/or summer storms increase stream volume and current velocity, which lead to increased scouring of the Creek bottom and banks. All of these forces cause an increase in the volume and extent of PCB contamination in Portage Creek and the Kalamazoo River.

**The availability of other appropriate federal or state response mechanisms to respond to the release:**

MDEQ (formerly MDNRE) assisted U.S. EPA Region 5 Emergency Response Branch to evaluate, assess and document the presence of PCB as a possible threat posed by the uncontrolled nature of PCB contamination within the Portage Creek Area. No local government agency, including MDEQ, has adequate finances and resources to respond to a threat of this magnitude. U.S. EPA plans to invite the remaining viable PRPs to conduct the removal action, but to date no PRP has agreed to voluntarily conduct this action.

#### **IV. ENDANGERMENT DETERMINATION**

Given the conditions in the Portage Creek Area of OU5, the nature of the hazardous substance found there, and the potential exposure pathways described above, the actual or threatened release of PCB from the Portage Creek Area, if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

#### **V. EXEMPTION FROM STATUTORY LIMITS**

Under Section 104(c) of CERCLA, generally, removal response actions using the Fund shall not continue after \$2,000,000 has been obligated for response actions or 12 months have elapsed from the date of initial response to a release or threatened release of

hazardous substances. However, the statute provides for several exemptions from these limits.

Specifically, if the President finds that (i) continued response actions are immediately required to prevent, limit, or mitigate an emergency, (ii) there is an immediate risk to public health or welfare or the environment, and (iii) such assistances will not otherwise be provided on a timely basis, U.S. EPA may conduct response actions greater than 12 months in duration and/or over \$2 million. These are respectively called the "12 month exemption and emergency exemption." See 42 U.S.C. § 9604(c)(1)(A).

Another exemption occurs if continued response action is otherwise appropriate and consistent with the remedial action to be taken. This is called the "consistency exemption." See 42 U.S.C. § 9604(c)(1)(C).

Here, for this removal action, we will exceed both the 12 month limit and the \$2 million limit. This action satisfies both the emergency and the consistency exemptions.

**A. 12-Month Exemption**

The Portage Creek Area time-critical removal action will exceed the 12 month statutory limit and will likely require two or more construction seasons to complete. The Region 5 Removal Program has met with and has concurrence from the Region 5 Superfund Remedial Program for the proposed activities at this NPL site.

**B. Consistency Exemption**

The Region 5 Superfund Remedial Program is overseeing completion of the SRI/FS on OU5 which covers the Kalamazoo River and Portage Creek portion of the Site. U.S. EPA anticipates that the PRP will submit its supplemental remedial investigation report for Area 1 of OU5 in the Spring of 2011. Subsequently, a Record of Decision for OU5 Area 1 will be prepared in 2012.

The removal action contemplated here is otherwise appropriate and consistent with the remedial actions to be taken. Specifically, the Portage Creek Area removal action will, inter alia, excavate sediments and soils containing elevated levels of PCB. It is appropriate to conduct this removal action now to avoid a threat of further migration of contaminants and address potential human health threat of direct contact with sediments and soils containing elevated levels of PCB contamination found in the Portage Creek Area. As noted above, subsequent to the removal action selected in this Action Memorandum, Region 5 will complete its evaluation, through the Superfund remedial process, of the risks to human health and the environment within the entire Area 1 of OU5 (which includes Portage Creek). Residual risks to human health and the environment remaining within the Portage Creek area after completion of the removal action will be evaluated as part of that process. If U.S. EPA determines that additional response work is necessary in the Portage Creek Area, such work will be required by the Record of Decision.

**C. Emergency Exemption**

**1. There is an immediate risk to public health or welfare or the environment:**

As described above, Portage Creek has PCB levels up to 590 mg/kg for in-stream sediments, and 72 mg/kg in floodplain soils. Uncontrolled erosion of in-stream sediments and soils from the Creek banks is a source of PCB loading to the Kalamazoo River. At various locations in Portage Creek adjacent to the UpJohn Park recreational area and Youth Center area, PCB levels of up to 110 mg/kg exist in the top 12 inches of sediment and up to 300 mg/kg in the 12-24 inch interval of sediment. This area is of particular concern since children use its playground routinely. Additionally, this area has low banks and unrestricted access to the Creek. The potential exists for a sensitive population (*i.e.*, children) to come into direct contact with elevated levels of PCB contamination at UpJohn Park. The recreational area and the Youth Center are connected by a footbridge across Portage Creek. Moreover, potential heavy rainfall may resuspend PCB contamination onto the Portage Creek floodplain, making the possibility of human contact with PCB much more likely. Accordingly, immediate response action to address these threats is required.

**2. Continued response actions are immediately required to prevent, limit or mitigate an emergency:**

During high water events, inundation of the floodplain soils and increases in the Creek's velocity create conditions that are likely to cause additional releases of PCB to the Kalamazoo River and, ultimately, Lake Michigan. Additionally, potential flooding may allow for the PCB contamination to be more accessible to humans, specifically children, since PCB contamination may be moved to floodplains during high water events.

**3. Assistance will not otherwise be provided on a timely basis:**

MDEQ assisted U.S. EPA Region 5 Emergency Response Branch to evaluate, assess and document the presence of PCB as a possible threat posed by the uncontrolled nature of PCB contamination within the Portage Creek Area of the Site. Neither MDEQ nor any other local government agency has adequate finances and resources to respond to a time-critical removal action of this magnitude. U.S. EPA plans to invite the viable PRPs to conduct the removal action, but to date no PRP has agreed to voluntarily conduct this action.



## **VI. PROPOSED ACTIONS AND ESTIMATED COSTS**

### **A. Proposed Actions**

#### **1. Proposed Action description**

The preferred response action to mitigate threats associated with approximately 17,000 cubic yards of PCB contaminated sediments and floodplain soils in the Portage Creek Area consists of removing contaminated submerged sediments, bank and floodplain soils. Required response actions will include, but may not be limited to, the following tasks:

- a) Develop and implement site planning documents (e.g. Health and Safety Plan, Sampling and Analysis Plan and Work Plan), site security measures, necessary staging/support areas;
- b) As necessary, assessment of floodplain soils and sediments to define extent of PCB contamination for excavation or dredging;
- c) Dredge and/or excavate PCB contaminated sediments and soils with elevated PCB concentrations in those areas specified in a U.S. EPA approved work plan or identified from additional assessment activities;
- d) Stabilize the disturbed creek banks and sediments to mitigate exposures to PCB contaminated banks and sediment and potential future erosion;
- e) Dewater, solidify, as necessary, and dispose off-site of all PCB contaminated sediment, bank and floodplain soils removed pursuant to proposed actions 2 and 3, above. PCB contaminated material with PCB concentrations equal to or greater than 50 mg/kg shall be transported off-site to a chemical waste landfill that is in compliance with all state and federal regulatory requirements. PCB contaminated material with PCB concentrations less than 50 mg/kg shall be transported off-site and disposed in an appropriately licensed and permitted commercial landfill in compliance with all state and local laws;
- f) Utilize various engineering controls (e.g. coffer dams, silt fence, silt curtain, etc.) to manage diversion of Portage Creek during dredging/excavation activities, silt curtains and fences or similar devices to help control resuspension/migration of sediment/soils during site operations;
- g) Establish a dewatering and water treatment system discharging back to Portage Creek;
- h) Monitor and sample during implementation of the response action;
- i) Backfill dredged/excavated areas with clean material and topsoil;
- j) Restore dredged/excavated areas to prevent potential erosion; and

- k) Ensure that restoration and re-vegetation (with native plant species) occurs, and that appropriate monitoring and maintenance is performed both during and after the response action.

The response action will be conducted in a manner not inconsistent with the NCP. The OSC has initiated planning for provision of post-removal site control consistent with the provisions of Section 300.415(l) of the NCP. Post removal control activities will be performed by PRPs or as identified in the Site Record of Decision.

The response actions described in this memorandum directly address actual or threatened releases of hazardous substances, pollutants, or contaminants in the Portage Creek Area which may pose an imminent and substantial endangerment to public health, welfare and the environment. These response actions do not impose a burden on the affected property disproportionately to the extent to which that property contributes to the conditions being addressed.

## **2. Cleanup Standards**

As noted above, subsequent to the completion of the proposed time-critical removal action, Region 5 will evaluate any residual risk to human health and the environment in an RI/FS for Area 1 of OU5, which includes the Portage Creek Area. Remedial cleanup standards will be established in the FS and in the ROD for the entirety of OU5's Area 1. For purposes of the proposed time-critical removal action, Region 5 has established the following cleanup standards:

- Designated in stream sediments. The performance standard for sediment is  $\leq 10$  mg/kg PCB with a performance standard goal of 1 mg/kg. Reasonable efforts will be made to reach this goal including excavating to a "neat line" representing an elevation where sampling data from this area indicates PCB concentrations at or below the performance standard of 10 mg/kg. To reach the performance standard during this removal action will require approximately 17,000 cubic yards of material to be removed. In the event that the confirmatory sampling demonstrates that the performance standard goal of 1 mg/kg has not been met, then Region 5 will evaluate whether additional excavation and/or cover with clean material and confirmatory sampling is appropriate under the circumstances presented at the time and place the sample result is obtained.
- Designated PCB contaminated floodplain and bank soils within the Portage Creek Area: The performance standard for these soils is 10 mg/kg with a performance standard goal of 5 mg/kg. In the event that the confirmatory sampling demonstrates that the performance goal of 5 mg/kg has not been met, then Region 5 will evaluate whether additional excavation and/or covering with clean material and confirmatory sampling is appropriate under the circumstances presented at the time and place the sample result is obtained.

The Work Plan documents may specify other project requirements to be completed as part of this removal action.

### **3. Contribution to remedial performance.**

The NCP requires that, if U.S. EPA determines that a removal action will not fully address a release, and that subsequent remedial action may be necessary, then the Agency must ensure an orderly transition from removal to remedial response activities. 40 C.F.R. § 300.415(g). As noted above, subsequent to the removal action selected in this Action Memorandum, Region 5 will complete its evaluation, through the Superfund remedial process, of the risks to human health and the environment within the entire Area 1 of OU5 (which includes Portage Creek). Residual risks to human health and the environment remaining within the Portage Creek Area after completion of the removal action will be evaluated as part of that process. If U.S. EPA determines that additional response work is necessary in the Portage Creek Area, such work will be required by the ROD.

### **4. Applicable or relevant and appropriate requirements (ARARs)**

All applicable or relevant and appropriate requirements (ARARs) of federal and state law will be complied with to the extent practicable. By letter dated March 29, 2011, Region 5 requested that MDEQ identify potential state ARARs for this response action. Any state ARARs identified in a timely manner for this removal action will be complied with to the extent practicable.

The Federal Clean Water Act, National Pollution Discharge Elimination System (NPDES) program requires a permit for direct discharge to surface water. States authorized to administer an equivalent program, such as Michigan, establish discharge standards. Discharge from a CERCLA site to surface water bodies must meet substantive requirements of the permitting process, but a permit is not required. Treated water from project operations discharged back to Portage Creek from sediment dewatering will meet substantive discharge standards established by MDEQ in accordance with Clean Water Act requirements.

For off-site disposal, wastes will be transported to an acceptable Resource Conservation Recovery Act (RCRA) and/or Toxic Substance Control Act (TSCA)/CERCLA treatment, storage and disposal facility pursuant to the U.S. EPA Off-Site Rule.

The PCB Remediation Waste Rule, 40 C.F.R. § 761.61 *et seq.*, promulgated pursuant to TSCA is an ARAR for the proposed removal action. U.S. EPA has evaluated the necessary information required for approving the method of risk-based disposal of PCB remediation waste and such information is in the administrative record. Based on this evaluation and after consultation with the Region 5 TSCA program, the Region 5 Superfund Division Director has determined that the disposal method proposed in Section

VI.A.1(e) of this Action Memorandum does not pose an unreasonable risk of injury to public health or the environment. By signature on this Action Memorandum, and pursuant to 40 C.F.R. § 761.61(c), the Region 5 Superfund Division Director approves the risk-based disposal of PCB contaminated material in the manner described in Section VI.A.1(e).

### 5. Project Schedule

The activities outlined in this action memo will require an estimated 264 on-site working days to complete and will be planned for completion over two or more construction seasons.

### B. Estimated Costs

The detailed cleanup contractor cost is presented in Attachment 2 and the Independent Government Cost Estimate is presented in Attachment 3. Estimated project costs are summarized below:

REMOVAL ACTION PROJECT CEILING ESTIMATE	
<b><u>Extramural Costs:</u></b>	
<b><u>Regional Removal Allowance Costs:</u></b>	
Total Cleanup Contractor Costs (This cost category includes estimates for ERRS, subcontractors, Notices to Proceed, and Interagency Agreements with Other Federal Agencies. Includes a 15% contingency)	\$ 12,797,781
<b><u>Other Extramural Costs Not Funded from the Regional Allowance:</u></b>	
Total START, including multiplier costs	\$ 958,144
Total Decontamination, Analytical & Tech. Services (DATS)	\$ 0
Total CLP	\$ 0
Subtotal	\$ 958,144
Subtotal Extramural Costs	\$ 13,755,925
Extramural Costs Contingency (15% of Subtotal, Extramural Costs rounded to nearest thousand)	\$ 2,063,389
<b>TOTAL REMOVAL ACTION PROJECT CEILING</b>	<b>\$ 15,819,314</b>

## **VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

Given the conditions in the Portage Creek Area, the nature of the hazardous substances and pollutants or contaminants documented, and the potential exposure pathways to nearby populations described in Section II, III, IV, and V above, actual or threatened releases of hazardous substances and pollutants or contaminants from the Portage Creek Area, if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment, increasing the potential that hazardous substances will be released, thereby threatening the adjacent population and the environment.

## **VIII. OUTSTANDING POLICY ISSUES**

The removal does not involve nationally significant and precedent-setting issues.

## **IX. ENFORCEMENT**

For administrative purposes, information concerning the enforcement strategy for this Site is contained in the Enforcement Confidential Addendum.

The total U.S. EPA costs for this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be \$ 26,386,889.<sup>2</sup>

$$(\$15,819,314 + \$392,832) + (62.76\% \times \$16,212,146) = \$ 26,386,889$$

## **X. RECOMMENDATION**

This decision document represents the selected response action for the Portage Creek Area of the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site. It was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based upon the Administrative Record for the removal action, an index of which is attached to this Action Memorandum (Attachment 4). Region 5 plans to provide the PRPs with an opportunity to conduct this removal action.

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<sup>2</sup> Direct Costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.



Conditions in the Portage Creek Area meet the criteria of Section 300.415(b)(2) of the NCP for a removal action, the CERCLA section 104(c) consistency exemption from the 12-month limitation and the emergency exemption from the \$6 million limitation. I recommend your approval of the proposed removal action, 12-month exemption and \$6 million exemption.

The total project ceiling if approved will be \$15,819,314, of which an estimated \$14,861,170 can be used for cleanup contractor costs. You may indicate your decision by signing below.

APPROVE: Mathy Stanislaus DATE: 7/5/11  
Mathy Stanislaus, Assistant Administrator  
Office of Solid Waste and Emergency Response

DISAPPROVE: \_\_\_\_\_ DATE: \_\_\_\_\_  
Mathy Stanislaus, Assistant Administrator  
Office of Solid Waste and Emergency Response

#### Enforcement Addendum

##### Figures:

- 1 Site Location Map
- 2 Site Excavation Area Map

##### Attachments:

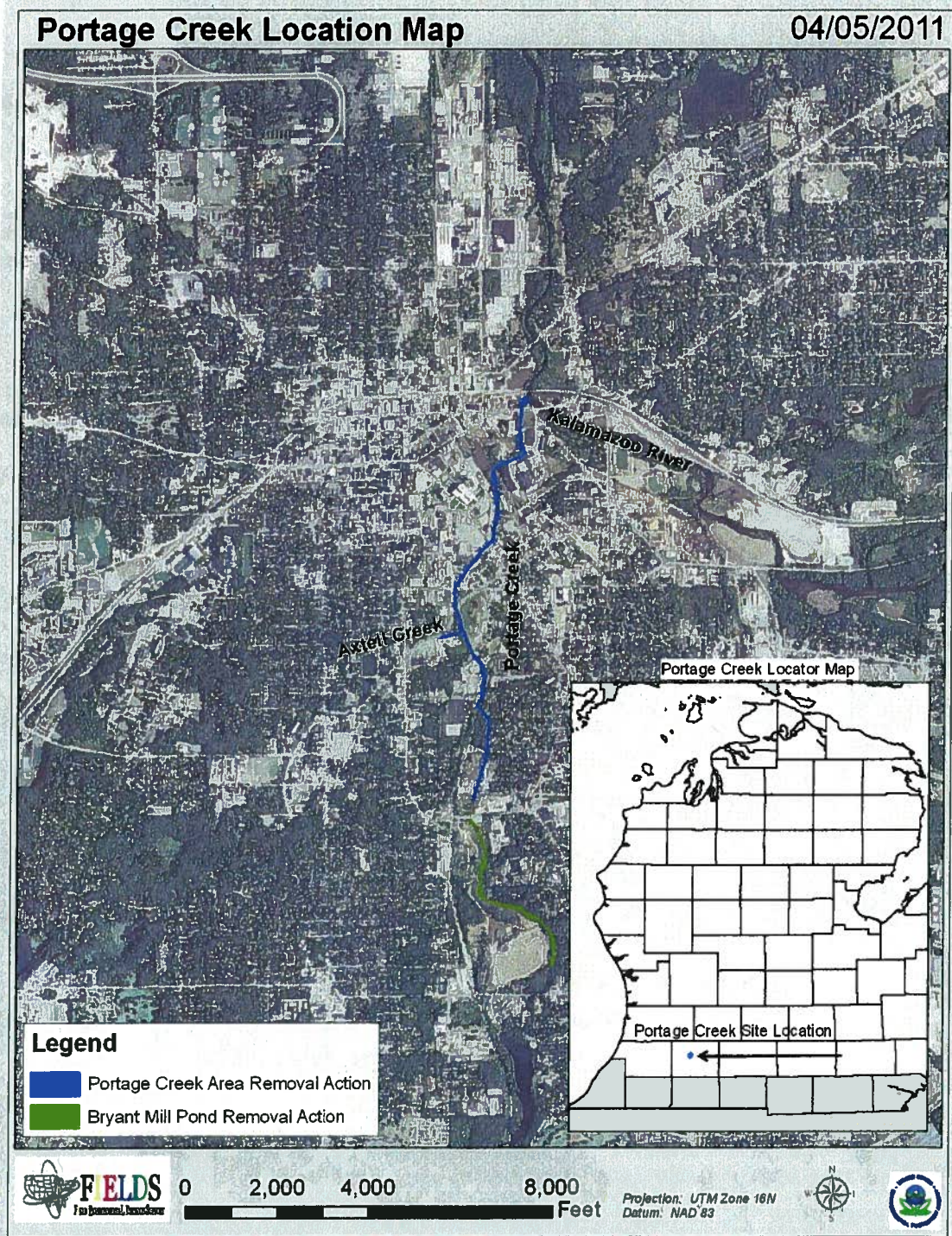
1. Environmental Justice Analysis
2. Detailed Cleanup Contractor Cost Estimate
3. Independent Government Cost Estimate
4. Administrative Record Index

cc: D. Chung, U.S. EPA, 5203-G  
M. Chezik, U.S. DOI, w/o Enf. Addendum  
Dan Wyant, Director, Michigan DEQ, w/o Enf. Addendum  
Bill Schuette, Michigan Attorney General, w/o Enf. Addendum  
Paul Bucholtz, Michigan DEQ, w/o Enf. Addendum

bcc: R. Karl, SR-6J (karl.richard@epa.gov)  
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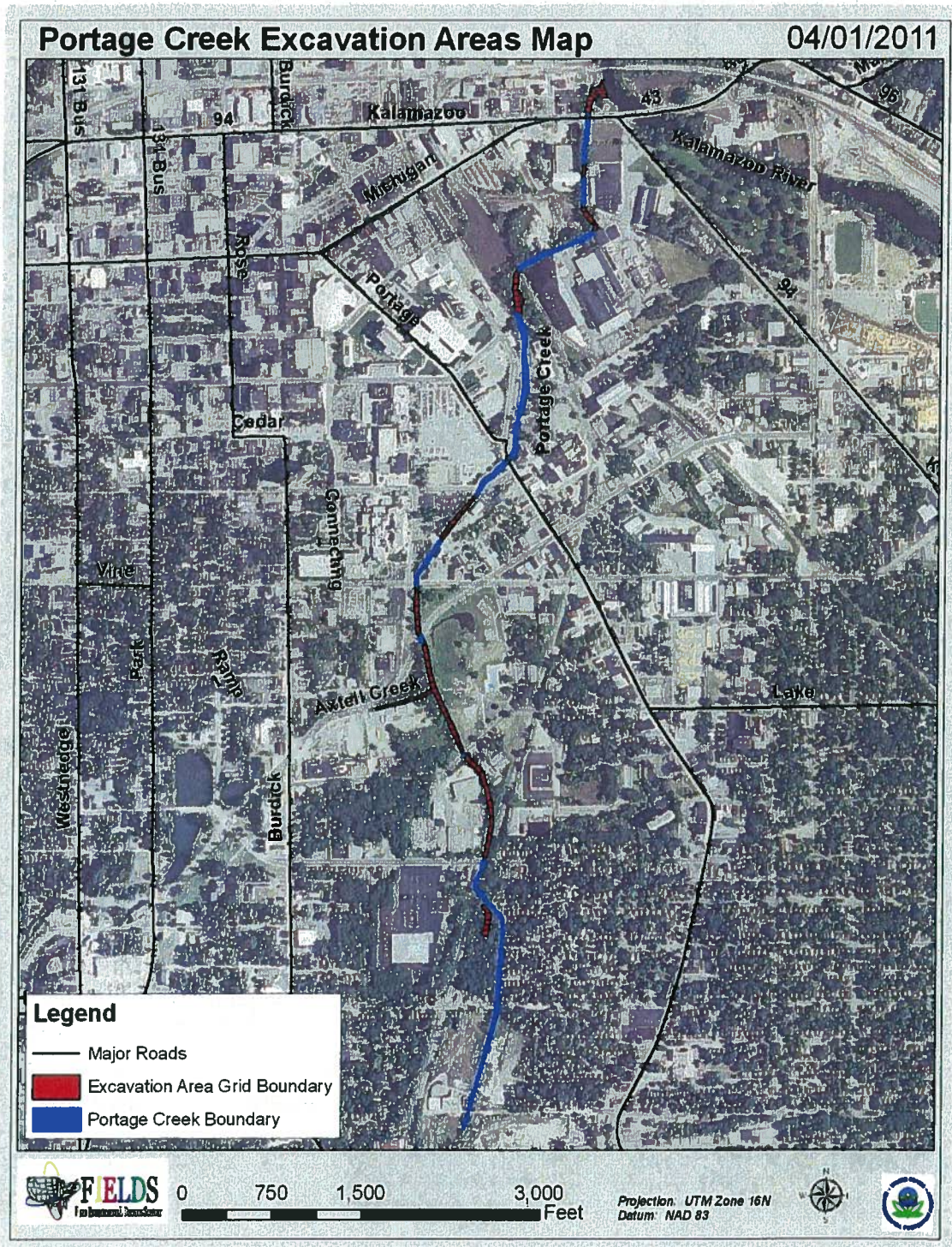
**FIGURE 1  
SITE LOCATION MAP**

**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site – Portage Creek Area**





**FIGURE 2**  
**SITE EXCAVATION AREA MAP**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site – Portage Creek Area**





## ATTACHMENT I EJ ANALYSIS

### R5 Superfund EJ Analysis for the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site – Portage Creek Area

The area surrounding the Portage Creek Area of the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site was screened for Environmental Justice (EJ) concerns using Region 5's EJ Assist Tool (which applies the interim version of the national EJ Strategic Enforcement Assessment Tool (EJSEAT)). Census tracts with a score of 1, 2, or 3 are considered to be high-priority potential EJ areas of concern according to U.S. EPA Region 5. The Portage Creek Area of the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site is located in census tracts with scores of 2 and 3 (Figure EJ 1). Therefore, Region 5 considers this site to be a high-priority potential EJ area of concern.

**Figure EJ 1.**

Portage Creek Area Map Showing EJ SEAT Values For Surrounding Area

