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# 1. Introduction

The Director of the Michigan Department of Environmental Quality (MDEQ), the Attorney General of the State of Michigan, the U.S. Secretary of the Interior as represented by the Regional Director of the U.S. Fish and Wildlife Service (U.S. FWS), and the U.S. Secretary of Commerce as represented by the National Oceanic and Atmospheric Administration (NOAA) (collectively referred to as the Trustees), are in the process of assessing damages for injuries to natural resources in the Kalamazoo River Environment (KRE) resulting from the release of hazardous substances into the KRE.<sup>1</sup>

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. §§ 9601-75, and the Federal Water Pollution Control Act (Clean Water Act, or CWA), 33 U.S.C. §§ 1251-1387, provide authority for the Trustees to seek such damages. Additionally, the State Trustees have authority to seek damages for the full value of the injuries to natural resources pursuant to Section 20126a(1)(c) of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act (NREPA), MCL § 324.20126, as well as Section 3115(2) of Part 31, Water Resources Protection, of NREPA, MCL § 324.3115(2).

## 1.1 Natural Resource Damage Assessment Process

The Trustees have decided to conduct the natural resource damage assessment (NRDA) for the KRE in stages. The first stage of the assessment entails the development of initial conclusions regarding the types and magnitudes of injury and damages resulting from hazardous substance releases into the KRE. The Stage I Assessment is deemed preliminary because future injuries are dependent on the remedial actions that will be implemented at the site,<sup>2</sup> and the response agencies have not yet made decisions regarding remediation. The Stage I Assessment is based primarily on data known to and available to the Trustees through approximately 2003 and on additional information the Trustees were aware of as of the date of this report. In the event the Trustees become aware of new or additional information pertinent to the assessment, including information regarding other hazardous substances or releases, the Trustees may revise the results

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1. On September 29, 2004, the Michigan Department of Natural Resource (MDNR) was designated to serve as a natural resource Trustee along with the MDEQ and the Attorney General of the State of Michigan. As of the date of publication of this report, efforts are underway to include the MDNR as a member of the Trustee Council to assure the coordination of future NRDA activities.

2. The term “site” as used in this document refers to the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site, and any additional areas addressed by the remedial investigation (see Section 1.3).

of the Stage I Assessment or address such information in subsequent stages of the assessment. The results of the Stage I Assessment will be used by the Trustees to help define any additional focused work that could be conducted in the next stage and, if appropriate, to help evaluate any potential settlement options. If deemed necessary by the Trustees, a more detailed Stage II Assessment may be conducted, in which further studies may address uncertainties identified in the Stage I Assessment.

This document presents the Stage I Injury Assessment by the NRDA Trustees. A companion document presents the Trustees' Stage I Economic Assessment Report (Michigan Department of Environmental Quality et al., 2005). The Stage I Assessment is the third step in the NRDA process and follows the KRE Preassessment Screen prepared by the Trustees in May 2000 (Michigan Department of Environmental Quality et al., 2000a) and the Stage I Assessment Plan prepared by the Trustees in November 2000 (Michigan Department of Environmental Quality et al., 2000b). Based on the conclusions of the Preassessment Screen, the Trustees determined that there is a reasonable probability of making a successful natural resource damages claim, and that they would proceed with the preparation of a Stage I Assessment Plan. The Stage I Assessment Plan described the approach and methods to be used in the Stage I Assessment. This Stage I Assessment was prepared in accordance with the U.S. Department of the Interior (DOI, or the Department) NRDA regulations as set forth at 43 C.F.R. Part 11.<sup>3</sup>

## 1.2 Public Review and Comment

While the Stage I Assessment Report is not subject to a public comment period under state or federal law, the Trustees recognize the benefits of public involvement. Consequently, the Trustees will consider written comments received by April 15, 2005 when planning and undertaking additional assessment activities.

Written comments may be submitted to:

Nanette D. Leemon  
Michigan Department of Environmental Quality  
Compliance and Enforcement Section  
Remediation and Redevelopment Division  
P.O. Box 30426  
Lansing, Michigan 48909

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3. 43 C.F.R. Part 11 regulations were authored by the DOI, and are referred to as the DOI regulations in this document. Use of these regulations is not required. However, they must be used in order for a NRDA to be accorded the evidentiary status of a rebuttable presumption. 43 C.F.R. § 11.11.

Information disseminated by federal agencies to the public after October 1, 2002 is subject to information quality guidelines developed by each agency pursuant to Section 515 of Public Law 106-554 that are intended to ensure and maximize the quality of such information (i.e., the objectivity, utility and integrity of such information). This Stage I Assessment Report is an information product covered by information quality guidelines established by NOAA and DOI for this purpose. The information contained herein complies with applicable guidelines.

### **1.3 Background Information on the Assessment Area**

Polychlorinated biphenyls (PCBs) have been released into the environment in the vicinity of Kalamazoo, Michigan (Figure 1.1). The primary industrial activity associated with the PCB releases into the KRE was the recycling of carbonless copy paper at several area paper mills. Carbonless copy paper manufactured from 1954 to 1971 contained PCBs (Appleton Papers, 1987). Waste from the recycling process conducted at Kalamazoo area paper companies also contained PCBs, and the waste was disposed of by several methods which resulted in releases of PCBs into the environment.

The Allied Paper, Inc./Portage Creek/Kalamazoo River National Priorities List (NPL) site is located in Kalamazoo and Allegan counties, Michigan, and includes multiple sources of PCBs. Industrial and potentially other activities in the Kalamazoo area released PCBs into the environment, including Portage Creek and the Kalamazoo River. PCBs have contaminated sediments, the water column and biota in and adjacent to an 80-mile stretch of the river. This site was included on the NPL on August 30, 1990. The U.S. Environmental Protection Agency (EPA) and Michigan describe the site as follows: (1) an Allied Paper, Inc. property in Kalamazoo, Kalamazoo County, Michigan; (2) a 3-mile stretch of Portage Creek from Cork Street just above the Bryant Mill Pond in the city of Kalamazoo to where the Creek meets the Kalamazoo River; and (3) an approximately 80-mile stretch of the Kalamazoo River, from Morrow Dam to Lake Michigan, with adjacent floodplains, wetlands, and in-stream sediments. The site currently includes several paper residual disposal areas<sup>4</sup> and paper mill properties<sup>5</sup> (see Figure 1.2 and Section 2.2, *infra*). At this time the site includes five cleanup projects and/or

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4. The paper residual disposal areas include the Monarch historical residuals dewatering lagoon (or “HRDL”), the Bryant HRDL, the former Bryant Mill Pond, the King Highway Landfill, the A-Site Disposal Area, the Willow Boulevard Disposal Area, the 12th Street Landfill, and the Fort James Disposal Area.

5. The paper mill properties include the Allied Paper, Inc. mills including Monarch, Bryant and King; the Georgia-Pacific mills; the Simpson-Plainwell Mill; and the Ft. James Paperboard Mill and KVP Mill.

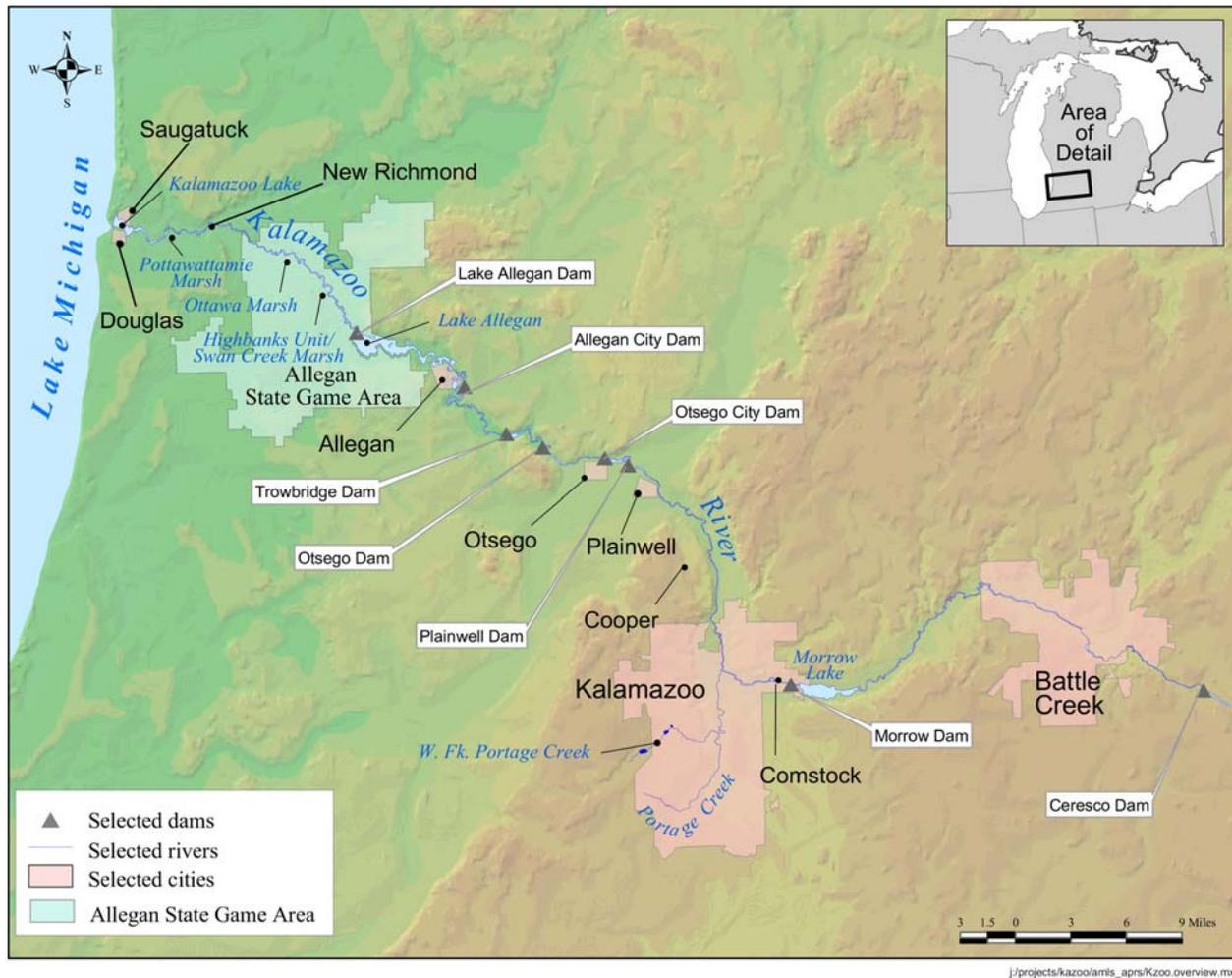


Figure 1.1. Key features of the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site and surrounding environment.

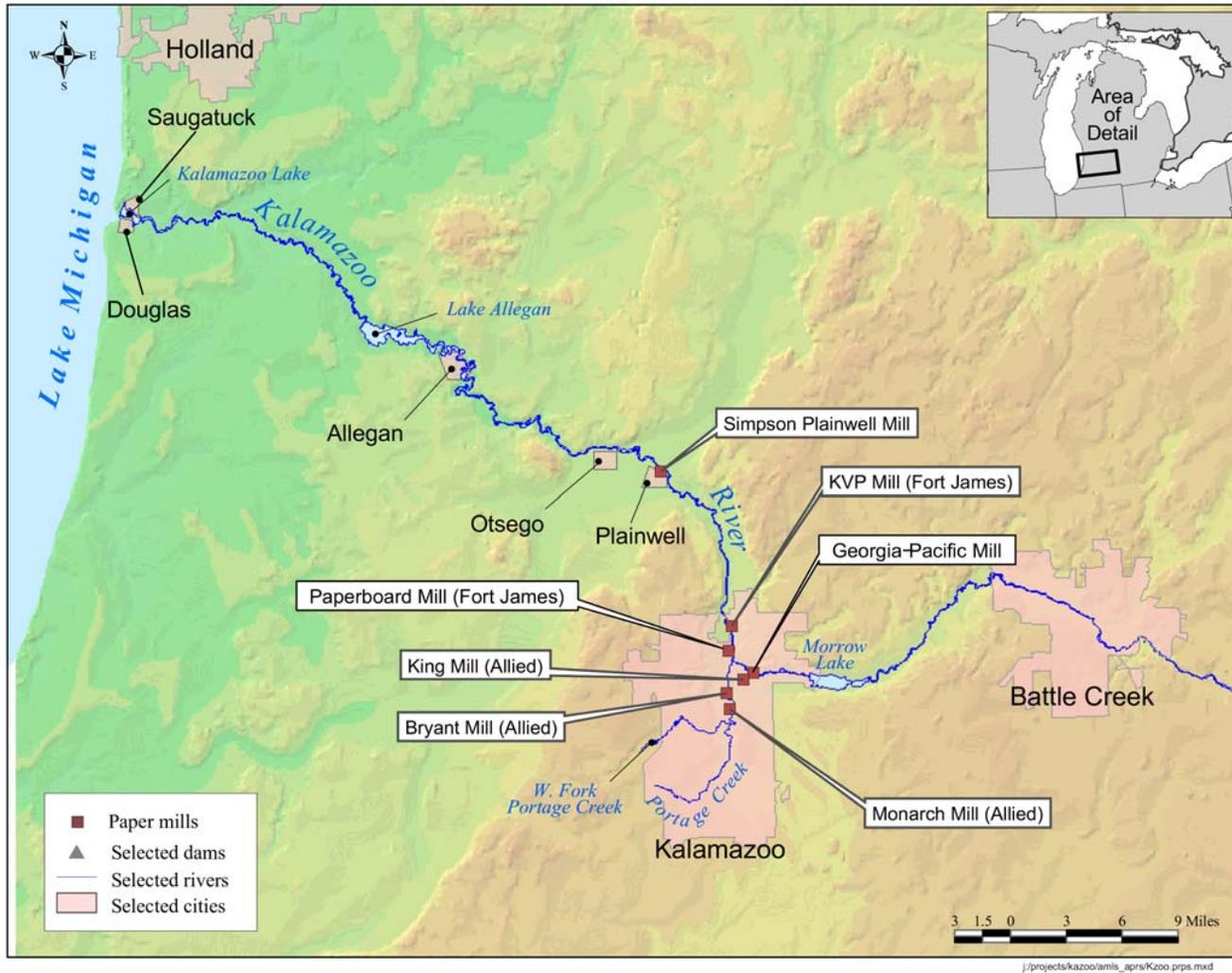


Figure 1.2. Location of current and former PRP paper mill facilities.

operable units.<sup>6</sup> The Superfund Remedial Investigation (RI) for the Portage Creek and Kalamazoo River operable unit includes the Kalamazoo River area from Battle Creek downstream to the mouth of the Kalamazoo River at Lake Michigan about 80 river miles northwest and the three miles of Portage Creek.

In this document, the Trustees are using the term KRE to represent the entire assessment area. The KRE encompasses the area currently included in the RIs for the site's operable units along with any area where hazardous substances released at or from the site have come to be located or where natural resources or the services they provide may have been affected by these hazardous substances.

## 1.4 Potentially Responsible Parties

The Trustees have identified the following potentially responsible parties (PRPs): Allied Paper, Inc. and its parent company, Millennium Holdings, Inc. (now owned by Lyondell Chemical Company); the Georgia-Pacific Corporation; Plainwell Inc. (successor to Plainwell Paper Inc. and Simpson Plainwell Paper Company); and the Fort James Corporation (now owned by Georgia-Pacific).<sup>7</sup> In addition, EPA has identified Weyerhaeuser as an additional PRP. In 2000, Georgia-Pacific acquired Fort James (Georgia-Pacific, 2000). However, for consistency with previous documents, facilities operated by Fort James will continue to be discussed separately in this report.

Allied Paper, Inc. facilities include the former Monarch and Bryant Mills on Portage Creek in Kalamazoo and the former King Mill on Lake Street in Kalamazoo. Georgia-Pacific Corporation facilities include several mills on the bank of the Kalamazoo River along King Highway in Kalamazoo. Plainwell Inc. facilities include a mill on the bank of the Kalamazoo River along Allegan Street in Plainwell. The locations of the PRP facilities are shown in Figure 1.2.

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6. Those operable units are OU1 – Allied Paper Property/Bryant Mill Pond Area, OU2 – Willow Boulevard and A-Site Landfill, OU3 – King Highway Landfill, OU4 – 12th Street Landfill, and OU5 – Portage Creek and Kalamazoo River sediments.

7. The term PRP as used in this document refers to parties potentially liable for cleanup costs or natural resource damages under CERCLA and/or under Section 20126a(1)(c) of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act (NREPA), MCL § 324.20126.

## **1.5 Spatial and Temporal Extent of the Stage I Assessment**

The KRE Assessment Area (assessment area) includes the natural resources within the Portage Creek and Kalamazoo River riparian corridors that are exposed to hazardous substances released from the PRP facilities along with any area where hazardous substances released at or from the site have come to be located or where natural resources or the services they provide may have been affected by these hazardous substances.

Releases of PCBs into the KRE from paper company facilities began in the 1950s, as described in Chapter 2. However, the Stage I Assessment focuses on assessing injuries under current and recent (i.e., in the last two decades) conditions, since most of the available relevant data have been collected in the last two decades. Since current and recent PCB concentrations in the KRE are generally lower than in previous decades (Blasland, Bouck & Lee, 2000b), any current and recent PCB injuries have likely been occurring since the 1950s.

## **1.6 Organization of the Stage I Injury Assessment Report**

Chapter 2 presents information on releases of hazardous substances and exposure pathways. Chapters 3 and 4 assess injuries to surface water and sediment, respectively, which together constitute the surface water resource. Chapter 5 describes fish consumption advisory injuries that result from PCB contamination in fish. Chapter 6 assesses other injuries to aquatic biological resources, and Chapter 7 assesses injuries to wildlife. Chapter 8 presents an assessment of indirect injuries to natural resources that can result from different remedial actions taken to address PCB contamination. Chapter 9 summarizes the conclusions of the Stage I Assessment. References cited in the text are provided at the end of the document.