UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
GREAT LAKES NATIONAL PROGRAM OFFICE
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

Stephen Galarneau, Director
Office of Great Waters – Great Lakes & Mississippi River
Wisconsin Department of Natural Resources
PO Box 7921
Madison, WI 53707-7921

Dear Mr. Galarneau:

Thank you for your September 17, 2021 request to remove the *Restrictions on Dredging Activities* Beneficial Use Impairment (BUI) from the Lower Green Bay and Fox River Area of Concern (AOC) located in Green Bay, WI. As you know, we share your desire to restore all the Great Lakes AOCs and to formally delist them.

Based upon a review of your submittal and supporting information, the U.S. Environmental Protection Agency (EPA) approves your request to remove this BUI from the Lower Green Bay and Fox River AOC. EPA will notify the International Joint Commission (IJC) of this significant positive environmental change at this AOC.

We congratulate you and your staff as well as the many federal, state and local partners who have been instrumental in achieving this environmental improvement. Removal of this BUI will benefit not only the people who live and work in the AOC, but all residents of Wisconsin and the Great Lakes basin as well.

We look forward to the continuation of this important and productive relationship with your agency as we work together to delist this AOC in the years to come. If you have any further questions, please contact me at (312) 353-8320 or your staff can contact Leah Medley at (312) 886-1307.

Sincerely,

CHRISTOPHER KORLESKI

Digitally signed by CHRISTOPHER KORLESKI
Date: 2021.09.22 12:55:00 -05'00'

Chris Korleski, Director
Great Lakes National Program Office

cc: Briana Kupsky, WDNR
Kendra Axness, WDNR
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September 17, 2021

Chris Korleski, Director
Great Lakes National Program Office
U.S. Environmental Protection Agency
77 West Jackson Boulevard (G-17J)
Chicago IL 60604-3507

Subject: Removal of the Restrictions on Dredging Activities Beneficial Use Impairment in the Lower Green Bay and Fox River Area of Concern

Dear Mr. Korleski:

The Wisconsin Department of Natural Resources (WDNR) requests the U.S. Environmental Protection Agency (U.S. EPA) Great Lakes National Program Office's (GLNPO's) concurrence with the removal of the Restrictions on Dredging Activities Beneficial Use Impairment (BUI) in the Lower Green Bay and Fox River Area of Concern (AOC).

Wisconsin DNR has assessed the status of the Restrictions on Dredging Activities BUI relative to the BUI removal target and we are pleased to report that all actions associated with this impairment have been completed and the target has been met. The enclosed Restrictions on Dredging Activities Beneficial Use Impairment Removal Recommendation document provides the information to support the removal recommendation. We held a 30-day public comment period for the removal recommendation document. We received one comment opposing the removal which we have addressed in Appendix F.

The completion of the Lower Fox River PCB cleanup project represents a major milestone in the restoration of this AOC. One of the largest known PCB cleanups of its kind in the world, the 17-year effort in northeast Wisconsin followed decades of scientific investigation and included dredging to remove 6.5 million cubic yards of contaminated sediment, as well as capping over 275 acres of riverbed and sand covering 780 acres. This achievement was made possible through collaboration between WDNR, the U.S. EPA, the U.S. Fish & Wildlife Service, tribal groups and many private organizations.

Because of the collaborative and rigorous nature of the sediment cleanup and because the BUI removal target has been met, we are requesting the Restrictions on Dredging Activities BUI be removed from the list of impairments in the Lower Green Bay and Fox River AOC.

We value our continuing partnership in the AOC Program and look forward to working closely with U.S. EPA GLNPO in the removal of BUIs and the delisting of Wisconsin's AOCs. If you need additional

information, please contact Brie Kupsky, WDNR, at (920) 662-5465, Rebecca Fedak, WDNR, 920-207-8380, or you may contact me.

Sincerely,

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Cc: Kendra Axness, WDNR
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Leah Medley, USEPA
Sue Virgilio, USEPA

Enclosures:

Lower Green Bay and Fox River Area of Concern Beneficial Use Impairment Removal Recommendation: Restrictions on Dredging

Lower Green Bay and Fox River Area of Concern Beneficial Use Impairment Removal Recommendation: Restrictions on Dredging

Submitted to:
US EPA-GLNPO
77 W. Jackson Blvd.
Chicago, IL 60604

By:
Wisconsin Department of Natural Resources
September 2021

Acknowledgements and Appreciation

Prepared by:

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The Wisconsin Department of Natural Resources acknowledges the support provided by the Lower Green Bay & Fox River Area of Concern (AOC) stakeholders in the development of the Restrictions on Dredging Beneficial Use Impairment (BUI) Removal Recommendation Document. For several decades, countless individuals from the public, private, and citizen sectors worked together to clean up one of the largest PCB-contaminated sites globally, and this removal recommendation marks a major milestone in the path to restoring, remediating, and revitalizing the AOC.

Photo Credit: J.F. Brennan Company

Disclaimer

The purpose of this document is to recommend removal of the Restrictions on Dredging Activities BUI in the Lower Green Bay & Fox AOC.

Several state and federal programs overlap as they relate to sediment remediation. This document is solely intended for the USEPA and WDNR AOC program related to AOC BUI removal. The AOC program is not a regulatory program, rather, it is an effort to restore beneficial uses guided by the Great Lakes Water Quality Agreement (GLWQA). In no way does this document overlap, supplant, or replace any past, current, or future regulatory requirements for responsible parties or potentially responsible parties.

Figure 1. Top photo: Ship in downtown Green Bay on the Fox River at night. Retrieved from City-Data.com.

Figure 2. Bottom photo: The Lower Fox River turning basin. Retrieved from Port of Green Bay.

Executive Summary

The Lower Green Bay and Fox River was designated as an Area of Concern (AOC) under the GLWQA in 1987, encompassing the last 7 miles of the Lower Fox River and 21 mi^2 of the lower bay of Green Bay. The designation was due to the existence of severely contaminated sediments and water quality issues that originated from municipal and industrial effluents, as well as nutrients from the watershed, creating an aquatic environment toxic to human, fish, and wildlife health.

In 1988, the International Joint Commission (IJC) established listing and delisting criteria for AOCs to use as benchmarks in confirming the presence of a suite of 14 potential BUIs. In the 1993 Remedial Action Plan (RAP), eleven confirmed and two suspected beneficial use impairments (BUIs) were identified in the Lower Green Bay & Fox River AOC. The Restrictions on Dredging Activities BUI was listed as confirmed due to the presence of PCBs and other persistent toxic chemicals in the sediment and water column of the entire reach of the Lower Fox River, resulting in additional economic and regulatory obligations on dredging activities beyond typical requirements established by the Clean Water Act.

Various regulations, policy decisions, and the persistence of countless individuals for decades led to the characterization of persistent toxic chemicals in sediments of the Lower Fox River and eventually led to one of the largest PCB cleanup efforts globally. From 2004 to 2020, the Lower Fox River PCB Cleanup Project successfully remediated over 8.2 million cubic yards of sediment from all operating units in the river, and 10 billion gallons of water was treated and returned to the Fox River over the duration of the project.

Active cleanup operations, as directed by Records of Decision issued by USEPA under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, e.g. “Superfund”), were completed in 2020. Going forward, long-term monitoring will be implemented for decades to ensure the integrity of remedial actions. Additionally, several measures known as “institutional controls” are already in place and others will begin in 2021 and continue for decades to protect the integrity of remedial actions taken to address PCBs and other persistent toxic chemicals in the Lower Fox River. These institutional controls ensure that any navigational dredging or other activity potentially modifying the bed of the Lower Fox River and bay of Green Bay will be protective of human and ecological health.

With the remediation of contaminated sediments and institutional controls in place in the Lower Green Bay & Fox River AOC, the cost and regulatory obligations associated with dredging activities needed to maintain navigation channel has achieved parity with other Great Lakes communities. These dredging activities support the Green Bay region in many ways, such as maintaining the Port of Green Bay which supports an estimated $82 million in income, $9 million in state taxes, and 1,300 jobs annually.

Going forward, long term monitoring by Responsible Parties (RPs) to evaluate reductions of PCBs in surface water, fish tissue, and sediments will continue for decades. This data, along with data collected by WDNR, will be used to evaluate fish and waterfowl consumption advisories for the Lower Fox River and bay of Green Bay and inform the status of the Restrictions on Fish and Wildlife Consumption BUI. The AOC program will also continue to work with partners to support assessments of several other impairments caused by contaminated sediments in the near term, and the Lake Michigan Lakewide Action and Management Plan (LAMP) program will continue to support ecosystem restoration efforts in the long term.

Figure 3. Birdseye view of the Green Bay Harbor and the Fox River. Retrived from the Port of Green Bay.

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Purpose

The purpose of this document is to recommend the removal of the Restrictions on Dredging Activities BUI in the Lower Green Bay & Fox River AOC. This document provides context on the confirmed listing of this BUI, a summary of management actions taken to meet BUI removal criteria, and a summary of stakeholder recommendations and feedback regarding the removal of this impairment. Taken in whole, this document demonstrates that all portions of the Restrictions on Dredging Activities BUI removal target have been met and AOC stakeholders concur that the impairment classification can be removed.

Rationale for AOC Designation and BUI List

The Lower Green Bay & Fox River was designated as an AOC under the GLWQA in 1987 due to the presence of legacy contaminants and degraded water quality resulting from human activities at the local level, culminating in a loss of several beneficial uses provided by the aquatic and nearshore resources (WDNR, 1989). Legacy contaminant sources included discharges from untreated municipal and industrial wastewater, and water quality was further degraded by excessive nutrient input from point and nonpoint sources. While the entire Fox River downstream of Lake Winnebago was impacted by these legacy issues, the last seven miles of the Fox River downstream of the De Pere Dam and a 21 mi^2 area of the lower bay of Green Bay were considered extremely degraded as a result of these activities and encompass the AOC boundary (Figure 4). In 1993, the Remedial Action Plan Update (WDNR, 1993) identified 13 of the International Joint Commission (IJC) defined BUIs in the AOC. Eleven of these BUIs were confirmed, and an additional two were listed as suspected impairments. To date, one of the suspected impairments has been officially removed.

Confirmed

- *Restrictions on Fish and Wildlife Consumption*
- *Degradation of Fish and Wildlife Populations*
- *Bird or Animal Deformities or Reproduction Problems*
- *Degradation of Benthos*
- *Restrictions on Dredging Activities*
- *Eutrophication or Undesirable Algae*
- *Restrictions on Drinking Water, or Taste and Odor Problems*
- *Beach Closings*
- *Degradation of Aesthetics*
- *Degradation of Phytoplankton and Zooplankton Populations*
- *Loss of Fish and Wildlife Habitat*

Suspected

- *Fish Tumors or Other Deformities*
- *Tainting of Fish and Wildlife Flavor (removed April 2020)*

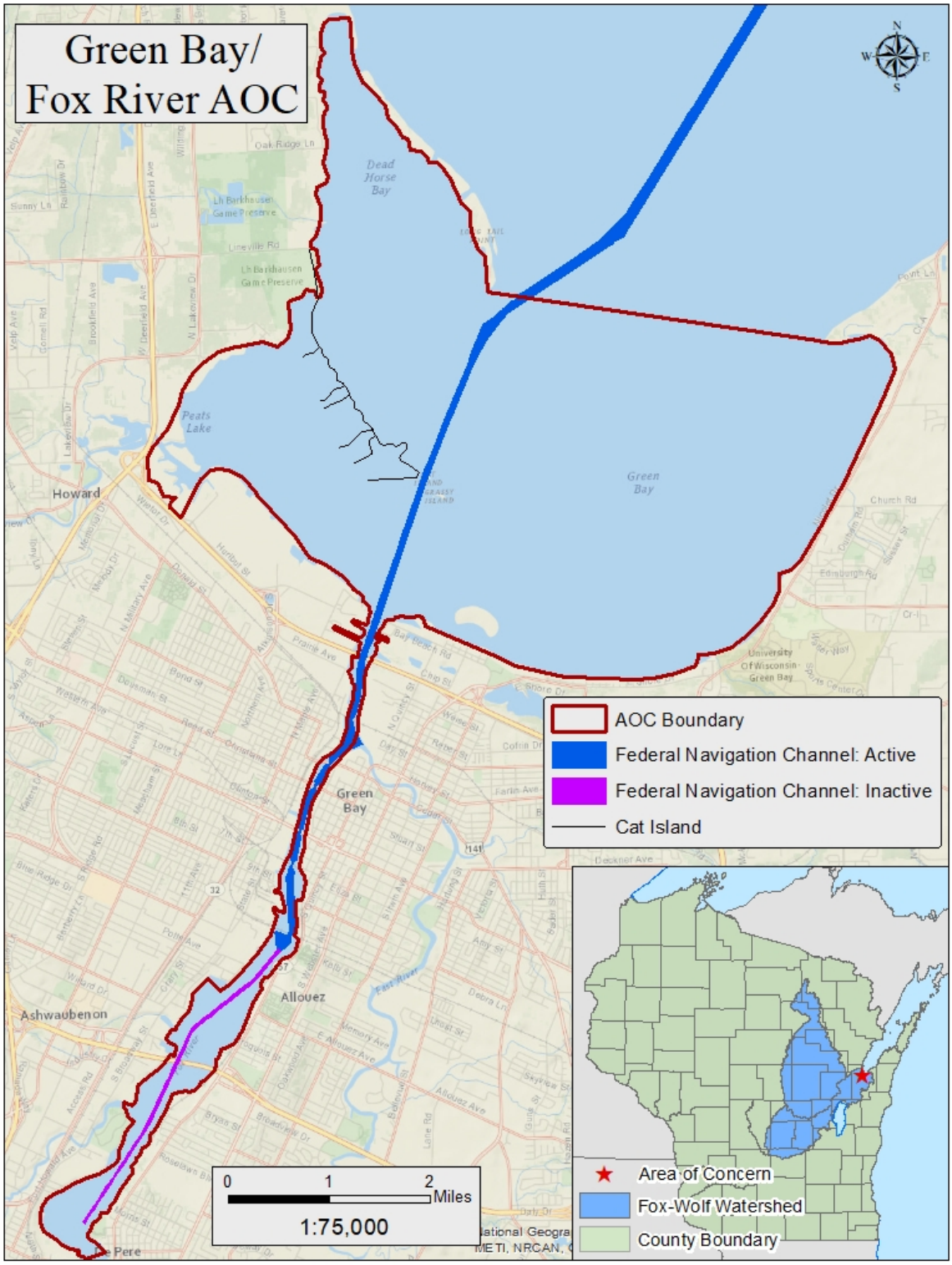

Figure 4. The Lower Green Bay & Fox River Area of Concern

Background and Rationale for BUI Listing

Much of the point source pollution that was generated within and/or transported to the AOC stemmed from industrial and municipal sewerage discharge effluents (WDNR, 1988). The 39 miles of the Lower Fox River was said to house one of the highest concentrations of paper mills in the world, with 34 mills located at one time along or adjacent to the river (Kraft, 2009). These paper mills released several organic and inorganic environmental contaminants into the river, which were then transported to the lower bay of Green Bay (Sullivan & Delfino, 1982; Figure 5). Decades of uncontrolled effluents and municipal sewage containing high amounts of organic wastes contributed to severely degraded water quality, with dissolved oxygen levels often observed below the aquatic life threshold of 2 mg/L. Degraded water quality led to observations of major declines in populations of fish and other desirable aquatic organisms and a shift in the aquatic community to prevalence of pollution tolerant species. Communities in the Fox Valley and Green Bay eventually turned away from the water, with Green Bay's only public beach closing in 1939 and sportfishing sharply declining.

Figure 5. Aerial photo of a paper mill discharging pulp waste into Little Lake Butte de Morts, 1973 (retrieved from WDNR Lower Fox River PCB Cleanup website).

The presence of persistent toxic chemicals in sediments of the Fox River and bay of Green Bay was perceived to be one of the most serious problems in terms of potential impacts to human health, fish and wildlife, economic impacts, and recovery efforts. Various studies conducted in the 1970's and 1980's had identified over 100 hazardous or potentially toxic chemicals in the sediments and water of the Fox River (Sullivan & Delfino, 1982). A major concern was the

release of PCBs to the river via the papermaking industry, specifically paper production facilities that manufactured carbonless copy paper. Production of this paper required that microcapsules of a waxy material enclosed a colorless dye dissolved in PCBs (ROD, 2003). Both the initial production and recycling of this carbonless copy paper resulted in discharges of PCBs from 1954 to 1971, with an estimated 690,000 pounds of PCBs released to the Fox River (Manchester-Neesvig et al., 1996). Production of carbonless copy paper discontinued after 1971 due to emerging concerns about PCBs in the environment.

The passage of the Clean Water Act in 1972 and subsequent amendments allowed the State of Wisconsin to develop the Wisconsin Pollution Discharge Elimination System (WPDES) to regulate pollutant discharge to all waters of the state, including oxygen-consuming compounds, PCBs and other toxic chemicals plaguing the Fox River and bay of Green Bay. In 1972, the Great Lakes Water Quality Agreement was signed by both the United States and Canadian governments. The agreement committed both countries to working cooperatively to protect the chemical, physical, and biological integrity of the Great Lakes System, with its first iteration focusing primarily on reduction of excessive nutrient loading from point source dischargers. Additionally, in 1979 US EPA placed a ban on PCB production, and local industries and municipalities invested millions of dollars in pollution control technology through the 1980's. These and other landmark bi-national, national, state, and local policies and initiatives resulted in significant improvements to water quality in the Fox River. This included drastic reductions to biological oxygen demand loads that allowed a world-class walleye fishery to largely become re-established by the 1980's.

However, a pathway toward remediating the legacy persistent toxic chemicals present in the sediments of several Great Lakes harbors was not addressed by the Clean Water Act or other state and local regulations. This led to a 1978 update to the Great Lakes Water Quality Agreement (GLWQA) which broadened the scope to include persistent toxic chemicals and set an overall goal of remediating and removing toxic substances from the Great Lakes. The 1987 Protocol to the 1978 GLWQA called for the prioritization of remediation and restoration efforts in 43 of the most polluted areas of the Great Lakes that had the capacity to pollute a larger geographic area of the basin, designating these pollution hotspots as "Areas of Concern". While the GLWQA agreements are non-regulatory and did not result in consistent legislation across the Great Lakes states aimed specifically at cleaning up Great Lakes AOCs, they did set the stage for states and local communities to increase the visibility and prominence of these highly contaminated areas through restoration and remediation planning efforts (e.g. Remedial Action Plans (RAPs) (Rabe and Gaden, 2009). The Lower Green Bay & Fox River was one of the 25 Great Lakes AOCs established in the US and one of the first AOCs to develop an initial RAP with a diverse stakeholder group in 1988. The initial RAP and subsequent RAP Updates describe beneficial use impairments present and their causes, actions needed to restore the AOC, agencies and organizations responsible for those actions, and a timeline in which to fulfill these actions.

The 1988 RAP established a vision for a desired future state which included a suite of remedial goals under 16 key actions, two of which focused exclusively on the elimination of toxic point source discharges and the reduction of availability of toxic substances from contaminated sediments. The use improvements associated with these key actions focused on decreasing potential human health risks from eating fish and wildlife harvested from the AOC and protecting fish, wildlife, and aquatic life from conventional (ammonia) and toxic (PCB) pollutants. Specific examples of impaired beneficial uses as a result of sediment contamination cited in the 1988

RAP were fish consumption advisories issued in 1976 and waterfowl consumption advisories issued in 1983 due to PCB contamination. Additionally, deformities in Forster's terns and double-crested cormorants were observed consistently by bird banders in the 1970s, leading to several studies evaluating potential impacts of PCB contamination on fish-eating birds.

A landmark 1983 study comparing Forster's tern reproductive success between colonies in the lower bay of Green Bay and a relatively uncontaminated inland location (Lake Poygan) found significant differences in hatching success, with 75% lower hatchability of naturally incubated eggs in Green Bay colonies as compared to Lake Poygan (Kubiak, et al., 1983). Furthermore, eggs collected from both colonies and artificially incubated in the laboratory observed 50% lower hatchability in the Green Bay vs. Lake Poygan colonies. Among the hatchlings that were artificially incubated in the laboratory, Green Bay hatchlings weighed on average 20% less and had a mean liver weight to body weight ratio 26% greater than their Lake Poygan counterparts. While these results and other studies identified similar intrinsic factors on reproductive success of fish-eating birds throughout the Great Lakes (Gilbertson, et al., 1991), Kubiak, *et al*. also reported extrinsic factors such as nest abandonment and egg disappearance impairing overall reproductive outcome in Green Bay Forster's tern colonies relative to Lake Poygan. Additional reproductive and/or deformity problems observed in fish and fish-eating birds in the AOC included fish tumors, chick edema disease, and crossed-bills (Hoffman et al., 1987) (Figure 6).

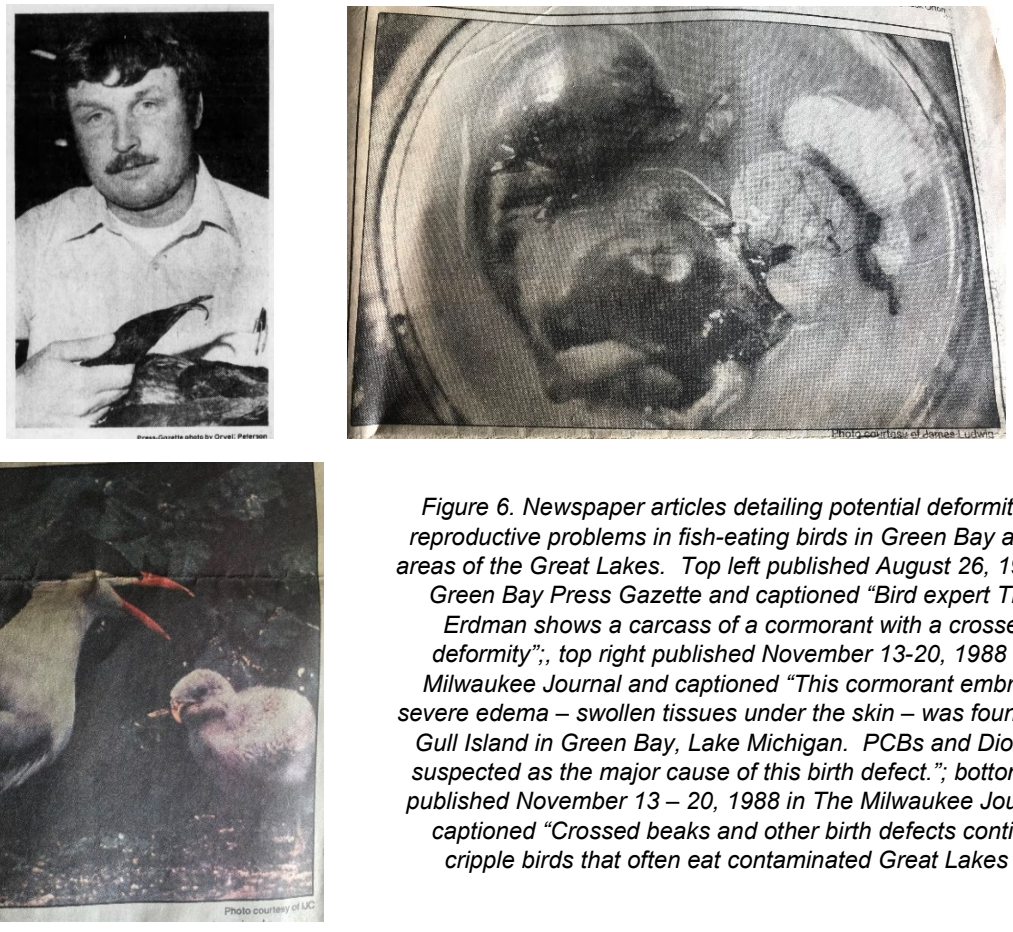

Figure 6. Newspaper articles detailing potential deformities and reproductive problems in fish-eating birds in Green Bay and other areas of the Great Lakes. Top left published August 26, 1983 in the Green Bay Press Gazette and captioned "Bird expert Thomas Erdman shows a carcass of a cormorant with a crossed bill deformity";, top right published November 13-20, 1988 in The Milwaukee Journal and captioned "This cormorant embryo with severe edema – swollen tissues under the skin – was found at Little Gull Island in Green Bay, Lake Michigan. PCBs and Dioxins are suspected as the major cause of this birth defect."; bottom center published November 13 – 20, 1988 in The Milwaukee Journal and captioned "Crossed beaks and other birth defects continue to cripple birds that often eat contaminated Great Lakes fish."

The Toxic Substances subcommittee and various other technical groups recommended the determination of mass and availability of PCBs and other contaminants in the Fox River as a key remedial action. This prompted the Green Bay Mass Balance Study (GBMBS), which evaluated and modeled contaminant transport through various media using mass conservation principles to determine the sources and quantities of PCBs in the Green Bay region. Lake Winnebago, point sources, groundwater from landfills, urban nonpoint sources, atmospheric deposition, Fox River and Green Bay bottom sediments, and several Green Bay tributaries were evaluated. The study identified over 50 contaminated sediment deposits, with this and subsequent studies identifying that each deposit was unique and contributed varying degrees of impact as well as significant variability in overall PCB movement dependent on river flows (GBMBS, 1989; Manchester-Neesvig et al., 1996).

After the GBMBS was completed, the 1993 RAP Update officially confirmed several BUIs as a result of contaminated sediment present in the AOC, including:

- *Restrictions on Dredging Activities*
- *Restrictions on Fish and Wildlife Consumption*
- *Degradation of Fish and Wildlife Populations*
- *Bird or Animal Deformities or Reproduction Problems*
- *Degradation of Benthos*
- *Restrictions on Drinking Water, or Taste and Odor Problems*

However, while several of the 120 remedial actions recommended in the 1988 and 1993 RAPs were complete or in progress by the 1990s, addressing contaminated sediments had not been implemented due to the significant costs a cleanup effort would impose on the public and private sector. Many different technical, financial, and logistical cleanup options were evaluated in the 1990s by the Fox River Coalition (FRC), a collaboration of public, private, and tribal partners that worked to develop a remedial action plan for contaminated sediments in the lower Fox River. While the FRC partnership fostered an important collaborative decision-making approach that built trust amongst many partners for several years, the slow development of a remediation plan led to a proposal by USEPA in 1998 to add the Lower Fox River and Green Bay to the National Priority List of Superfund sites to be cleaned up in accordance with the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). It was assumed that a Superfund designation would accelerate the cleanup activities (USEPA, 2020).

Additionally, US Fish & Wildlife Service, part of the Department of Interior, began pursuing a Natural Resource Damage Assessment (NRDA) in 1996 that assessed PCB-caused injuries to natural resources throughout the Lower Fox River and Green Bay and quantified the damage in terms of financial accountability by potentially responsible parties for the PCB contamination. Fishery resource injury determinations were identified through the NRDA studies to be most significant in the establishment of extensive fish consumption advisories for dozens of fish species throughout the Lower Fox River, Green Bay, and northern Lake Michigan, constituting estimated recreational fishing damages in the hundreds of millions (NRDA, 1999). Additionally, walleye in the Lower Fox River and Green Bay were found to be significantly injured as a result of PCB releases, with 34% of female walleye collected from the river and bay observed to have liver tumors or pre-tumors as compared to 7% observed in fish collected from reference areas (NRDA, 1999). Avian resource injury determinations were identified as a result of death, physiological malfunctions/reduced avian reproduction, physical deformation, and tissue

concentrations for several species of birds in the Lower Fox River and Green Bay (NRDA, 1999). The NRDA, allowable under CERCLA, authorized the State of Wisconsin, State of Michigan, Menominee Indian Tribe of Wisconsin, Oneida Nation of Wisconsin, US Department of the Interior and US Department of Commerce to act as "Trustees" on behalf of the public in making decisions on restoration, rehabilitation, replacement, and/or acquisition of natural resources equivalent to those harmed by PCB releases. Since 2002, the Fox River Natural Resource Trustee Council have successfully recovered $90 million from parties responsible for PCB releases to support natural resource restoration projects (Fox River NRDA, 2020).

Local concerns about the stigma that a Superfund designation would bring to the region and local economy led USEPA to the determination to not formally "list" the Fox River and Green Bay as a Superfund site, though USEPA still issued a CERCLA cleanup order to several responsible parties. From 1999 to 2002, USEPA and WDNR worked together to produce a proposed Remedial Action Plan for segments of the Fox River and Green Bay ("Operable Units" (OUs), Figure 7) with options for cleanup that were based on the results of several demonstration projects and public input (WDNR, 2020).

In 2002 and 2003, USEPA and WDNR issued a Record of Decision (ROD) for OUs 1-2 and 3-5, respectively. These documents outlined the following *remedial action objectives (RAOs)* necessary for achieving the *remedial action sediment concentration goal* of less than 1 part per million (ppm) PCBs in OUs 2-5 and a surface weighted average concentration (SWAC) of less than 0.25 ppm PCBs in OU1:

- RAO 1: Achieve, to the extent practicable, surface water quality criteria for PCBs throughout the Lower Fox River and Green Bay
- RAO 2: Protect humans who consume fish from exposure to contaminants that exceed protective levels (achieve safe exposure for recreational and high-intake fish consumers)
- RAO 3: Protect ecological receptors from exposure to contaminants above protective levels (achieve safe ecological thresholds for fish-eating birds and mammals within 30 years following remedy completion)
- RAO 4: Reduce transport of PCBs from the Lower Fox River into Green Bay and Lake Michigan (reduce loading to Green Bay and Lake Michigan comparable to loading from other Lake Michigan tributaries)

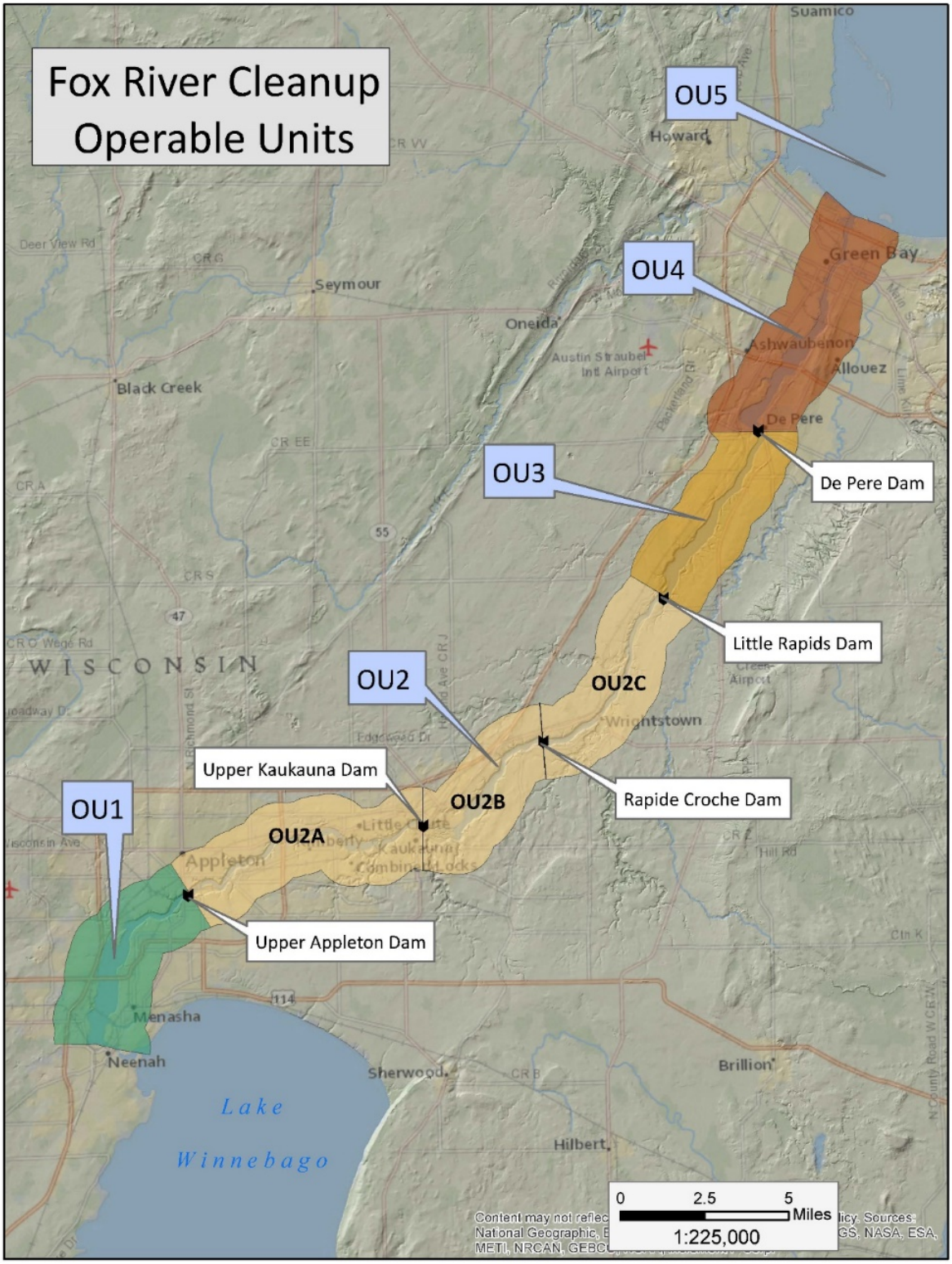

Figure 7. Fox River Cleanup Operable Unit (OU) map.

Additionally, these documents authorized remedial action methods for achieving RAOs for each of the OUs. The impetus for varying remedies in the 5 OUs was largely due to hydrodynamic differences and overall sediment mass in various portions of the river.

USEPA and WDNR approved an amended ROD for OUs 2-5 in 2007, and OU1 in 2008 that allowed alternate remedial approaches such as engineered capping, a combination of dredging and capping, or sand covering without dredging in certain areas. These OU-specific remedies would allow all the remedial objectives to be met more quickly, efficiently, and cost-effectively.

The following sections will describe the remedial actions taken as authorized in the RODs and describe planned implementation of institutional controls and long-term monitoring.

Summary of Remedial Actions and Attainment of Restored Beneficial Use by Fulfillment of AOC BUI Removal Target

Whether it is large-scale navigational dredging completed by the US Army Corps of Engineers (see USACE Green Bay Harbor website for updated maps, and dredging and material placement information) or small-scale dredging often required by private marinas and municipalities, dredging within the Lower Fox River has long been a key factor to the economic prosperity for both the Green Bay region and Wisconsin overall. Approximately 180,000 cubic yards of sediment are dredged annually from the Fox River and Green Bay for navigation purposes (USACE, 2021), making the Port of Green Bay one of the most heavily dredged ports on the Great Lakes. In addition, smaller dredge projects are conducted regularly throughout the AOC for commercial and recreational access, buried utilities, or infrastructure maintenance. Figure 4 references the relationship of the federally maintained navigation channel and the bounds of the AOC.

The ability to dredge becomes negatively impacted when a dredging action must incorporate additional practices to ensure ecological and/or human health protection due to the presence of contaminants. Historically, federal and state regulations have required most of the sediment dredged from the Green Bay inner harbor to be placed in the Renard Island Confined Disposal Facility (CDF) and later, in the Bayport CDF due primarily to the presence of PCB concentrations greater than 1 ppm (Figure 8). Meanwhile, most of the sediment dredged from the outer harbor channel in the bay of Green Bay is free of PCBs and is used beneficially in the construction of Cat Island. Along with regulated disposal of dredged material, other examples of enhanced protective practices include water quality monitoring during active dredging, the use of specialized dredging equipment in order to minimize the release of contaminates into the water column, and the processing/filtering of elutriate and carriage water prior to discharging it to a surface waterbody or groundwater. Because of increased cost and complexity, these required additional practices limit or restrict commonplace dredging. Moving forward, there will be potential for more outer harbor dredged material to be placed at Cat Island and/or used beneficially in other projects, and for inner harbor material to be used beneficially in other projects as regulations allow to reflect declining contaminant levels.

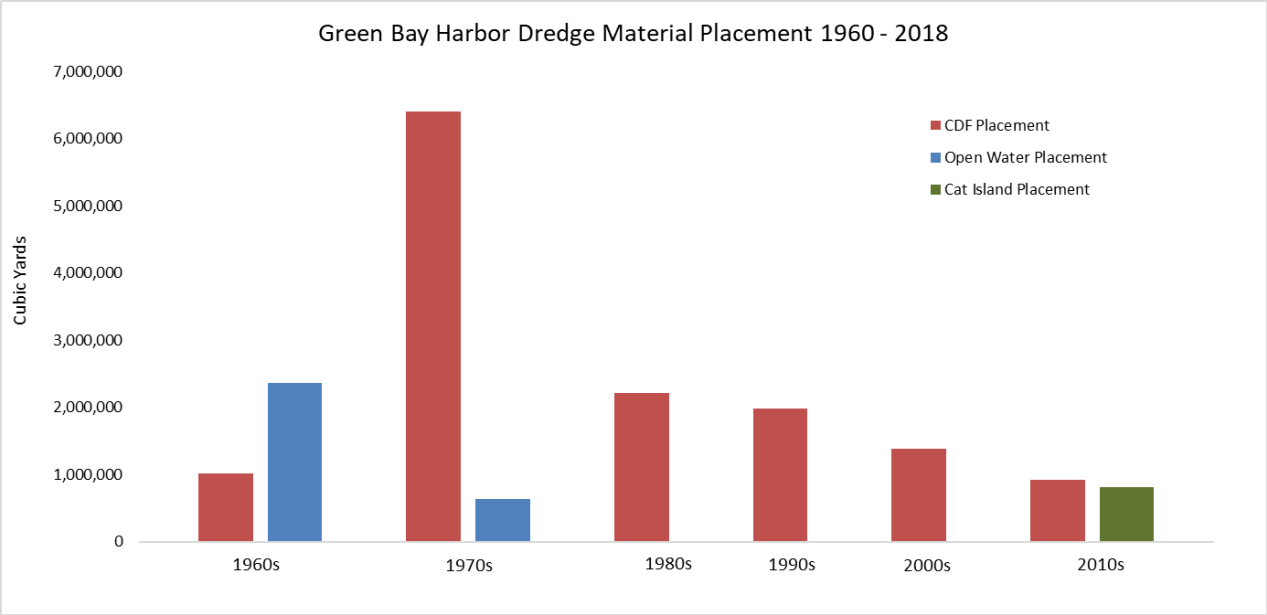

Figure 8. Graph shows cubic yards of sediment dredged from the Fox River and Bay of Green Bay to maintain the Green Bay Harbor from the 1960s to 2018, and where this material has been placed over time. Data retrieved from the USACE Green Bay Harbor website.

The Restrictions on Dredging Activities BUI may therefore be removed when impairing factors have been addressed to the extent practical and all dredging, public or private, can be permitted and completed under the state's standard authorities throughout the AOC boundaries. The AOC-program specific target with regard to dredging activities and process to achieve all portions of the Restrictions on Dredging Activities BUI removal target is detailed below.

In 2009 removal criteria for 11 confirmed and 1 suspected BUI were finalized for the AOC, with the following target established for the Restrictions on Dredging Activities impairment:

The Restrictions on Dredging Activities impairment may be delisted when:

- *All remediation actions for known contaminated sediment sources are completed and monitored according to the approved remediation plans,*
- *Remedial action goals have been achieved, and*
- *Institutional controls have been implemented.*

"Remedial action goals" referenced in the removal criteria require that the *remedial action sediment concentration goals* are met. "*Remedial action objectives*" described in the previous section represent long-term goals outlined in the amended RODs for all aspects of the Fox River Cleanup (e.g. improve water quality, removal of fish/waterfowl consumption advisories, clean sediment) and represent goals beyond the Restrictions on Dredging BUI.

The 2013 AOC RAP Update outlined that when remediation actions were complete, remedial action goals achieved, and the Institutional Control Implementation and Assurance Plan (ICIAP) was in place and implementation underway, the BUI would be removed. The following is a summary of remedial actions taken to achieve the 2009 BUI removal target:

All remediation actions for known contaminated sediment sources are completed and monitored according to the approved remediation plans and remedial action goals have been achieved:

Lower Fox River PCB Cleanup Project: 2004 to 2020 Project Overview

The amended RODs authorized monitored natural recovery (MNR), dredging and disposal, capping, and sand covering as the remedial action methods (Table 1). Locations of where these methods were employed within the Lower Fox River and Green Bay can be found in the Remedial Action Summary Reports on the on the WDNR Lower Fox PCB Cleanup Project website. While the boundaries of the AOC encompass only OUs 4 and 5, a summary of cleanup operations in all OUs is presented here, as cleanup in these areas was necessary to address potential upstream sources of PCBs to the AOC.

Table 1. Operable Units and Selected Remedies (from 2008 OU1 ROD Amendment)

ROD	Operable Unit	Location	Remedy
2002 ROD	1	Little Lake Butte des Morts	Dredging and disposal
	2	Appleton to Little Rapids	Monitored Natural Recovery
2007 ROD Amendment	3 (and OU2 Deposit DD)	Little Rapids to De Pere	Dredging and disposal, Capping, and Sand Covers
	4	De Pere to Green Bay	Dredging and disposal, Capping, and Sand Covers
2007 ROD Amendment and 2003 ROD	5	Green Bay	Monitored Natural Recovery

The majority of dredging was completed by using multiple cutterhead dredges to dig and hydraulically pump the sediment slurry through submerged pipes to a processing facility on shore (Figure 9). Once the slurry reached the processing facility, sand and water were removed and the material compressed to create a denser cake material, which was then transported via truck to authorized landfills. More than 8.2 million cubic yards of sediment were remediated (e.g. removed, capped, or sand covered) from the river, and 10 billion gallons of water were treated and returned to the Fox River over the duration of the project.

Figure 9. Photos of dredging operations in the Lower Fox River and Green Bay (left photo credit Boldt Company; right photo credit J.F. Brennan)

Capping was authorized as an acceptable remedial action in cases where dredging was less feasible and entailed the placement of specifically designed thicknesses and sizes of sand, gravel, and armor stone (Figure 10). Engineered cap designs varied by specific site conditions, but all caps are intended to permanently contain contaminated sediment in place and isolate PCBs from entering the water and food chain. Sand covering was employed to reduce PCB concentrations to below 1 ppm, either as a primary remedial action or post-dredging in the event that low residual PCB concentrations remained. A total of 275 acres of river bottom were capped, and 800 acres of river bottom sand covered over the duration of the project.

Figure 10. Photo of an engineered cap model and sand covering operations in the Lower Fox River (left credit Boldt Company, right credit JF Brennan)

OU 1 Cleanup: 2004 to 2009

Active remediation operations occurred in OU1 (Little Lake Butte des Morts) to ensure that upstream PCB source loads would be addressed first. A total of 372,000 cubic yards of PCB-contaminated sediment was removed, dewatered in geotubes, and sent to landfill; 114 acres of river bottom were capped. As described in the annual completion reports, post dredge confirmation sampling confirmed that RAO goals were met.

Following completion of the active remediation activities, the dewatering site was restored beyond pre-construction conditions, and now includes improved terrestrial and aquatic habitat. This was accomplished by removing historic fill material along the shore and backfilling with native soil, eradicating large patches of invasive reed canary grass, planting native wetland grasses and shrubs, and creating a meandering stream to better connect an existing municipal drainage channel to the lake (Figure 11).

Figure 11. Left photo shows the OU1 geotube dewatering facility during active remediation and right photo shows the area post-restoration (credit Boldt Company).

A Remedial Action Certificate of Completion Report was issued for OU1 in 2010, indicating the remedial action goal of achieving a surface weighted average concentration (SWAC) of less than 0.25 ppm PCBs was achieved.

A Long-Term Monitoring (LTM) plan was finalized in 2011 which describes the program in which monitoring of sediment, surface water and fish tissue will continue to track post-remediation recovery and progress toward achieving the RAOs (listed above), as well as the physical integrity of capped areas. Monitoring is expected to continue for several decades until the Response Agencies (WDNR and USEPA) determine that RAOs have been met. An updated LTM schedule for all OUs can be found on the WDNR Lower Fox River PCB Cleanup Project website.

OU2-5 Cleanup: 2008 to 2020

MNR was the authorized remedial action for the majority of OU 2, although one discrete deposit (Deposit N) was dredged from this OU in 1997 as a demonstration project to show the

effectiveness of environmental dredging for PCB contamination (Water Resources Institute Special Report, 2000).

The MNR remedy was also authorized for OU5, with the exception of a semi-circular area defined by an arc extending 1200 feet from the mouth of the Fox River and into Green Bay. In accordance with the ROD Amendment, dredging was the primary remedy used to address contaminated sediment within this arc area. Additionally, dredging in 2019 removed contaminated sediment from the federal navigation channel, 3,000 feet bay-ward of the arc extent. This dredging event targeted thickly shoaled areas of up to 5 ppm PCB and resulted in 154,000 cubic yards of material removed.

A combination of dredging, capping, and sand covering was the authorized remedy for OUs 3 and 4, though the majority of the contaminated sediment dredged and removed from the river was located within OU4 (Fox River portion of the AOC). In order to actively dewater and dispose such large volumes of sediment in a reasonable timeframe, a sediment processing facility was constructed in 2008 and 2009 at a Georgia Pacific Corporation property in Green Bay (Figure 12). Sediment entered the facility directly through the individual dredge pipelines, whereupon the heavier sands were cyclonically separated from the finer grained sediment and were reused beneficially in unrelated projects. The sediment was then pumped into a series of hydraulic plate-frame presses that squeezed the water from the solid particles. This carriage water was then clarified through sand and carbon filtration before being returned to the river. The dewatered sediment 'filter cake' was conveyed to an adjacent building where it was stockpiled and tested before trucking to a certified landfill for disposal.

Figure 12. Clarifying tanks and presses in the treatment facility. Photo credit The Boldt Co.

Dredging of OU4 began in 2009, and along with capping and sand covering activities, continued into 2020. The relatively small amount of dredging required in OU5 took place in 2019 and 2020. In OU4, sediment sampling was conducted each year to refine remedial plans for the following field season and maximize efficiencies for the required actions initially identified in the 2007 amended ROD. Over 6 million cubic yards of sediment was dredged and removed from the river bottom and approximately 800 acres capped or sand covered. As described in the annual completion reports, post dredge confirmation sampling confirmed that Restrictions on Dredging Activities BUI dredge remedial action goals and removal targets were met.

A draft Remedial Action Certification of Completion Report was submitted on behalf of the Fox River Group of Companies to the Agency/Oversight Team in December 2020 and is currently being reviewed and edited through iterative meetings. This report is specific to remedial activities for OU2-5 and demonstrates that the *remedial action sediment goal* of achieving <1 ppm PCB in sediment has been met both in the river and at the upland sediment processing facility site.

In addition, a 2021 Remedial Action Summary Report summarizing the results of the 2019 and 2020 remedial action performed within the bounds of the AOC (OU4 and OU5) is available for immediate review. This report shows that all cleanup actions were completed in 2020 and these actions met the requirements of the ROD and ROD Amendment.

A LTM Plan was finalized in 2009 which describes the program in which monitoring of sediment, surface water and fish tissue will continue to track post-remediation recovery and progress toward achieving the broader, long-term *RAOs* listed above (e.g. achieve surface water PCB criteria, protection of humans and ecological receptors from exposure to contaminants above protective levels, reduce transport of PCBs), as well as the physical integrity of capped areas. Monitoring is expected to continue for several decades until the Response Agencies (WDNR and USEPA) determine that all four of these RAOs have been met. An updated LTM schedule for all OUs can be found on the WDNR Lower Fox River PCB Cleanup Project website.

Wisconsin Public Service (WPS) MGP Cleanup

In addition to the Lower Fox River PCB Cleanup Project, a second contaminated sediment site located near the confluence of the Fox and East Rivers exists as one of seven MGP sites that WPS is responsible for remediating under a Superfund Alternative in Wisconsin. The 14-acre Wisconsin Public Service (WPS) former manufactured gas plant (MGP) site operated from 1871 to 1947 and employed two coal gasification methods: coal carbonization and carbureted water gas. These processes generate coal tar byproduct and include contaminants such as non-aqueous phase liquid (NAPL) and polycyclic aromatic hydrocarbons (PAHs) which were co-mingled with PCB contamination in the Fox and East River and additional MGP residuals were identified in upland soil, soil vapor, and groundwater.

The site is overseen by USEPA under the Superfund Alternative Site Program. Under an agreement between the Fox River LLC and WPS, the Lower Fox River PCB cleanup team moved into the area of combined PCB/MGP contaminants and dredged as much co-mingled contamination as possible from the East and Fox River between 2018 and 2019. Approximately 43,000 cubic yards of MGP/PCB contaminated sediment was removed, treated, and disposed in approved landfills. Wastewater was captured and treated at the Lower Fox River PCB cleanup

facility treatment plant. An armored cap outside the bounds of the federal navigation channel was placed over remaining contaminated sediment in the Fox River to isolate it and to protect a sheet pile shoreline.

In 2003, contaminated upland soils were excavated and capped, though residual MGP waste containing PAHs, cyanide, and volatile organic compounds (VOCs) remains and work to remediate the upland portion of the site is ongoing.

WPS has submitted remedial action documentation reports and post-remedial action investigation reports for the sediment and upland portions of the site. The Remedial Investigation for sediment has been reviewed by WDNR with recommendations forwarded to US EPA. US EPA is expected to complete their review by the end of 2021 and will then, under CERCLA, decide to either issue a no-further-action ROD or a feasibility study requirement to assess additional actions to restore the site. Two finalized reports outlining the remedial activities completed at the South Focus Area (SFA) and North Focus Area (NFA) of the MGP site can be retrieved on the WDNR Lower Fox River Cleanup website. These reports summarize the actions and monitoring that were used to complete the Remedial Action Objectives for the MGP site and were part of the review by WDNR that led to accepting WPS' recommendation that no further sediment work is necessary at the site. While it may be necessary to conduct additional CERCLA-defined work at the Green Bay WPS MGP site, there is little chance of this additional work impacting existing in-water remedies or future navigational dredging in the area.

Institutional controls have been implemented:

As defined in USEPA's 2005 Contaminated Sediment Remediation Guidance for Hazardous Waste Sites, institutional controls are non-engineered methods implemented to ensure the long-term integrity of remedial actions and fall into the following categories:

- *Proprietary land use restrictions and maintenance agreements that may involve legal instruments*
- *Enforcement and permit devices*
- *Government controls including permit conditions for future actions*
- *Informational devices including signage and fish consumption advisories that may be required until RAOs are met.*

The 2007 ROD Amendment requires the implementation of institutional controls in OUs 2-5 to supplement existing methods of maintaining the long-term protection of engineered caps (such as engineered cap design) and reduction of potential exposure in Monitored Natural Recovery (MNR) areas where residual contamination will remain after completion of remedial actions. As such, a 2009 Institutional Control Implementation and Assurance Plan (ICIAP) was finalized as part of the Lower Fox River Remedial Design Final Design Report and can be found in Appendix C. Implementation of institutional controls will be ongoing for decades as progress toward RAOs is assessed through long-term monitoring. The Memoranda of Agreement and a GIS Registry is anticipated to be complete in 2021, as project completion in 2020 needed to be verified ahead of implementation of select institutional controls.

This report outlines the following institutional controls identified in the ICIAP that are in place to protect engineered caps (see Table 2 for detailed description of media, remedy components, and areas requiring institutional controls):

Existing regulatory authorities for all Dredging Activities in Waters of the State, relevant federal regulations, and additional institutional controls

Any activities associated with dredging, placement of utilities, piers or other streambed modifications require a State of Wisconsin Chapter 30 (WI State Statutes) Waterway Permit as well as procedures outlined in Wisconsin Administrative Code NR 347: Sediment Sampling and Analysis for dredging permit applications and approval processes (Appendix D). Chapter 30 of the Wisconsin Statutes provides the primary permitting program that will effectively protect the integrity of the capping element of the selected remedy. All Chapter 30 permitting activities that occur within OUs 2-5 will be coordinated through the WDNR to ensure that the approved remedy is protected. There are no exempt activities that threaten the integrity of the caps.

Additionally, several federal laws enact restrictions and require permits to be obtained for modifications to aquatic environments, including Section 404 of the Clean Water Act (CWA), Title 33 United States Code (U.S.C.) Section 1344; Sections 9 and 10 of the Rivers and Harbors Act of 1899, 33 U.S.C. 401 and 403, all of which require federal permitting under USACE and/or USEPA for any construction that would impact the course, capacity, or condition of navigable waters of the US. Under the Section 404(b)(1) guidelines, 40 CFR 230.10(b), no discharge (e.g. excavation of caps) is allowed if it causes or contributes to violations of water quality standards pursuant to Section 401 of the CWA, after consideration of local dilution and dispersion or if it violates any applicable toxic effluent standard or discharge prohibition under Section 307 of the CWA. These federal programs provide additional protections to ensure that dredging or other modifications will not disturb the integrity of engineered caps in OUs 2-5.

Riparian activities that are exempt from permitting

The armor of engineered shoreline and offshore caps was designed to sufficiently resist disturbance from potential activities often implemented by riparian landowners that are exempt from Chapter 30 permit requirements, such as installation of seasonal dock structures, pilings for piers or wharfs in less than 5 feet of water, ice control, watercraft pivoting, and/or manual dredging.

Non-exempt dredging activities

Engineered caps that are located within federal navigation channels have been designed to maintain integrity during channel maintenance. All caps below the federally authorized navigation channel depth are at least 33 inches in thickness, with the top of the cap at least 2 feet below the authorized depth of the navigation channel. Additional design features are in place to minimize disturbance of engineered caps during routine navigational dredging activities.

Private dredging activities that remove 2 cubic yards of sediment or more from marinas or other locations outside the navigation channel are subject to a Dredging – Waterway & Wetland Permit under Chapter 30.

Limitations on navigation or vessel speed

Modeling completed during the remedial design phase for OUs 2-5 identified that there was no need to establish no-wake or restricted vessel speed zones to protect engineered caps.

Additionally, recreational or commercial anchors deployed in capping areas are unlikely to compromise engineered caps; long-term cap monitoring will continue to verify the protectiveness and maintenance of engineered caps.

Monitoring and maintenance

Long-term monitoring will continue at the Lower Fox River in all operable units for decades to assess progress toward the RAOs and will evaluate fish tissue, surface water, and sediment. This is in accordance with Record of Decisions (RODs) and a Long-Term Monitoring Plan (LTM) required by governing documents for the projects and approved by the agencies. Surface water and fish tissue will be monitored in all OUs. Sediment quality will be monitored only in MNR areas in OU2 and OU5, monitoring of the chemical isolation layer of engineered caps will occur in OU3 and OU4. Baseline data refers to samples taken in 2006 and 2007 in each OU and is used to compare sample results in subsequent years to monitor for reductions in PCB concentrations.

The cleanup in OU1 was complete in 2009 and the first LTM sampling event took place in 2010. Cleanup of OU2 and OU3 was complete in 2011, and the first LTM event took place in 2012. Cleanup of OU4 and OU5 was complete in 2020 and the first LTM event is scheduled to begin in 2021. Starting in 2022, all OUs will be sampled again and then every five years thereafter to be on the same monitoring schedule throughout the system and to coordinate with EPAs 5-Year Review cycle for this project. A full and updated LTM schedule can be found on the Project Documents page of the WDNR Lower Fox River Cleanup website.

Engineered cap integrity will be monitored in accordance with an approved Cap Monitoring and Maintenance Plan (CMMP) for OU1, and the Cap Operations, Maintenance, and Monitoring Plan (COMMP) for OUs 2-5. Engineered caps require long-term monitoring and maintenance by the responsible parties with oversight by the WDNR and USEPA. Cap monitoring and maintenance events take place after the installation of caps and continue thereafter on a regular basis in perpetuity. Starting in 2022, cap monitoring and maintenance will occur in five-year intervals in OUs 1, 3, 4, and 5. A full and updated long-term cap monitoring schedule can also be found on the Project Documents page of the WDNR Lower Fox River Cleanup website. If cap damage is identified at any time, responsible parties must perform maintenance and repair work with approval and oversight by the agencies.

A schedule of events and summary of results can be found on the Long-term monitoring page and the LTMP, CMMP, and COMMP are available on the Project Documents page of the WDNR Lower Fox River Cleanup website as results become available.

Public information and advisories

WDNR issued PCB consumption advisories for several species of fish in 1977 and for waterfowl in 1987, and those advisories are still in place. Fish tissue data collected during implementation of the LTMP will be forwarded to WDNR staff for evaluation and possible update of fish advisories within the AOC. Waterfowl will be sampled by WDNR and consumption advisories re-evaluated on a recurring schedule as part of the fish and wildlife consumption advisory BUI.

Current fish consumption advisories for the Lower Fox River and bay of Green Bay can be retrieved using the fish advisory query tool located on the WDNR Eating Your Catch webpage. Waterfowl advisories can be found in annual Wisconsin Waterfowl Hunting Regulations publications and retrieved on the WDNR Waterfowl Hunting webpage.

Table 2. Media, remedy components, and areas requiring institutional controls for long-term protection of engineered caps. Retrieved from the Lower Fox River Remedial Design Final Design Report ICIAP Table 2-1.

Media, Remedy Components, and Areas Requiring Institutional Controls

	Caps Constructed in Federal Navigation Channels	Caps Constructed Outside of Federal Navigation Channels that are not Riparian Caps	Constructed Riparian Sediment Caps
Objectives of Institutional Control	Ensure that USACE maintenance dredging does not extend more than 2 feet below the federally-authorized channel depth and that no other activity, such as dredging, impacts the integrity of the engineered caps.	Ensure that no activity such as dredging impacts engineered cap integrity	Ensure that no activity, particularly Chapter 30 permit exempt activity, impacts the integrity of shoreline caps
Enforcement and Permit Devices	▪ MOA with Brown County and municipalities regarding mapping and communications ▪ MOA with USEPA, USACE, and WDNR, and possibly Brown County Port Authority, regarding dredging requirements in federal navigational channel ▪ MOA with WDNR and USACE regarding regulatory programs ▪ USEPA Administrative Order for RA	▪ MOA with Brown County and municipalities regarding mapping and communications ▪ MOA with WDNR and USACE regarding regulatory programs ▪ USEPA Administrative Order for RA	▪ MOA with Brown County and municipalities regarding mapping and communications ▪ MOA with WDNR and USACE regarding regulatory programs ▪ USEPA Administrative Order for RA
Informational Devices	▪ MOA with Brown County and municipalities regarding mapping and communications ▪ MOA with USEPA, USACE, and WDNR, and possibly Brown County Port Authority, regarding dredging requirements in federal navigational channel ▪ MOA with WDNR and USACE regarding regulatory programs ▪ WDNR BRRTS Registry ▪ WDNR and Brown County GIS Mapping System ▪ Governmental Notices such as fish advisories and navigational maps ▪ Utility notification ▪ Diggers Hotline	▪ MOA with Brown County and municipalities regarding mapping and communications ▪ MOA with WDNR and USACE regarding regulatory programs ▪ WDNR BRRTS Registry ▪ WDNR and Brown County GIS Mapping System ▪ Governmental Notices such as fish advisories and navigational maps ▪ Utility notification ▪ Diggers Hotline	▪ MOA with Brown County and municipalities regarding mapping and communications ▪ MOA with WDNR and USACE regarding regulatory programs ▪ WDNR BRRTS Registry ▪ WDNR and Brown County GIS Mapping System ▪ Governmental Notices such as fish advisories and navigational maps ▪ Riparian Landowner Notifications and Consultations ▪ Utility notification ▪ Diggers Hotline
Governmental Controls	▪ WDNR Chapter 30 requirements ▪ Sections 10 and 401/404 USACE permit requirements	▪ WDNR Chapter 30 requirements ▪ Sections 10 and 401/404 USACE permit requirements	▪ WDNR Chapter 30 requirements ▪ Sections 10 and 401/404 USACE permit requirements
Proprietary Controls	None anticipated	None anticipated	None anticipated

BUI Removal Process and Stakeholder Engagement

The WDNR introduced the recommendation to remove this impairment at the 2019 RAP Update public stakeholder meeting, held on May 7, 2020. A question regarding the status of MNR for the open water portion of Green Bay was addressed during the meeting by OGW staff. An additional comment was made regarding stakeholder interest in seeing more complete data results for project completion and a “discussion concerning the institutional controls have been implemented” results.

Following the 2019 RAP Update, a preparation of a draft BUI removal document was reviewed by state and federal agency staff and the Lower Green Bay & Fox River AOC Toxic Substances Committee.

A public comment period was held from August 9, 2021 to September 3, 2021 and noticed through a Lower Green Bay & Fox River Area of Concern GovDelivery Subscriber news release and email invitations to local stakeholder groups, reaching approximately 4,000 AOC stakeholders.

Following the public comment period, WDNR staff reviewed and responded to comments. Any changes made to the BUI removal recommendation following the public comment period in consideration of comments received will be included in Appendix F.

Conclusion

As set forth in Annex 2 of the 1987 and Annex 1 of the 2012 Amendments of the GLWQA, the BUI addressed in this document is the "Restrictions on Dredging Activities". This removal recommendation outlined the rationale for listing the BUI as "confirmed", management/remedial actions completed, and institutional controls in place that have resulted in the AOC achieving parity with navigational dredging activities of other Great Lakes communities without an AOC designation.

The Port of Green Bay is one of the most heavily dredged ports on the Great Lakes due to sediment runoff from the Lower Fox River watershed. Completion of the contaminated sediment remediation projects will allow more dredged material with low enough levels of toxic substances to be placed in upland locations or other alternative management opportunities outside of disposal at the Brown County Bayport facility.

Going forward, the activities completed to restore the dredging activities beneficial use will also evaluate progress toward restoring beneficial uses associated with ecological health. Monitoring completed as part of the Lower Fox River PCB Cleanup Project LTMP will evaluate reductions of PCBs in surface water, fish tissue, and sediment for decades until the agencies agree that RAOs outlined in the RODs have been achieved. This data, along with data collected by WDNR, will be used to evaluate fish and waterfowl consumption advisories for the Lower Fox River and bay of Green Bay and inform the status of the Restrictions on Fish and Wildlife Consumptions BUI. The AOC program will also continue to work with partners to support assessments of several other impairments caused by contaminated sediments in the near term, including:

- *Fish Tumors or Other Deformities*
- *Bird or Animal Deformities or Reproduction Problems*
- *Degradation of Benthos*
- *Degradation of Fish and Wildlife Populations*
- *Restrictions on Drinking Water, or Taste and Odor Problems*

Finally, activities such as tracking the fate and transport of contaminants, addressing sediment contamination, tracking ecosystem response post-sediment remediation, and evaluating/providing outreach and education regarding fish and wildlife consumption advisories are likely to continue throughout the Lake Michigan Basin through partners working to forward the Lake Michigan Lakewide Action and Management Plan (LAMP) program and priorities.

Removal Statement

All management actions necessary to meet the removal target for the Restrictions on Dredging Activities BUI have been completed, and future dredging requests and other streambed/lake modifications in the AOC will be evaluated by appropriate agencies and programs. As such, the WDNR recommends the removal of the Restrictions on Dredging Activities BUI for the Lower Green Bay & Fox River Area of Concern.

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Appendices

Appendix A. List of Acronyms
Appendix B. List of Definitions
Appendix C. Institutional Control Implementation and Assurance Plan (ICIAP)
Appendix D. State of Wisconsin Administrative Code for Dredging Activities – NR 347
Appendix E. Public Notice Materials
Appendix F. Responsiveness Summary

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Appendix A. List of Acronyms

AOC	Area of Concern
BUI	Beneficial Use Impairment
BOD	Biological Oxygen Demand
CDF	Confined Disposal Facility
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMMP	Cap Monitoring and Maintenance Plan
COMMP	Cap Operations, Maintenance, and Monitoring Plan
CWA	Clean Water Act
GBMBS	Green Bay Mass Balance Study
GLRI	Great Lakes Restoration Initiative
GLWQA	Great Lakes Water Quality Agreement
FRC	Fox River Coalition
ICIAP	Institutional Control Implementation and Assurance Plan
IJC	International Joint Commission
LAMP	Lakewide Action and Management Plan
LTM	Long Term Monitoring
MGP	Manufactured Gas Plant
MNR	Monitored Natural Recovery
NAPL	Non-aqueous Phase Liquid
NFA	North Focus Area
NRDA	Natural Resource Damage Assessment
OGW	Office of Great Waters
OU	Operable Unit
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
RAO	Remedial Action Objective
RAP	Remedial Action Plan
ROD	Record of Decision
RP	Responsible Party
SFA	South Focus Area
SWAC	Surface Weighted Average Concentration
USACE	US Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UW	University of Wisconsin
VOC	Volatile Organic Carbon
WDNR	Wisconsin Department of Natural Resources
WPDES	Wisconsin Pollutant Discharge Elimination System
WPS	Wisconsin Public Service

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Appendix B. List of Definitions

Area of Concern
A region where legacy pollution— from industrial, agricultural, and urban sources— severely interferes with the public's use of water resources for activities such as swimming and fishing. Defined by Annex 2 of the 1987 Protocol to the US-Canada Great Lakes Water Quality Agreement as "geographic areas that fail to meet the general or specific objectives of the Agreement where such failure has caused or is likely to cause impairment of beneficial use of the area's ability to support aquatic life." These areas are the "most contaminated" areas of the Great Lakes, and the goal of the AOC program is to bring these areas to a point at which they are not environmentally degraded more than other comparable areas of the Great Lakes. When that point has been reached, the AOC can be removed from the list of AOCs in the Annex, or "delisted."

Beneficial Use Impairment (BUI)
A "beneficial use" is any way that a water body can improve the quality of life for humans or for fish and wildlife (for example, providing fish that are safe to eat). If the beneficial use is unavailable due to environmental problems (for example if it is unsafe to eat the fish because of contamination) then that use is impaired. The International Joint Commission provided a list of 14 possible beneficial use impairments in the 1987 Great Lakes Water Quality Agreement amendment.

Removal Target
Specific goals and objectives established for beneficial use impairments, with measurable indicators to track progress and determine when delisting can occur.

Remedial Action Plan (RAP)
According to the 1987 Protocol to the US-Canada Great Lakes Water Quality Agreement, a RAP is a document that provides "a systematic and comprehensive ecosystem approach to restoring and protecting beneficial uses in Areas of Concern…" RAPs are required to be submitted to the International Joint Commission at three stages: Stage 1: Problem definition Stage 2: When remedial and regulatory measures are selected Stage 3: When monitoring indicates that identified beneficial uses have been restored. Note that a renegotiated Great Lakes Water Quality Agreement was signed in 2012 by the US and Canada which removed the "stage" terminology from the AOC Annex, and simply requires Remedial Action Plans to be "developed, periodically updated, and implemented for each AOC."

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Appendix C. Institutional Control Implementation and Assurance Plan (ICIAP)

APPENDIX G

LOWER FOX RIVER REMEDIAL DESIGN
FINAL DESIGN REPORT

INSTITUTIONAL CONTROL IMPLEMENTATION AND ASSURANCE PLAN

Prepared for

Appleton Papers Inc.

Georgia-Pacific Consumer Products LP

NCR Corporation

For Submittal to

Wisconsin Department of Natural Resources

U.S. Environmental Protection Agency

Prepared by

Anchor QEA, LLC

Tetra Tech EC, Inc.

December 2009

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List of Attachments

Attachment 1 Exemptions from Sections 30.12 and 30.20 Permit Requirements

A/OT	Agencies/Oversight Team
BODR	Basis of Design Report
BRRTS	Bureau for Remediation and Redevelopment Tracking System
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
COMMP	Cap Operations, Maintenance, and Monitoring Plan
cy	cubic yard
GIS	geographic information system
ICIAP	Institutional Control Implementation and Assurance Plan
LTMP	Long Term Monitoring Plan
MNR	monitored natural recovery
MOA	Memorandum of Agreement
OU	Operable Unit
PCB	polychlorinated biphenyl
ppm	part per million
RA	remedial action
RAL	remedial action level
RAO	Remedial Action Objective
RD	remedial design
ROD	Record of Decision
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency
WDNR	Wisconsin Department of Natural Resources

1 INTRODUCTION AND BACKGROUND

This document presents the Institutional Control Implementation and Assurance Plan (ICIAP) for the remediation of polychlorinated biphenyls (PCBs) in Operable Units (OUs) 2 to 5 of the Lower Fox River and Green Bay Site (Site; see Figure 1-1). As described in the *Remedial Design Work Plan* approved by the U.S. Environmental Protection Agency (USEPA) and the Wisconsin Department of Natural Resources (WDNR) (collectively, the "Response Agencies") on June 28, 2004, the ICIAP is an integral element of the overall remedial design (RD). The purpose of the ICIAP is to ensure the long-term protectiveness of remedial action (RA) to address contaminated sediments in OUs 2 to 5. The objective of the RA is to protect human health and the environment. Full-scale RA in OUs 2 to 5 began in spring 2009. Following completion of capping and other associated actions at the Site, contaminated sediments contained beneath engineered caps will be subject to this ICIAP.

Anticipated capping areas in OUs 2 to 5 are described in the 100 Percent Design Report Volume 2 (Tetra Tech et al. 2009b). Riparian landowner notification of capping areas is discussed in the Technical Memorandum *Evaluation of Available Draft Impact to Riparians and Riparian Notification* (Tetra Tech et al. 2009c). As discussed in further detail herein, landowners in riparian capping areas (defined for ICIAP purposes as an area where post-cap water depth is less than 5 feet, or deeper water OU 4B cap areas within 300 feet of the shoreline) will be offered the opportunity to meet with WDNR and the Respondents to develop and implement a cap that meets the requirements of the Record of Decision (ROD), as amended (USEPA and WDNR 2002, 2003, and 2007), and attempts to address the reasonable needs of the riparian landowner. When remedial work in a given OU is complete, the parties performing the RA will prepare an as-built survey of each engineered capping area. As described in Section 2 of this ICIAP, capping areas will then be recorded on a WDNR geographic information system (GIS) Registry for the Lower Fox River, included on appropriate local units of government GIS mapping systems, and made available to the public through such institutions as the public libraries and local units of government. The GIS Registry for the Lower Fox River will be linked and/or incorporated into the WDNR Bureau for Remediation and Redevelopment Tracking System (BRRTS), or its equivalent replacement(s).

This ICIAP does not address the potential need for institutional controls related to upland areas used in implementing the RA, including the former Shell property material processing and

staging facility (and including the area planned to become uplands as a result of the build-out of the former Shell property). Institutional controls for upland areas are addressed in site development plans for those specific areas, previously approved by the Response Agencies as part of Phase 2A RA.

1.1 Background on Institutional Controls

As defined in USEPA's Contaminated Sediment Remediation Guidance for Hazardous Waste Sites (2005) and the ROD Amendment for OUs 2 to 5 (USEPA and WDNR 2007), institutional controls are non-engineered instruments, such as administrative and legal controls, that may be included as part of the RA to minimize the potential for human health or ecological exposure to sediment contamination and ensure the long-term integrity of the remedy. The term "institutional control" generally refers to "non-engineered instruments, such as administrative and legal controls that help to minimize the potential for human exposure to contamination and protect the integrity of the remedy" (USEPA 2004b). USEPA guidance on institutional controls is provided in Office of Solid Waste and Emergency Response (OSWER) Directive 9355.0-74FS-P, *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating, and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups* (USEPA 2000) and OSWER Directive 9355.0-106, *Strategy To Ensure Institutional Control Implementation at Superfund Sites* (USEPA 2004b).

Institutional controls are typically grouped into the following categories (USEPA 2005):

- Proprietary land use restrictions and maintenance agreements that may involve legal instruments
- Enforcement and permit devices
- Governmental controls including permit conditions for future actions
- Informational devices including signage and fish consumption advisories that may be required until remedial action objectives (RAOs) are met

1.2 The Lower Fox River OUs 2 to 5 Remedial Action

The PCB cleanup remedy for the Lower Fox River was originally set forth in RODs for OUs 2 to 5 issued in December 2002 and June 2003 by the Response Agencies under the authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, 42 U.S.C. §§ 9601-9675 (USEPA and WDNR 2002 and 2003). In

order to support detailed RD analyses consistent with the RODs, intensive data collection was performed at the Site from 2004 to 2007. In June 2007, a ROD Amendment was issued by the Response Agencies that made changes to parts of the remedy described in the original RODs in response to new information collected since 2003, and also from experience with prior remediation activities at the Site (USEPA and WDNR 2007).

The ROD Amendment requires institutional controls in OUs 2 to 5 to maintain the integrity of the remedy, including protection of engineered caps and reduction of potential exposure in monitored natural recovery (MNR) areas where residual contamination will remain after completion of RAs. The ROD Amendment discussed the use of governmental and/or property use institutional controls, such as regulated navigation areas and designated areas (including appropriate buffers) where use restrictions will be required. The ROD Amendment outlined the following types of institutional controls that may be considered during RD:

- Water use restrictions (e.g., limitations on anchoring, spudding, dragging, or conducting salvage operations; establishment of "no wake" areas and other operating restrictions for commercial and non-commercial vessels that could potentially disturb the riverbed or the engineered remedy; or restricting public access to remedial construction areas)
- Construction limitations (e.g., restrictions on dredging and other excavation activities such as laying cable in aquatic areas)
- Monitoring and maintenance requirements for certain areas (e.g., dams)
- Providing additional information to the public to ensure protectiveness of the remedy (e.g., fish consumption advisories)

The requirement to implement this ICIAP in OUs 2 to 5 is set forth in the Response Agencies' 2007 Administrative Order for Remedial Action ("Order") and the accompanying Phase 2B Scope of Work. The respondents to the Order include Appleton Papers Inc.; CBC Coating, Inc. (formerly known as Riverside Paper Corporation); Georgia-Pacific Consumer Products LP (formerly known as Fort James Operating Company, Inc.); Menasha Corporation; NCR Corporation; P.H. Glatfelter Company; U.S. Paper Mills Corp. (U.S. Paper); and WTM I Company (formerly known as Wisconsin Tissue Mills, Inc.).

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N
W E
S

Operable Unit 5

Green Bay

Operable Unit 4

Ashwaubenon

Allouez

De Pere

Operable Unit 3

Wrightstown

Operable Unit 2

Little Chute

Kaukauna

Appleton

Kimberly

Combined Locks

Menasha

Neenah

0 2.5 5
Miles

Legend

- USACE Channel Definition
- American Transmission Company Line
- Transmission System
- Natural Gas Pipeline
- Fox River Boundary
- Municipal Boundary

Operable Unit Number

- 2
- 3
- 4

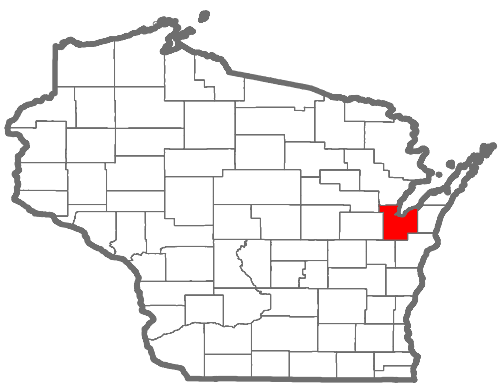

Figure 1-1
Lower Fox River
Area Location Map

Lower Fox River OU 2-OU 5

TETRA TECH

ANCHOR QEA

2 INSTITUTIONAL CONTROLS TO PROTECT ENGINEERED CAPS

This section describes the institutional controls that will be used to protect engineered caps once they have been constructed. As discussed above, institutional controls are used to support the long-term protectiveness of the remedy. They serve as a supplement to other methods of maintaining the long-term protectiveness of the remedy, such as the design of the caps themselves and design features incorporated as a result of the riparian landowner notification process. The 100 Percent Design Report Volume 2 (Tetra Tech et al. 2009b) summarizes the basis for design of the OUs 2 to 5 engineered caps.

The Technical Memorandum *Evaluation of Available Draft Impact to Riparians and Riparian Notification* (Tetra Tech et al. 2009c) outlines the general process to be utilized by the Respondents and WDNR to identify, notify, and work with riparian cap landowners during RA. Riparian areas are defined for this purpose as areas with a post-cap water depth less than 5 feet, or deeper water OU 4B cap areas within 300 feet of the shoreline (potential riparian cap areas are generally depicted in Figures 2-1A and B and 2-2A and B). Riparian landowners will be presented with information regarding RA planned near their shorelines and structures. The Respondents will work with the riparian landowners to develop and implement a remedy for individual capping areas that meets ROD requirements and attempts to address the reasonable needs of riparian landowners. The RA planned for each riparian area will be updated as appropriate in annual Phase 2B Work Plans for RA.

Section 2.1 discusses the institutional control aspects of existing regulatory authorities and their relationship to additional institutional controls, such as Memoranda of Agreement (MOAs). Section 2.2 addresses in-water construction activities, such as placement of a pier, that are exempt from existing regulatory authority. Section 2.3 addresses non-exempt dredging. Section 2.4 addresses vessel operations such as speed and anchoring. Section 2.5 addresses monitoring and maintenance.

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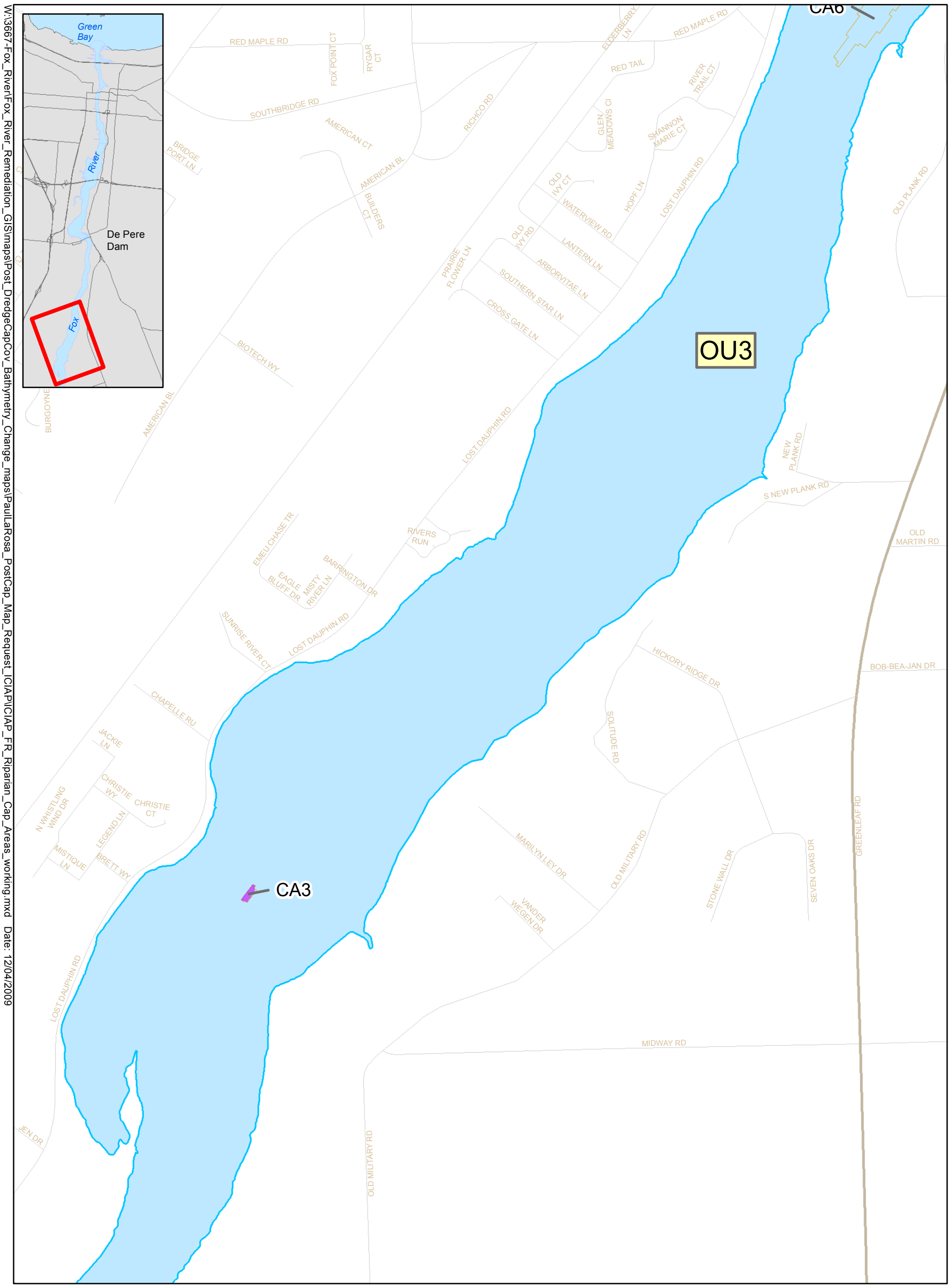

Fox River Shoreline
Major Road
Minor Road
Shoreline Cap
Cap A, B or C
Cap Area in Less Than 5 Feet of Water
Area Within 300 feet of the OU 4B Shoreline
Fox River

Figure 2-1A

Fox River OU 3
Riparian Cap Areas

Brown County, Wisconsin, USA

TETRA TECH EC, INC.
ANCHOR QEA

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0 500 1,000
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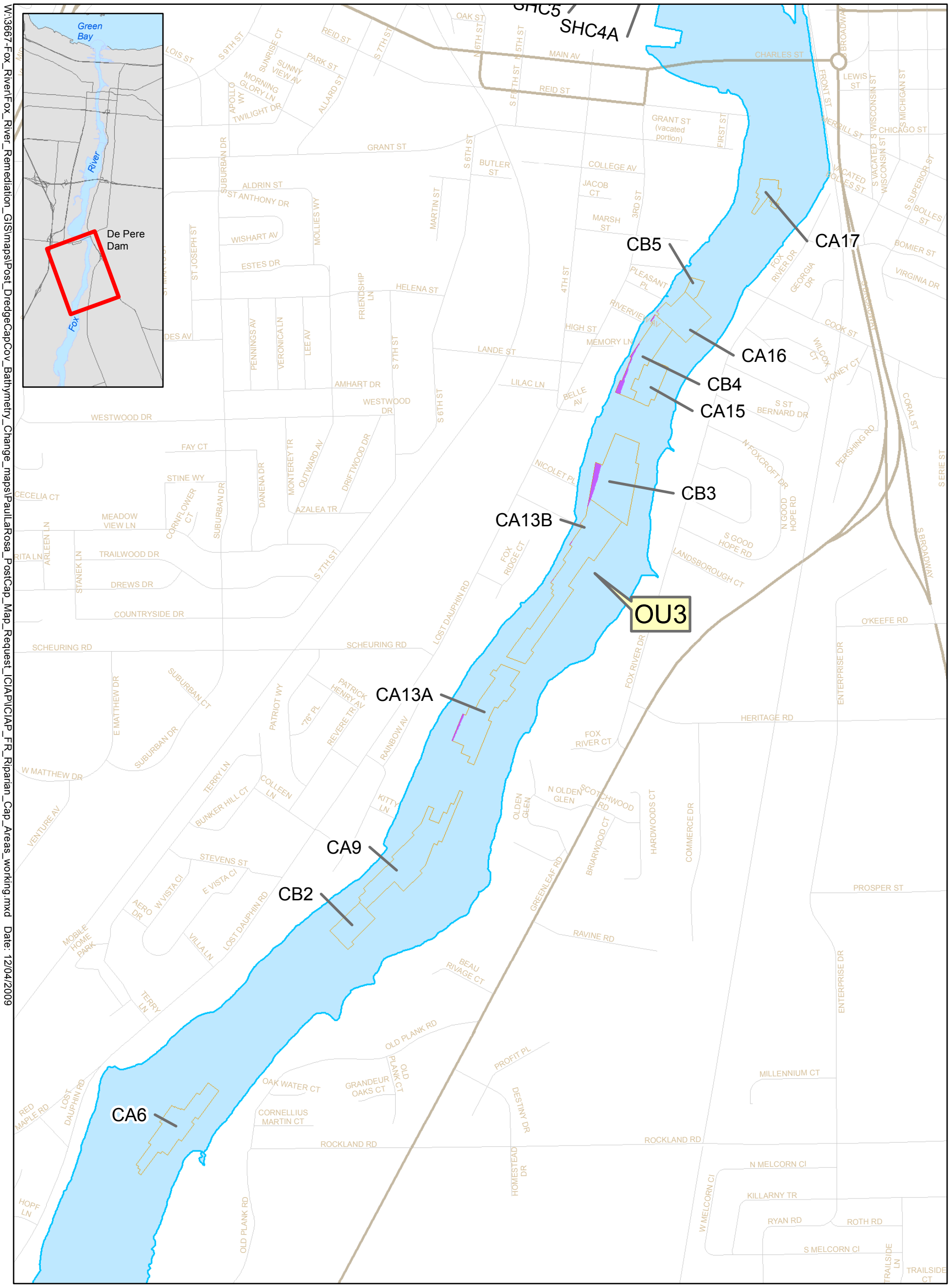

Figure 2-1B

Fox River OU 3
Riparian Cap Areas

Brown County, Wisconsin, USA

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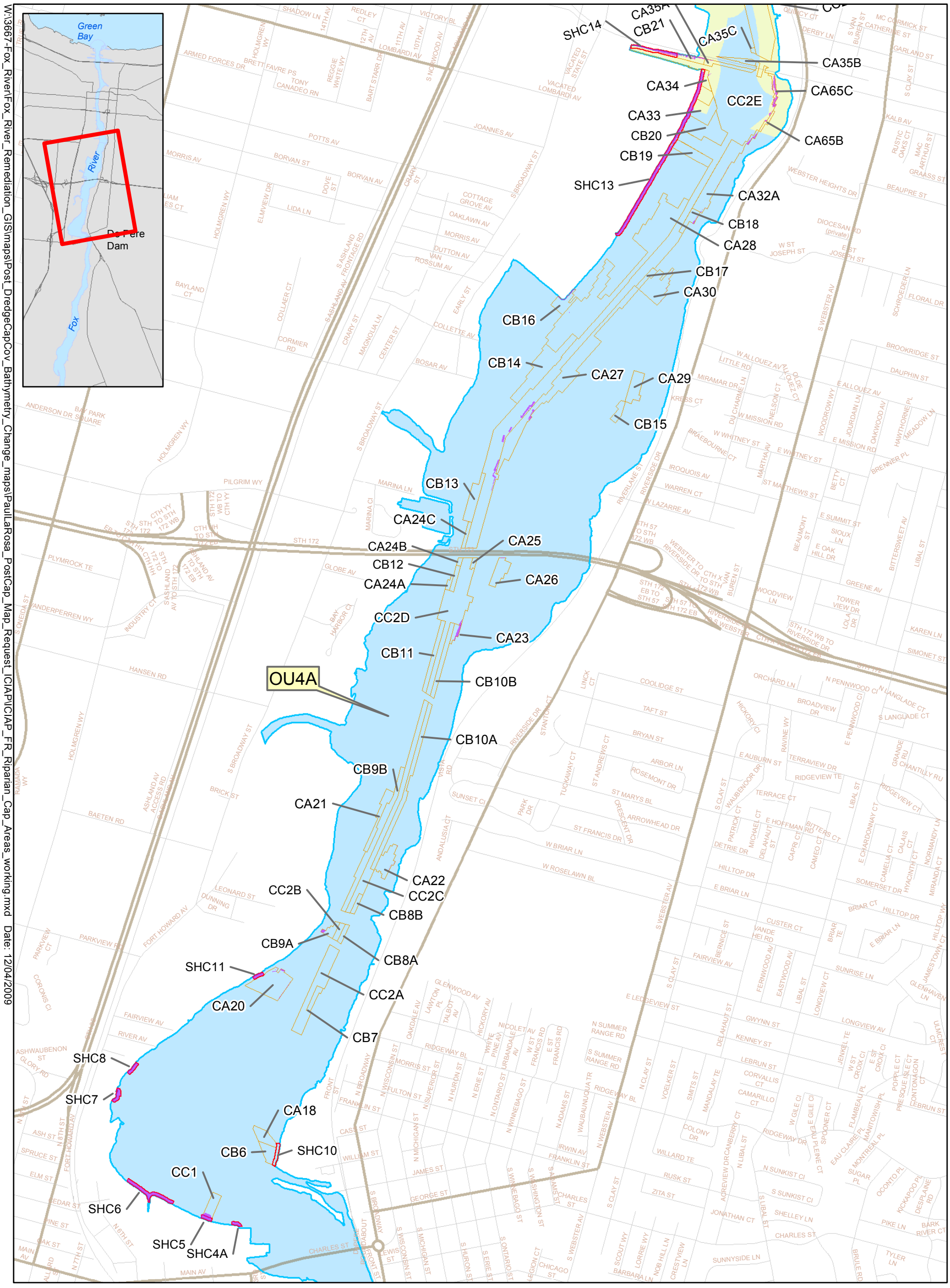

Fox River Shoreline
Major Road
Minor Road
Shoreline Cap
Cap A, B or C
Cap Area in Less Than 5 Feet of Water
Area Within 300 feet of the OU 4B Shoreline
Fox River

Figure 2-2A

Fox River OU 4 and OU 5 Riparian Cap Areas

Brown County, Wisconsin, USA

TETRA TECH EC, INC.

ANCHOR QEA

0 500 1,000
Feet

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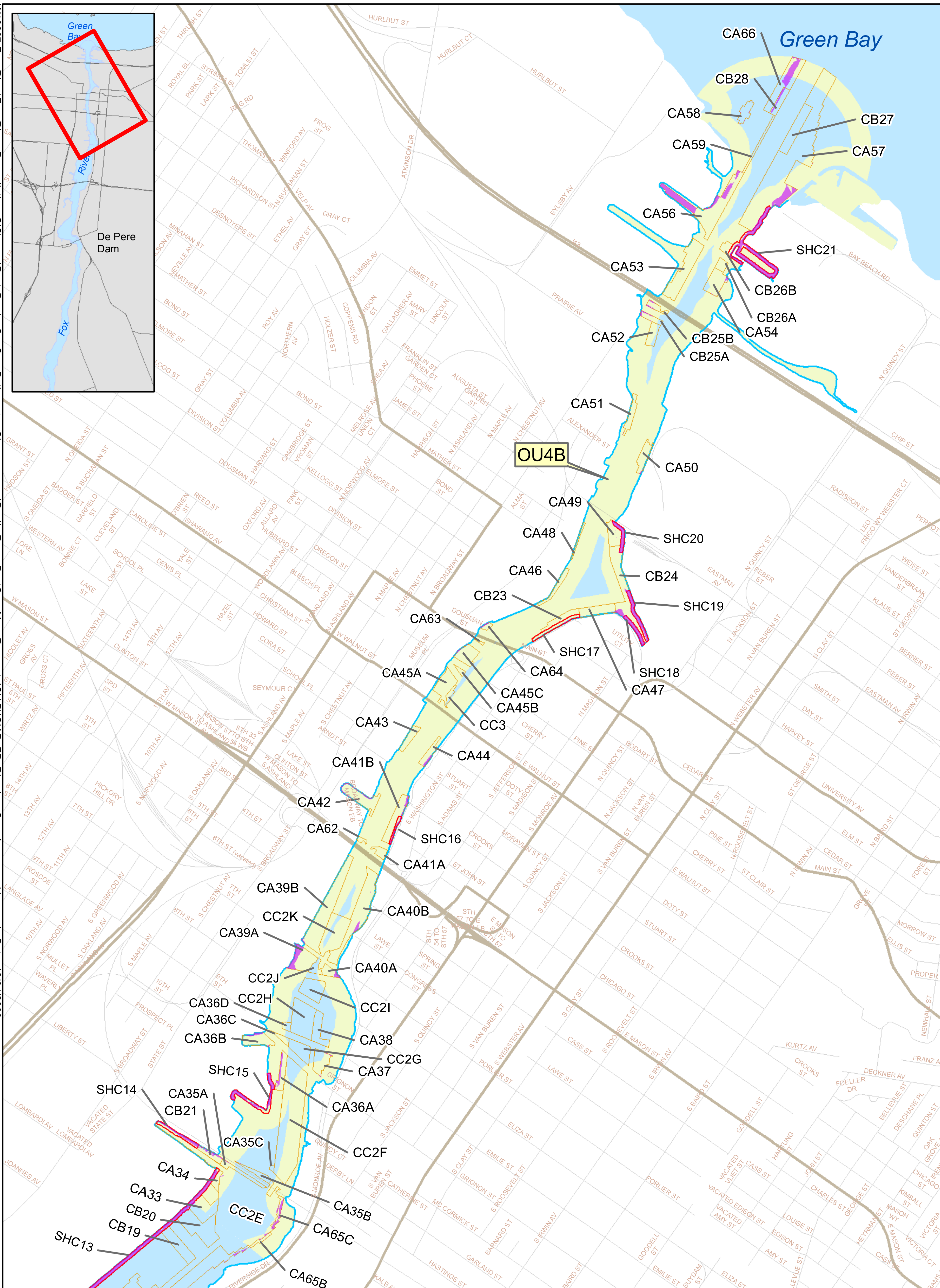

- Fox River Shoreline
- Major Road
- Minor Road
- Shoreline Cap
- Cap A, B or C
- Cap Area in Less Than 5 Feet of Water
- Area Within 300 feet of the OU 4B Shoreline
- Fox River

Figure 2-2B

Fox River OU 4 and OU 5 Riparian Cap Areas

Brown County, Wisconsin, USA

TETRA TECH EC, INC.

ANCHOR QEA

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Feet

2.1 Existing Regulatory Authorities and Additional Institutional Controls

An institutional control may be deemed to be already in place if another agency has responsibility for enforcing a prohibition on the activity that otherwise would need to be the subject of an institutional control (USEPA 2005). Chapter 30 of the Wisconsin Statutes, Sections 401 and 404 of the Clean Water Act (CWA), and Sections 9 and 10 of the Rivers and Harbors Act give WDNR and the U.S. Army Corps of Engineers (USACE) the authority and responsibility to enforce prohibitions on activities that would threaten the integrity of the engineered caps. The use of these existing regulatory authorities as institutional controls will be confirmed through MOAs. This subsection examines the extent to which existing regulatory authorities address potential risks to the engineered caps. To the extent existing regulatory authorities do not fully address these potential risks, this subsection includes the additional institutional controls that will be used to address the potential risks. Table 2-1 provides a list of institutional controls that may be used. The list is organized by the three distinct capping scenarios: 1) caps in the federal navigational channel; 2) caps outside of the navigational channel that are not shoreline caps, namely caps that maintain no less than 3 feet of navigable water above the top of the cap; and 3) shoreline caps, namely those caps that do not maintain 3 feet of navigable water above the top of the cap.

Table 2-1
Media, Remedy Components, and Areas Requiring Institutional Controls

	Caps Constructed in Federal Navigation Channels	Caps Constructed Outside of Federal Navigation Channels that are not Riparian Caps	Constructed Riparian Sediment Caps
Objectives of Institutional Control	Ensure that USACE maintenance dredging does not extend more than 2 feet below the federally-authorized channel depth and that no other activity, such as dredging, impacts the integrity of the engineered caps.	Ensure that no activity such as dredging impacts engineered cap integrity	Ensure that no activity, particularly Chapter 30 permit exempt activity, impacts the integrity of shoreline caps
Enforcement and Permit Devices	▪ MOA with Brown County and municipalities regarding mapping and communications ▪ MOA with USEPA, USACE, and WDNR, and possibly Brown County Port Authority, regarding dredging requirements in federal navigational channel ▪ MOA with WDNR and USACE regarding regulatory programs ▪ USEPA Administrative Order for RA	▪ MOA with Brown County and municipalities regarding mapping and communications ▪ MOA with WDNR and USACE regarding regulatory programs ▪ USEPA Administrative Order for RA	▪ MOA with Brown County and municipalities regarding mapping and communications ▪ MOA with WDNR and USACE regarding regulatory programs ▪ USEPA Administrative Order for RA
Informational Devices	▪ MOA with Brown County and municipalities regarding mapping and communications ▪ MOA with USEPA, USACE, and WDNR, and possibly Brown County Port Authority, regarding dredging requirements in federal navigational channel ▪ MOA with WDNR and USACE regarding regulatory programs ▪ WDNR BRRTS Registry ▪ WDNR and Brown County GIS Mapping System ▪ Governmental Notices such as fish advisories and navigational maps ▪ Utility notification ▪ Diggers Hotline	▪ MOA with Brown County and municipalities regarding mapping and communications ▪ MOA with WDNR and USACE regarding regulatory programs ▪ WDNR BRRTS Registry ▪ WDNR and Brown County GIS Mapping System ▪ Governmental Notices such as fish advisories and navigational maps ▪ Utility notification ▪ Diggers Hotline	▪ MOA with Brown County and municipalities regarding mapping and communications ▪ MOA with WDNR and USACE regarding regulatory programs ▪ WDNR BRRTS Registry ▪ WDNR and Brown County GIS Mapping System ▪ Governmental Notices such as fish advisories and navigational maps ▪ Riparian Landowner Notifications and Consultations ▪ Utility notification ▪ Diggers Hotline
Governmental Controls	▪ WDNR Chapter 30 requirements ▪ Sections 10 and 401/404 USACE permit requirements	▪ WDNR Chapter 30 requirements ▪ Sections 10 and 401/404 USACE permit requirements	▪ WDNR Chapter 30 requirements ▪ Sections 10 and 401/404 USACE permit requirements
Proprietary Controls	None anticipated	None anticipated	None anticipated

2.1.1 WDNR's Institutional Control Authority and Cap Protection Responsibility

Wisconsin's authority to regulate activities in waterways predates the Wisconsin Constitution and has its origins in the "public trust doctrine" of the Northwest Ordinance of 1787. In essence, the public trust doctrine provides that the State of Wisconsin holds all natural navigable waters in trust for the public. The State's rights in navigable waters are paramount, and the rights of riparian landowners are qualified and subordinate to the State's rights. The doctrine requires action not only to preserve the trust, but to promote it. The doctrine requires Wisconsin to intervene to protect public rights in navigable waters.

Chapter 30 of the Wisconsin Statutes helps effectuate the public trust doctrine. Chapter 30 provides a permitting program that will effectively protect the integrity of the capping element of the selected remedy:

- Section 30.12, Wisconsin Statutes, makes it unlawful to place a structure on the bed of a navigable waterway unless a permit has been granted by WDNR or unless the structure is otherwise authorized by statute.
- Section 30.20 makes it unlawful to remove material from the bed of a navigable waterway unless a permit has been granted by WDNR or unless the removal is otherwise authorized by statute.

The Chapter 30 regulatory framework is administered by WDNR through exemptions, general permits, and individual permits. A summary of exempt activities is provided in Attachment 1. There are no exempt activities that threaten the integrity of the caps. Both general and individual permitting activities require WDNR notice and provide WDNR with the opportunity to meet its regulatory responsibility of protecting the caps. Any activities that pose a threat to the caps would be addressed through the permitting standard that an activity cannot "…be detrimental to the public interest." The public interest standard in Wisconsin has been broadly interpreted to give WDNR the authority to protect the public's interest in water including the protection of water quality, aquatic life, and fish. As is the case under any permit or other regulatory program designed to protect the public interest, persons subject to a regulatory program designed to protect the caps would be expected to bear the costs of complying with that program.

As noted above, while the State's rights in navigable waters are paramount, riparian landowners maintain qualified and subordinate rights, namely the rights to reasonable access and use. The Respondents acknowledge those qualified and subordinate rights. Accordingly, riparian landowners will be notified of capping activities and will have the opportunity to address potential impacts through design considerations or RA modifications. For example, a cap for an individual riparian landowner could incorporate the placement of a pier into its design if the riparian landowner expressed such an interest and applicable permits for the development activities were separately obtained. Likewise, a cap that is not a shoreline cap pursuant to the ROD Amendment, but is located where commercial vessels will be berthed, can be designed to accommodate that activity.

An initial general notification letter will be mailed to riparian landowners advising that remedial activities will be conducted in the area in the upcoming year. For riparian landowners where post-cap water depth is less than 5 feet and in deeper water OU 4B cap areas within 300 feet of the shoreline, a follow up notification will be provided that will identify the preliminary cap design and include maps indicating pre- and post-cap water depths. The follow up notification will provide information to the riparian landowner on the proposed cap and will state that the Respondents and WDNR will work with them to develop and implement a cap that meets ROD Amendment requirements and attempts to address the reasonable needs of the riparian landowner. Updates on the status of riparian landowner notification and discussions will be provided during the weekly quality control meetings. The same approach and schedule will be followed during each year of RA.

The Respondents have already implemented a riparian landowner notification plan for the remedial activities that occurred in 2009. That plan is discussed in the Technical Memorandum *Evaluation of Available Draft Impact to Riparians and Riparian Notification* (Tetra Tech et al. 2009c). The Respondents will continue to use the techniques set forth in the riparian landowner notification plan to address potential available draft and other impacts to riparian landowners when implementing the capping remedy. These requirements will be updated as appropriate in the annual Phase 2B Work Plans for RA.

2.1.2 Implementation of Chapter 30 Institutional Controls

A comprehensive GIS database will be created and maintained for the entire length of the Lower Fox River from OUs 2 to 5. The Respondents will provide WDNR with GIS-compatible databases for all of the caps. Since the capping activity in OUs 2 to 5 is confined to Brown County, WDNR and the Respondents will coordinate with Brown County in the development and maintenance of the database to ensure consistency between Brown County's mapping databases and the WDNR GIS Registry. WDNR and the Respondents will also make the database available to other municipalities such as the Cities of Green Bay and DePere and the Villages of Allouez and Ashwaubenon. In coordination with WDNR, the database will be linked to the existing WDNR BRRTS database, or its equivalent replacement(s).[1] The database will include, at a minimum, the following information:

- Location of government and utility infrastructure, including underwater lines, bridges, etc.
- Location of all public access points
- Location of all private access points including marinas and private piers (private pier locations are only applicable in riparian cap areas)
- Location of all pierhead and bulkhead lines
- Location of all caps with links to identify the nature of the cap

All Chapter 30 permitting activities that occur within OUs 2 to 5 will be coordinated through one WDNR office (likely the Green Bay Regional office) to ensure that the approved remedy is implemented and the caps are protected. A MOA between WDNR and the Respondents is anticipated to address implementation issues. An additional

[1] Traditionally, parties conducting environmental cleanups in Wisconsin ensured that property owners would refrain from certain actions by recording deed restrictions that applied to the property. WDNR, however, has moved away from using deed restrictions as a means of proprietary control to regulate activities where residual contamination remains after a cleanup. Instead, WDNR requires that the affected area be registered on WDNR's BRRTS Registry, which is WDNR's public notification system for environmental cleanups that contain in-place, residual contamination. WDNR also requires written notification to affected landowners. This revised approach is a result of Wis. Stat. Section 292.12, which the legislature enacted in 2006. Pursuant to this regulatory framework, the location of the caps will be registered on the BRRTS Registry and affected riparian landowners will be notified in writing. Additionally, the location of the caps will be indicated on all appropriate local governmental units' mapping systems.

MOA is anticipated with USACE and a combined municipal MOA is anticipated with Brown County, De Pere, Ashwaubenon, Allouez, and Green Bay.

During RA, annual inspection of engineered caps will be performed to identify instances of disturbance or construction activities that were not permitted under Chapter 30 (or related federal authorities). As part of the annual Phase 2B Work Plans for RA, the annual RA Summary Report, or the Site Surveys Report Addendum (as applicable) the following activities will be summarized:

- Results of cap inspections conducted in the past year
- Communications with riparian landowners of riparian caps
- Communications with utilities located adjacent to caps
- Development activities impacting engineered caps
- Development activities that have occurred where riparian caps are present (e.g., installation of a Chapter 30 exempt pier)
- Chapter 30 permits that were applied for involving the Fox River in Brown County
- Dredging activities of the navigational channel authorized by USACE
- Changes in Chapter 30, particularly changes that increase the dredging or construction activities that are exempt from Chapter 30 requirements
- Other relevant changes in federal authorities and local ordinances

Post-construction inspections will be performed throughout the operation and maintenance period of the remedy, and will be conducted and reported according to the Cap Operations, Maintenance, and Monitoring Plan (COMMP) schedule (see Appendix H of the 100 Percent Design Report Volume 2; Anchor QEA and Tetra Tech 2009).

Detailed inspection, monitoring, and maintenance requirements for engineered caps are addressed in the Response Agency-approved COMMP (Anchor QEA and Tetra Tech 2009). The Response Agency-approved Long Term Monitoring Plan (LTMP; see Appendix I of the 100 Percent Design Report Volume 2) and Adaptive Management and Value Engineering Plan (see Appendix E of the 100 Percent Design Report Volume 2) also detail additional monitoring and adaptive management requirements, respectively. All utilities crossing the river will be identified on GIS maps. All utility owners will be

provided with an initial notification of capping activities near their utilities and annual updates describing any changes thereto.

2.1.3 Existing Federal Regulatory Authorities

While Chapter 30 will be the primary existing regulatory authority to be used as an institutional control, there is also a range of federal laws that place restrictions on and require permits to be obtained for dredging, filling, or other construction activities in the aquatic environment. These include Section 404 of the CWA, Title 33 United States Code (U.S.C.) Section 1344; and Sections 9 and 10 of the Rivers and Harbors Act of 1899, 33 U.S.C. 401 and 403, which require federal permitting for any construction that would impact the course, capacity, or condition of navigable waters of the U.S. The 401/404 regulations are typically implemented by USACE, but may also be implemented by USEPA. Under the Section 404(b)(1) guidelines, 40 CFR 230.10(b), no discharge (i.e., excavation of caps) shall be allowed if it:

- Causes or contributes to violations of water quality standards, pursuant to Section 401 of the CWA, after consideration of local dilution and dispersion
- Violates any applicable toxic effluent standard or discharge prohibition under Section 307 of the CWA.

Thus, existing federal programs will further ensure that dredging activities will not disturb the integrity of the caps to be constructed in OUs 2 to 5.

2.2 Riparian Activities That Are Exempt from Permitting

As discussed above, the Respondents and WDNR will work with riparian landowners during RA. Riparian landowners will be presented with information regarding RA planned near their shorelines and structures. The Respondents will develop and implement a remedy for individual capping areas that meets ROD requirements and attempts to address the reasonable needs of riparian landowners. The RA planned for each area will be updated as appropriate in annual Phase 2B Work Plans for RA.

The potential exists for riparian landowners to conduct activities that are exempt from Chapter 30 permit requirements within potential riparian capping areas (see Attachment 1). These Chapter 30 exempt activities may include installation of seasonal dock structures;

piling for piers or wharfs in less than 5 feet of water, ice control, or watercraft pivoting; or manual dredging.

In general, seasonal dock installations are not expected to have any significant impact on the integrity of the shoreline caps. These structures are typically secured in place by concrete blocks or other similar gravity anchors resting on the bottom (i.e., anchors do not typically penetrate the bottom), which are left in-place year-round. The armor design of the shoreline and other offshore caps is sufficient to resist disturbance from these gravity anchors such that the caps remain protective.

Piles installed for permit-exempt piers, wharfs, ice control, or watercraft pivoting are likely to be small diameter pipe piles driven in place. The act of mechanically driving the piles is not expected to have a significant negative impact on the integrity of the caps since the cap material within the immediate footprint of the pile would either be driven down or pushed aside by the pile (Boudreau et al. 2003). (Note that jetting alone is likely not a feasible means of pile installation in the nearshore cap areas, given the relatively large armor specifications of the cap materials.) Similarly, removal of such temporary piling is not expected to have a significant impact on the protectiveness of a cap area. Although some temporary, minor disturbance of the cap could be created through the removal of a pile, cap material from immediately adjacent to a pile would be expected to fill the void created by the removal of a pile almost instantaneously. In addition, the area of impact is insignificant relative to the area of any capping area. Therefore, no significant exposure to underlying contaminated sediments is expected as a result of exempt pile removal activities.

The only dredging activity that is exempt from Chapter 30 permitting requirements is manual dredging. Manual dredging includes the use of a hand-held device without power and does not pose a threat to the integrity of the caps.

2.3 Non-Exempt Dredging Activities

In order to protect the engineered caps, it is necessary to conduct dredging operations in a manner that does not remove the capping material. Two types of dredging operations were evaluated: maintenance of the federal navigation channel in OU 4; and privately-sponsored dredging of marinas and other locations outside of the navigation channel.

The engineered caps have been designed to avoid damage from maintenance of the federal navigation channel. As discussed in the 100 Percent Design Report Volume 2 (Tetra Tech et al. 2009b), engineered caps located within federal navigation channels have been designed to maintain their integrity, and the design provides that the top of the cap will be at least 2 feet below the authorized depth of the navigation channel. Consistent with the requirements of the ROD Amendment, all caps placed below the federally authorized navigation channel depth will be at least 33 inches in thickness, including a surface armor layer comprised of quarry spall or equivalent materials. In addition to the erosion protection provided by the armor stone placed within the navigation channel as discussed above, it will also serve as a physical marker of the top of the cap if future maintenance dredging inadvertently excavates well below the authorized depth in the OU 4A or 4B channel. The cap design minimizes the chance that future navigational dredging activities will disturb the engineered caps. Advance maintenance allowances used by the USACE extend no further than 2 feet below the authorized channel depth.

As discussed above, design and location protect the engineered caps from maintenance of the federal navigation channel. In addition to those design features, following Response Agency approval of the 100 Percent Remedial Design Report Volume 2 submittal, a MOA will be developed between USACE, USEPA, WDNR, and the Respondents to further ensure that future dredging activities within the federal navigation channel do not compromise the integrity of the engineered caps. The MOA is anticipated to follow the general form of USACE agreements implemented at other similar CERCLA sediment cap sites located in federally-authorized channels.

Privately-sponsored dredging in excess of 2 cubic yards (cy) of marinas and other locations outside of the navigation channel would require a Dredging – Waterway & Wetland Permit under Chapter 30. As discussed earlier, existing Chapter 30 permitting authorities provide an adequate institutional control for these activities.

2.4 Limitations on Navigation or Vessel Speed

The cap designs developed for OUs 2 to 5 have been designed to resist anticipated shear stresses and other potential erosional events. As discussed in the 100 Percent Design Report Volume 2 (Tetra Tech et al. 2009b), RD modeling determined that the highest bottom shear

stresses from vessel operations occurred during relatively low speed maneuvers. Cap designs were developed using this information and multiple combinations of vessel operating parameters. Based on these engineering evaluations, there is no need to establish no-wake or restricted vessel speed zones to protect engineered caps in the Lower Fox River. (Additionally, the U.S. Coast Guard [USCG] and the Port of Green Bay currently enforce no-wake and restricted vessel speed zones in parts of OU 4 to provide for general navigation safety.)

Anchoring, spudding, dragging, and salvage operations are sometimes restricted in sediment capping areas if such restrictions are necessary to provide protection against activities that could potentially compromise the integrity of the armor layer (USEPA 2005). However, the cap designs developed for OUs 2 to 5 include placement of a target thickness of at least 7 inches of an armor layer comprised of gravel or quarry spalls (or equivalent armor layer), as appropriate for the particular location.

As discussed in the 100 Percent Design Report Volume 2 (Tetra Tech et al. 2009b), considering the range of recreational and commercial anchor types for vessels that operate within the Lower Fox River, and also considering the bearing strength of the designed armor layer, vessel anchors as may be deployed in capping areas will rarely penetrate through the relatively coarse-grained armor layer. This RD issue was addressed in collaborative workgroups, and the cap designs described in the 100 Percent Design Report Volume 2 were determined to be protective. Long-term cap monitoring will be performed to verify the continued protectiveness of the caps (see COMMP; Anchor QEA and Tetra Tech 2009).

The ROD Amendment (e.g., see page 59 of the Responsiveness Summary; USEPA and WDNR 2007) anticipated localized impacts to engineered caps such as those potentially associated with anchoring, dragging, and/or spudding activities, and noted that such disturbances are not expected to compromise the overall effectiveness of the remedy. Moreover, should an anchor or other disturbance penetrate through the armor layer, the "self-healing" behavior of the cap upon withdrawal of the structure maintains the integrity of the cap (e.g., see Palermo et al. 1998 and Boudreau et al. 2003). In addition, the OUs 2 to 5 caps will generally be constructed in net depositional environments within the river, such

that new sediment will begin accumulating on the cap surface immediately following construction. The clean sediment layer accumulating on the cap will further reduce any anchor-related impacts and will continue to enhance the overall effectiveness of the cap over the long term. To provide appropriate protection from anchoring and related activities in localized high use areas, the 100 Percent Design Report Volume 2 provides for localized modifications of cap designs, such as near boat launches. Long-term post-construction cap monitoring will target higher use areas of the river to confirm that the caps continue to be protective (see COMMP; Anchor QEA and Tetra Tech 2009).

Thus, further prohibitions on the anchoring of vessels within capping areas of OUs 2 to 5 are not necessary to maintain the effectiveness of the remedy, and would unduly burden local recreational use of the river without a concomitant environmental benefit. (It is noted that USCG already regulates anchoring and other activities that would obstruct navigation within the navigation channel, and these restrictions are expected to continue in perpetuity as part of ongoing channel operations [e.g., see Section 15 of the 1899 Rivers and Harbors Act], but such restrictions are not necessary to protect the navigation channel caps as designed.) Nonetheless, the Respondents, USEPA, and WDNR will assess with USCG the possibility of further no-anchor zones in cap areas where commercial vessels may operate.

2.5 Monitoring and Maintenance

As discussed in the ROD Amendment and detailed in the Response Agency-approved COMMP (Anchor QEA and Tetra Tech 2009), long-term monitoring and maintenance will be performed to support the physical integrity of the cap and the permanent containment of the underlying sediment contaminants. Geophysical monitoring events will occur at a pre-determined schedule, and as soon as possible following major river flow events, periods of extended low water, or construction activities that may have a significant impact on river hydrodynamics. Long-term monitoring modifications will be documented in the annual Phase 2B Work Plans for RA.

Institutional controls with respect to the De Pere Dam are not necessary to ensure the protectiveness of the remedy in OU 3 and OU 4. As discussed on the USACE web site (http://www.lre.usace.army.mil/_kd/), while cracks associated with the trunnion pins that anchor the gates have been identified at the De Pere Dam, USACE developed a plan to

repair these cracks and perform other protection measures. USACE awarded a contract in July 2009 to perform interim repairs and other actions. Funding for permanent repairs has also been received. Given the ownership and regular inspection and maintenance of the De Pere Dam by USACE, no basis currently exists to anticipate that this dam will fail or be removed. There are already a number of compelling reasons for USACE and others to continue to maintain the De Pere Dam, such as providing hydropower capability, water supplies, and recreational use.

Even if the De Pere Dam were to be removed in the future and soft sediment deposits in OU 3 upstream of the dam were subject to erosion and transport, the degree to which OU 3 sediment would be transported downstream would depend on the manner in which the dam might be removed. The most likely scenario is that the dam would be removed in a controlled manner; if so, little or no sediment would be transported downstream. However, even if dam removal caused a wholesale movement of sediment, the average PCB concentration of that sediment would likely be low. Under the remedy described in the ROD Amendment and presented in detail in the Basis of Design Report (BODR; Shaw and Anchor 2006), approximately 2.0 million cy of recent (post-dam) soft sediments would be retained in OU 3 after remedy construction, along with a relatively small amount (0.2 million cy) of sediment cap material. These sediments would contain an average PCB concentration of about 0.7 parts per million (ppm) (standard deviation = 2.3 ppm), generally below the remedial action level (RAL) of 1.0 ppm.

In addition, an institutional control may be deemed to be already in place if another agency has responsibility for conducting an activity or enforcing a prohibition and existing laws or regulations require an environmental review before that program is changed (USEPA 2005). USACE and WDNR currently have responsibilities related to operation and maintenance of dams that are part of the Fox River Navigational System. White Paper 4, issued with the 2003 ROD, describes Wisconsin regulatory and environmental review requirements associated with proposals for dam removal. White Paper 4 also notes that USACE has continued to operate, inspect, and maintain the De Pere Dam. Moreover, a considerable amount of infrastructure and recent residential development along OU 3 depends on continued operation of the dam. For all of the foregoing reasons, further institutional

controls to prevent the removal of the De Pere Dam are not necessary to ensure the long-term protectiveness of the remedy in OUs 3 and 4.

3 PUBLIC INFORMATION AND ADVISORIES

Fish consumption advisories are informational devices; an existing WDNR fish consumption advisory is already in place in the Lower Fox River and has been incorporated into the ROD Amendment. Due to the elevated concentrations of PCBs and mercury detected in fish tissue from the Lower Fox River and Green Bay, WDNR issued consumption advisories in 1977 and 1987 for fish and waterfowl, respectively. General fish consumption advisories are currently in effect for seven species of fish located in the Lower Fox River from Little Lake Butte des Morts to the De Pere Dam, for 13 species of fish located from the De Pere Dam to the mouth of Green Bay, and 11 species of fish located in Green Bay.

In 1984, WDNR initiated its wildlife contaminant monitoring program. Results of the monitoring program indicated that elevated PCB concentrations were present in waterfowl species harvested by sportsmen from Green Bay. WDNR then developed procedures for issuing consumption advisories for waterfowl, and issued a waterfowl consumption advisory for mallard ducks in 1987. The advisory for mallards was issued for mallards taken in the "Lower Fox River from Lake Winnebago at Neenah and Menasha downstream, including Little Lake Butte des Morts, to the northeast city limits of Kaukauna", and the "Lower Fox River from the De Pere Dam to the River's mouth at Green Bay, and lower Green Bay south of a line from Point au Sable west to the west shore of Green Bay." The advisory has remained in place since its issuance. The advisories are issued each year in the annual hunting guide distributed by WDNR. The federal Food and Drug Administration threshold level for poultry of 3 ppm wet-weight PCBs on a fat basis has been adopted by WDNR for the Lower Fox River.

WDNR's fish and waterfowl advisory programs are expected to continue in the future, so there is no reason to require an independent advisory program as part of the OUs 2 to 5 RA. In addition, an independent advisory program could create a risk of contradictory advice to the public. The LTMP describes the water and biological tissue monitoring program to be implemented by the Respondents to the Order in the years following the RA, to verify that the RA will be effective at reducing risk to humans, mammals, birds, fish, and invertebrates. Data collected during implementation of the LTMP will be forwarded to WDNR staff responsible for the fish and waterfowl advisory programs.

4 REPORTING

Section 2 discusses the Respondents' annual reporting requirements and communications with riparian landowners and utilities, along with other elements to ensure the long-term protectiveness of engineered caps in OUs 2 to 5. When the Response Agencies determine that remedial work in a given OU is complete, the parties performing the RA (i.e., the Tetra Tech Team or Order Respondents) will provide an as-built survey. As discussed above, the location of engineered caps will be registered on WDNR's BRRTS Registry and affected landowners will be notified in writing. Additionally, the location of the caps will be indicated on all appropriate local governmental units' mapping systems.

As part of the CERCLA 5-year review, USEPA will require periodic evaluations of the status and effectiveness of the institutional controls implemented in OUs 2 to 5. As practical, long-term cap monitoring and maintenance reporting under the COMMP and water/biota sampling and reporting under the LTMP will be coordinated to take place during the same year, conducted approximately 1 year prior to the scheduled CERCLA 5-year reviews, so that the most up-to-date information will be available to inform the review.

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ATTACHMENT 1

EXEMPTIONS FROM SECTIONS 30.12 AND 30.20 PERMIT REQUIREMENTS

EXEMPTIONS FROM SECTION 30.12 PERMIT REQUIREMENTS

1. A deposit of sand, gravel, or stone that totals less than 2 cubic yards and that is associated with any activity or project that is exempt from an individual permit or a general permit under this subchapter.
2. A structure, other than a pier or a wharf, that is placed on a seasonal basis in accordance with rules promulgated by the department.
3. A fish crib, spawning reef, wing deflector, or similar device that is placed on the bed of navigable waters for the purpose of improving fish habitat.
4. A bird nesting platform, wood duck house, or similar structure that is placed on the bed of a navigable water for the purpose of improving wildlife habitat.
5. A boat shelter, boat hoist, or boat lift that is placed on a seasonal basis adjacent to the riparian owner's pier or wharf or to the shoreline on the riparian owner's property, in accordance with rules promulgated by the department.
6. A pier or wharf that is no more than 6 feet wide, that extends no further than to a point where the water is 3 feet at its maximum depth, or to the point where there is adequate depth for mooring a boat or using a boat hoist or boat lift, whichever is farther from the shoreline, and that has no more than 2 boat slips for the first 50 feet of riparian owner's shoreline footage and no more than one additional boat slip for each additional 50 feet of the riparian owner's shoreline. Notwithstanding the width limitation in this paragraph, a pier may have an area as a loading platform that is more than 6 feet wide if the platform is not more than 8 feet wide, it extends perpendicular to one or both sides of the pier, and it is located at the lakeward end of the pier or at the end of the pier that extends into a stream.
7. An intake structure and pipe that is placed on the bed of a navigable water for the purpose of constructing a dry fire hydrant to supply water for fire protection.
8. A piling that is driven into the bed of a navigable water adjacent to the owner's property for the purpose of deflecting ice, protecting an existing or proposed structure, or providing a pivot point for turning watercraft.
9. Riprap in an amount not to exceed 100 linear feet that is placed to replace existing riprap located in an inland lake or Great Lakes water body and that includes the replacement of filter fabric or base substrate.
10. Riprap in an amount not to exceed 300 linear feet that is placed to repair existing riprap located in an inland lake or Great Lakes water body, and that consists only of the

placement of additional rock or the redistribution of existing rock within the footprint of the existing riprap.

11. A biological shore erosion control structure, as defined by rule by the department.
12. An intake or outfall structure that is less than 6 feet from the water side of the ordinary high-water mark and that is less than 25 percent of the width of the channel in which it is placed.
13. Dry Fire Hydrants.
14. Swimming Rafts.
15. Water Ski Platforms and Jumps.

EXEMPTION FROM SECTION 30.20 PERMIT REQUIREMENT

1. NR 325.04(1)(d) establishes an exemption for manual dredging. Manual dredging is defined at NR 345.03(8) as follows:

   (8) "Manual dredging" means removal or disturbance of bottom material by hand or using a hand-held device without the aid of external or auxiliary power. Manual dredging is often associated with the collection of aquatic insects for bait, removal of nuisance vegetation or debris and the panning for gold or other material. For the purpose of ch. 30, Stats., manual dredging does not include "de minimis" activities as defined in sub. (2).

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Appendix D. State of Wisconsin Administrative Code for Dredging Activities – NR 347

Chapter NR 347

SEDIMENT SAMPLING AND ANALYSIS, MONITORING PROTOCOL AND DISPOSAL CRITERIA FOR DREDGING PROJECTS

NR 347.01 Purpose and policy.
NR 347.02 Applicability.
NR 347.03 Definitions.
NR 347.04 Permits, approvals and reviews required.
NR 347.05 Preliminary application and analytical requirements.
NR 347.06 Sampling and analysis.
NR 347.07 Review procedures and review criteria.
NR 347.08 Monitoring, reporting and enforcement.

Note: Chapter NR 347 as it existed on February 28, 1989 was repealed and new chapter NR 347 was created effective March 1, 1989.

NR 347.01 Purpose and policy. (1) The purpose of this chapter is to protect the public rights and interest in the waters of the state by specifying definitions, sediment sampling and analysis requirements, disposal criteria and monitoring requirements for dredging projects regulated under one or more of the following statutes: s. 30.20, Stats., which requires a contract or permit for the removal of material from the beds of waterways; s. 281.41, Stats., which establishes a wastewater treatment facility plan approval program; ch. 289, Stats., which establishes the solid waste management program; ch. 291, Stats., which establishes the hazardous waste program; and ch. 283, Stats., which establishes the Wisconsin pollutant discharge elimination system (WPDES) program.

(2) It is department policy to encourage reuse of dredged material and to minimize environmental harm resulting from a dredging project.

History: Cr. Register, February, 1989, No. 398, eff. 3–1–89; corrections in (1) made under s. 13.93 (2m) (b) 7., Stats., Register January 2002 No. 553.

NR 347.02 Applicability. The provisions of this chapter apply to the removal and disposal of material from the beds of waterways except where exempted by statute.

History: Cr. Register, February, 1989, No. 398, eff. 3–1–89.

NR 347.03 Definitions. (1) "Analyte" means the chemical substance or physical property being tested for in a sample.

(2) "Bathymetry" means the measurement of depth of water in lakes or rivers to determine lake or river bed topography.

(3) "Beach nourishment disposal" means the disposal of dredged material on the beaches or in the water landward from the ordinary high–water mark of Lakes Michigan and Superior for the purpose of adding, replenishing or preventing erosion of beach material.

(4) "Bioassay" means a method for determining the acute or chronic toxicity of a material by studying its effects on test organisms under controlled conditions.

(5) "Bulk sediment analysis" means a test to measure the total concentration of a specific constituent in a sample being analyzed.

(6) "Carriage water" means the water portion of a slurry of water and dredged material.

(7) "Carriage water return flow" means the carriage water which is returned to a receiving water after separation of the dredged material from the carriage water in a disposal, rehandling or treatment facility.

(8) "Connecting waterways" means a portion of a navigable lake or stream which is directly joined to Lake Michigan or Lake Superior and which contains a navigation channel providing access for commercial or recreational watercraft to Lake Michigan or Lake Superior.

(9) "Contamination" means a solid, liquid or gaseous material, microorganism, noise, heat, odor, or radiation, alone or in any combination, that may harm the quality of the environment in any way.

(10) "Contract" means a binding written agreement between the department and a dredging applicant authorizing the removal of material from the bed of a natural navigable lake or outlying water.

(11) "Department" means the department of natural resources

(12) "Disposal facility" means a site or facility for the disposal of dredged material.

(13) "Dredged material" means any material removed from the bed of any waterway by dredging.

(14) "Dredging" means any part of the process of the removal of material from the beds of waterways; transport of the material to a disposal, rehandling or treatment facility; treatment of the material; discharge of carriage or interstitial water; and disposal of the material.

(15) "Grain size analysis" means a method to determine dredged material and disposal site sediment particle size distribution.

(16) "Hazardous waste", as defined in s. 291.01 (7), Stats., means any solid waste identified as a hazardous waste under ch. NR 661.

(17) "Interstitial water" means water contained in the interstices or voids of soil or rock in the dredged material.

(18) "Limit of detection" means the lowest concentration level that can be determined to be statistically different from a blank sample for that analytical test method and sample matrix.

(19) "Limit of quantitation" (LOQ) means the concentration of an analyte at which one can state with a stated degree of confidence for that analytical test method and sample matrix that an analyte is present at a specific concentration in the sample tested.

(20) "Parent material" means the native unconsolidated material which overlies the bedrock.

(21) "PCBs" means those materials defined in s. 299.45 (1) (a), Stats.

(22) "Particle size distribution" means a cumulative frequency distribution or frequency distribution of percentages of particles of specified diameters in a sample.

(23) "Rehandling facility" means a temporary storage site or facility used during the transportation of dredged material to a treatment or disposal facility.

(24) "Treatment facility" in this chapter means a natural or artificial confinement facility used for the separation of dredged material solids from the interstitial or carriage water.

(25) "Upland disposal" means the disposal of dredged materials landward from the ordinary high–water mark of a waterway or waterbody.

History: Cr. Register, February, 1989, No. 398, eff. 3–1–89**;** correction in (16) made under s. 13.93 (2m) (b) 7., Stats., Register, October, 1995, No. 478; **correction in (16) made under s. 13.93 (2m) (b) 7., Stats., Register May 2013 No. 689.**

NR 347.04 Permits, approvals and reviews required. (1) The following are the permit, approval and review requirements for dredging projects:

(a) Except where otherwise provided by law, all private and municipal dredging projects require a permit or contract under s.

30.20, Stats., and ch. NR 346. Dredging in portions of the Mississippi, St. Croix and Black rivers by the U.S. army corps of engineers is governed by s. 30.202, Stats.

(b) All dredging projects require review under ch. 289, Stats., and chs. NR 500 to 520 for disposal of dredged material under the solid waste management program.

(c) All dredging projects shall be reviewed under ss. 1.11 and 23.11 (5), Stats., and ch. NR 150 for compliance with the Wisconsin environmental policy act.

(d) All federally funded, permitted or sponsored dredging projects require water quality certification under ss. 281.11 to 281.36 (12) and 283.001, Stats., and ch. NR 299.

(e) A Wisconsin pollutant discharge elimination system (WPDES) permit under ch. 283, Stats., is required for dredging projects with carriage water return flows to surface water or groundwater.

(f) Plan approval under s. 281.41, Stats., is required for dredging projects which include a dredged material treatment facility.

(g) Sites and facilities for the disposal of hazardous waste and PCBs require review under subch. IV of ch. 291, Stats., and s. 299.45, Stats., and chs. NR 500 to 520 and 660 to 670.

(2) The project application process shall be coordinated by the department. Except as otherwise provided by law, decisions on all applicable department approvals, permits, contracts and licenses relating to a dredging project shall be made concurrently and with the decision on:

(a) Water quality certification under ch. NR 299 for all federally funded, permitted or sponsored projects, or

(b) Permit or contract under s. 30.20, Stats., and ch. NR 346 for all other projects.

History: Cr. Register, February, 1989, No. 398, eff. 3–1–89**;** corrections in (1) made under s. 13.93 (2m) (b) 7., Stats., Register, October, 1995, No. 478; corrections in (1) (b), (d), (e), (f), and (g) made under s. 13.93 (2m) (b) 7., Stats., Register January 2002 No. 553; **corrections in (1) (d), (g) made under s. 13.93 (2m) (b) 7., Stats., Register May 2013 No. 689.**

NR 347.05 Preliminary application and analytical requirements. (1) Prior to submission of a formal application, anyone seeking to remove material from the beds of waterways shall provide the department with preliminary information including:

(a) Name of waterbody and location of project;

(b) Volume of material to be dredged;

(c) Brief description of dredging method and equipment;

(d) Brief description of proposed disposal method and location and, if a disposal facility is to be used, size of the disposal facility;

(e) Any previous sediment sampling (including field observations) and analysis data from the area to be dredged or from the proposed disposal site;

(f) Copy of a map showing the area to be dredged, the depth of cut, the specific location of the proposed sediment sampling sites and the bathymetry of the area to be dredged; and

(g) Anticipated starting and completion dates of the proposed project.

(2) An initial evaluation shall be conducted by the department within 30 business days after receipt of the information under sub. (1) to determine if there is reason to believe that the material proposed to be dredged is contaminated. This initial evaluation shall be used by the department in specifying sediment sampling and analysis requirements to the applicant under s. NR 347.06 and shall be accomplished with existing data. Factors which shall be considered by the department in its evaluation of the dredging site and, if appropriate the disposal site, include, but are not limited to, the following:

(a) Potential that contaminants may be present. Potential routes that may have introduced contaminants into the dredging site shall be identified by examining appropriate maps, aerial photographs, or other graphic materials that show surface watercourses and groundwater flow patterns, surface relief, proximity to surface and groundwater movement, private and public roads, location of buildings, agricultural land, municipal and industrial sewage and stormwater outfalls, etc., or by making supplemental field inspections.

(b) Previous tests of the material at the dredging site or from other projects in the vicinity when there are similar sources and types of contaminants, water circulation and stratification, accumulation of sediments, general sediment characteristics, and potential for impact on the aquatic environment, as long as nothing is known to have occurred which would render the comparisons inappropriate.

(c) The probability of past introduction of contaminants from land runoff.

(d) Spills of toxic or hazardous substances.

(e) Introduction of contaminants from point sources.

(f) Source and previous use of materials used or proposed to be used as fill.

(g) Natural deposits of minerals and other natural substances.

(h) Any other relevant information available to the department.

History: Cr. Register, February, 1989, No. 398, eff. 3–1–89.

NR 347.06 Sampling and analysis. Upon completion of the initial evaluation, the department shall establish sampling and analysis requirements.

(1) EXCEPTION. Except as provided in subs. (3) (a) and (6), the applicant shall collect and analyze data on sediments to be dredged in the manner outlined in this section.

(2) CORRECT METHODS. Unless otherwise specified, sampling, sample handling and sample analysis to demonstrate compliance with this section shall be in accordance with methods from applicable sources enumerated in ch. NR 149.

(3) NUMBER OF SAMPLES. (a) Sediment sampling may be waived by the department if it determines from its review of available information under s. NR 347.05 (2) that sediment contamination is unlikely.

(b) If available information is either insufficient to determine the possibility for sediment contamination, or shows a possibility for sediment contamination, the department shall require the applicant to collect sufficient samples to describe the chemical, physical and biological properties of the sediment. The exact number and location of sediment samples required and analyses to be conducted shall be specified by the department, in consultation with the applicant, based on the initial evaluation and on other factors including, but not limited to, the potential for possibility of contamination, volume and aerial extent of material to be dredged, depth of cut and proposed method of disposal.

(c) For a project involving the disposal of dredged material at an upland disposal site, the department may require samples to be taken from the proposed disposal site and analyzed for parameters found to be elevated in the dredged material sediment samples. The number and location of disposal site samples required shall be specified by the department based on the size and other characteristics of the site.

(d) For a project to be conducted in the Great Lakes with beach nourishment disposal, at least one sample every 250 linear feet of beach with a minimum of 2 samples shall be taken from the proposed beach nourishment disposal site and analyzed for particle size and color. Core or grab samplers may be used.

(4) METHOD OF TAKING SAMPLES. (a) All samples shall be taken with a core sampler except as provided in sub. (3) (d). The department may approve other sampling methods if it finds them to be appropriate.

(b) All sampling equipment shall be properly cleaned prior to and following each sample collection.

(c) Samples collected for PCB, pesticide and other organic analyses shall be collected and processed using metallic (stainless

steel preferred) liners, tubs, spoons and spatulas. Samples collected for other chemical analysis, including heavy metals, shall be collected and processed using non−metallic liners, tubs, spoons and spatulas.

(d) Core samples from the dredging site shall be taken to the proposed dredging depth plus 2 feet.

(e) Core samples shall be visually inspected for the existence of strata formation, and a written description including position, length, odor, texture and color of the strata shall be provided to the department.

(5) SAMPLE HANDLING AFTER COLLECTION AND PRIOR TO ANALYSIS. Sample handling and storage prior to analysis shall be in accordance with the maximum holding times and container types given in table F of ch. NR 219. Samples shall be preserved at the time of collection by cooling to 4°C.

(6) ANALYSES TO BE PERFORMED ON SEDIMENT SAMPLES. Analyses shall be done in accordance with methods from applicable sources enumerated in ch. NR 149. Analyses submitted to the department under this chapter shall be done by a laboratory certified or registered under ch. NR 149.

(a) Samples shall be analyzed from each distinct layer observed in the material to be dredged. If no strata formation exists, core samples shall be divided into 2−foot segments, and each segment shall be analyzed for the required chemicals and characteristics. For cores extending into parent material, analysis of only the top 2−foot segment of parent material is required. The department may approve other subsampling methods if it finds them to be appropriate.

(b) All samples shall be analyzed for those parameters listed in table 1 unless waived by the department as provided in par. (d). Elutriate testing may be required for all chemicals listed in Table 1 unless waived by the department as provided in par. (d).

(c) If previous sampling data or other adequate available information indicates the possibility of contamination by chemicals not listed in table 1, the department may require analysis for those chemicals.

(d) If previous sampling data or other adequate available information demonstrates that the possibility of contamination is negligible, analysis for any chemical may be waived, in writing, by the department.

(e) The department may require additional samples and analyses as specified by law or for other appropriate reasons.

TABLE 1

ANALYSES TO BE PERFORMED ON SEDIMENT SAMPLES

	GREAT LAKES	INLAND WATERS
PCB (Total)	X	X
Total 2,3,7,8 TCDD	X	X
Total 2,3,7,8 TCDF	X	X
	GREAT LAKES	INLAND WATERS
Aldrin	X	X
Dieldrin	X	X
Chlordane	X	X
Endrin	X	X
Heptachlor	X	X
Lindane	X	X
Toxaphene	X	X
DDT	X	X
DDE	X	X
Arsenic	X	X
Barium	X	X
Cadmium	X	X
Chromium	X	
Copper	X	X
Cyanide	X	
Iron	X	
Lead	X	X
Manganese	X	
Mercury	X	X
Nickel	X	X
Selenium	X	X
Zinc	X	X
Oil and Grease	X	X
NO^2, NO^3, NH^3 −N, TKN	X	X
Total P	X	X
Grain−size	X	X

Percent Solids	X	X
Total Organic Carbon	X	X
Moisture Content	X	X
Settleability	X	X
(if return water)		

History: Cr. Register, February, 1989, No. 398, eff. 3–1–89; am. (5) and (6) (intro.), Register, November, 1992, No. 443, eff. 12–1–92.

NR 347.07 Review procedures and review criteria.

(1) When sediment sampling and analyses have been completed, the applicant shall submit a copy of the testing report to the department. This report shall include raw data for all analyses, a map of the project area showing the specific locations of sediment sampling sites and the name and address of the laboratory which performed the tests. All testing and quality control procedures shall be described and analytical methods, detection limits and quantification limits shall be identified.

(2) The department shall review the information submitted under sub. (1) within 30 business days after receipt and determine the applicable statutory and administrative rule provisions and any additional information required from the applicant under this section.

(3) Based on the submitted testing report the department may after consultation with the applicant require additional sediment sampling and analyses when there is evidence of contamination.

(4) For projects in the Great Lakes involving beach nourishment disposal, grain–size analysis results of the proposed dredged material and the beach shall be compared by the department.

(a) The department may allow beach nourishment disposal if:

1. The average percentage of silt plus clay (material passing a #200 sieve or less than .074 mm dia.) in the dredged material does not exceed the average percentage of silt plus clay in the existing beach by more than 15% and the color of the dredged material does not differ significantly from the color of the beach material.

Note: For example, if the silt plus clay content of the existing beach is 10%, suitable dredged material must have a silt plus clay content of less than 25%.

2. The criteria of any general permit regulating wastewater discharges under the Wisconsin pollutant discharge elimination system is not exceeded.

(5) For all projects where upland disposal is required or planned, the results of sediment sampling and analysis shall be compared by the department to the solid waste disposal standards and criteria specified in chs. NR 500 to 520.

(6) If the bulk sediment analysis criteria in sub. (4) is exceeded, the applicant shall have the option of demonstrating to the department through use of bioassay, or other methods approved by the department, that the dredging and sediment disposal operations will have minimum effects on the environment.

History: Cr. Register, February, 1989, No. 398, eff. 3–1–89; correction in (5) made under s. 13.93 (2m) (b) 7., Stats., Register, October, 1995, No. 478.

NR 347.08 Monitoring, reporting and enforcement.

(1) SURVEILLANCE. (a) The permittee shall contact the department 5 business days prior to the commencement of dredging to provide an opportunity for the department to review all required environmental safeguards to ensure they are in place and operable.

(b) The department may inspect the dredging project at any time during operation to determine whether requirements of permits and approvals are being met or to conduct effluent sampling.

(2) MONITORING. (a) For those projects authorized in part by a WPDES permit, monitoring, analyses and reporting shall be performed as specified in the WPDES permit.

(b) For all other projects, monitoring, analyses and reporting shall be performed as specified in ss. NR 347.06 (2) and 347.07 (1).

(c) Project characteristics to be monitored may include, but are not limited to, carriage water return flow, total suspended solids, dissolved oxygen concentrations, effluent and receiving water temperatures, receiving stream flow rates, effluent ammonia–nitrogen concentrations, and pH.

(3) SUSPENSION OF WORK. If the department determines that project performance is not in compliance with permit or contract conditions, the permittee shall suspend work upon written notification from the department. This shall be a condition of any permit or contract issued by the department. The permittee shall be accorded an opportunity for hearing in accordance with s. 227.51 (3), Stats. The issuance of a suspension order under this subsection shall not limit other enforcement actions or penalties. The department and permittee shall analyze operational deficiencies and the department shall prescribe changes necessary to bring project operation into conformance with permit or contract conditions.

(4) PENALTIES. (a) Each violation of the conditions of a permit or contract issued under s. 30.20, Stats., or this chapter, may result in a forfeiture of not less than $100 nor more than $10,000 for the first offense and shall forfeit not less than $500 nor more than $10,000 upon conviction of the same offense a second or subsequent time. The permit or contract may be rescinded and appropriate restoration orders may be issued as authorized by ss. 23.79, 30.03, 30.12, 30.15, 30.20, 30.292, 30.294 and 30.298, Stats.

(b) The enforcement provisions of s. 283.91, Stats., shall apply to any violations of WPDES permits associated with dredging projects.

(c) The enforcement provisions of ss. 289.97 and 299.97, Stats., and chs. NR 500 to 520 shall apply to violations of solid waste management approvals for this chapter.

(d) The enforcement provisions of ss. 291.95 and 291.97, Stats., shall apply to violations of any hazardous waste approvals for disposal activities associated with dredging projects authorized by this chapter.

History: Cr. Register, February, 1989, No. 398, eff. 3–1–89; corrections in (4) made under s. 13.93 (2m) (b) 7., Stats., Register, October, 1995, No. 478; corrections in (4) (b) to (d) made under s. 13.93 (2m) (b) 7., Stats., Register January 2002 No. 553.

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Appendix E. Public Notice Materials

Lower Green Bay & Fox River Area Of Concern

Public Invited To Comment On Proposal To Remove Dredging Restrictions Impairment

Comments Due Sept. 3

Historic PCB cleanup was completed in the Lower Fox River in 2020, marking a major milestone in AOC remediation work. Photo Credit: J.F. Brennan Company

The Wisconsin Department of Natural Resources (DNR) is seeking public comments on its recommendation to remove the Restrictions on Dredging Activities Beneficial Use Impairment from the Lower Green Bay and Fox River Area of Concern.

After the Lower Green Bay and Fox River was listed as an Area of Concern (AOC) in 1987, the Remedial Action Plan identified restrictions on dredging

activities as one of thirteen environmental problems, called Beneficial Use Impairments or BUIs, in the AOC program.

Dredging restrictions were included among the impairments due to the presence of Polychlorinated Biphenyls (PCBs) and other toxic chemicals in the sediment and water column of the entire reach of the Lower Fox River. PCBs are toxic chemicals that were produced during the production and recycling of carbonless copy paper in the 1950s through 1970s.

Various regulations, policy decisions and the persistence of countless individuals for decades led to the characterization of persistent toxic chemicals in sediments of the Lower Fox River and eventually led to one of the largest PCB cleanup efforts globally. From 2009 to 2020, the Lower Fox River PCB Cleanup Project successfully remediated about 8.2 million cubic yards of polluted sediment from the river, and 10 billion gallons of water were treated and returned to the Fox River over the duration of the project.

Active cleanup operations, as directed by Records of Decision issued by the U.S. Environmental Protection Agency under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as “Superfund”), were completed in 2020. Going forward, long term monitoring by Responsible Parties to evaluate reductions of PCBs in surface water, fish tissues and sediments will continue for decades to ensure the integrity of remedial actions.

Additionally, several measures known as institutional controls are already in place and others will begin in 2021 and continue for decades to protect the integrity of remedial actions taken to address PCBs and other persistent toxic chemicals in the Lower Fox River. These institutional controls ensure that any navigational dredging or other activity potentially modifying the bed of the Lower Fox River and bay of Green Bay will be protective of human and ecological health.

All management actions necessary to meet the removal target for the Restrictions on Dredging Activities BUI have been completed. Results showed that AOC BUI removal targets are being met and multiple lines of evidence support a recommendation to remove this impairment from the AOC. The results of sediment confirmation sampling after dredging, along with review by a team of technical experts, agency partners and stakeholders support this recommendation.

The removal recommendation document is available for public review and comment now until Sept. 3, 2021 on the Wisconsin DNR website.

Questions and comments can be sent to:
Brie Kupsky
DNR Lower Green Bay and Fox River AOC Coordinator
Brianna.Kupsky@wisconsin.gov or 920-662-5465

To date, one other impairment has been removed in this AOC: Tainting of Fish Flavor. Once all impairments have met their targets and are removed, the Lower Green Bay and Fox River can be removed from the list of most polluted sites on the Great Lakes.

The Lower Green Bay and Fox River was designated as one of 43 sites on the Great Lakes with significant environmental damage by the United States and Canada under the Great Lakes Water Quality Agreement. Federal Great Lakes Restoration Initiative funding, first launched in 2010, helps communities clean up pollution in AOCs and restore waterways.

Thank you for your patience as we go through COVID-19 together. Update your subscriptions, modify your password or email address, or stop subscriptions at any time on your Subscriber Preferences Page. You will need to use your email address to log in. If you have questions or problems with the subscription service, please visit subscriberhelp.govdelivery.com.

GOVDELIVERY

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Appendix F. Responsiveness Summary

PORT & RESOURCE RECOVERY DEPARTMENT
Brown County
2561 SOUTH BROADWAY
GREEN BAY, WI 54304
PHONE: (920) 492-4950 | FAX: (920) 492-4957

DEAN R. HAEN
DIRECTOR

September 3, 2021

Ms. Brie Kupsky
Lower Green Bay-Fox River and Lower Menominee River AOC Coordinator
Division of Environmental Management - Office of Great Waters
Wisconsin Department of Natural Resources
2984 Shawano Ave, Green Bay, WI 54313

Dear Ms. Kupsky:

Thank you for the opportunity to comment on the draft *Lower Green Bay Fox River Area of Concern Beneficial Use Impairment Removal Recommendations: Restriction on Dredging* document prepared by the Wisconsin Department of Natural Resources (WDNR) to be submitted to the US Environmental Protection Agency (USEPA).

Brown County Port of Green Bay is providing the following comments.

Page 9 - The document states that *"Moving forward, there will be potential for more port sediment to be placed at Cat Island or used beneficially in other projects as regulatory adjustments are made to reflect declining contaminate levels"*

Brown County Port of Green Bay clarifies that only Green Bay outer harbor federal dredged material is permitted to be placed at Cat Island. Inner harbor federal and private dredged material from the Fox River is not permitted to be placed at Cat Island. Additionally, the inner harbor sediment characteristics are silty/clay material and are undesirable soils for the Cat Island restoration project.

Page 11- *"All remediation actions for known contaminated sediment sources are complete and monitored according to the approved remediation plans and remedial action goals have been achieved"*

Although this statement may be true based on the Fox River remediation plans, Brown County is again communicating to the WDNR and USEPA that Bay Port and Renard Island Confined Disposal Facilities (CDF) are known contaminated sediment sources from the responsible parties dredged by federal and private Green Bay Harbor dredging projects and placed in County owned facilities. The burden of responsibility for these contaminated sediments should not be transferred to Brown County. Brown County made the request that the CDFs be included as part of the OU5 Record of Decision to the WDNR and USEPA and was denied. Brown County again wants to go on the record that that these facilities contain dredged materials from the Fox River from 1978 to 2020 and the clean-up plans failed to clean up these known sources of contaminated sediments leaving Brown County financially and

socially responsible in perpetuity for these known contaminated sediments. If the WDNR and USEPA want to factually state that all contaminated sediments sources have been remediated, then these CDFs should be remediated as well.

This statement is reinforced on Page 15, where it states that *"... the remedial action goal of achieving <1 ppm PCB in sediment has been met both in the river and at the upland sediment processing facility site."*

Once again, the fact that both Renard Island and the Bay Port CDFs contain sediment that exceeds this threshold does not appear to satisfy this goal.

Please feel to contact Dean Haen, Director, Brown County Port & Resource Recovery Department at Dean.haen@browncountywi.gov or 920.492.4950.

Sincerely,

Tom Klimek
Harbor Commission President

CC: Troy Streckenbach, Brown County Executive
Patrick Buckley, Brown County Board of Supervisors Chairman
Representative Elijah Behnke, 89th Assembly District
Representative John Macco, 88th Assembly District
Representative Kristina Shelton, 90th Assembly District
Representative Shae Sortwell, 2nd Assembly District
Representative David Steffen, 4th Assembly District
Representative Jim Steineke, 5th Assembly District
Senator Robert Cowles, 2nd Senate District
Senator Eric Wimberger, 30th State Senate District
Representative Mike Gallagher, U.S. Representative, 8th District
Senator Baldwin, United States Senator
Senator Ron Johnson, United States Senator

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES

Tony Evers, Governor
Preston D. Cole, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

WISCONSIN
DEPT. OF NATURAL RESOURCES

September 17, 2021

Mr. Dean Haen
Director – Brown County Port & Resource Recovery Department
2561 S. Broadway St.
Green Bay, WI 54304
(920) 492-4950

Dear Mr. Haen,

Thank you for your review of the Restrictions on Dredging Activities Removal Recommendation. We have prepared the following responses to your comments:

> ***Comment:*** *Page 9 – The document states that "Moving forward, there will be potential for more port sediment to be placed at Cat Island or used beneficially in other projects as regulatory adjustments are made to reflect declining contaminate levels."*
>
> *Brown County Port of Green Bay clarifies that only Green Bay outer harbor federal dredged material is permitted to be placed at Cat Island. Inner harbor federal and private dredged material from the Fox River is not permitted to be placed Cat Island. Additionally, the inner harbor sediment characteristics are silty/clay material and are undesirable soils for the Cat Island restoration project.*

Response: Thank you for clarifying the Port's management of Cat Island with regard to the placement of outer harbor dredge material. The document has been updated to reflect these details.

> ***Comment:*** *Page 11 - "All remediation actions for known contaminated sediment sources are complete and monitored according to the approved remediation plans and remedial action goals have been achieved."*
>
> *Although this statement may be true based on the Fox River remediation plans, Brown County is again communicating to the WDNR and USEPA that Bay Port and Renard Island Confined Disposal Facilities(CDF) are known contaminated sediment sources from the responsible parties dredged by federal and private Green Bay Harbor dredging projects and placed in County owned facilities. The burden of responsibility for these contaminated sediments should not be transferred to Brown County. Brown County made the request that the CDFs be included as part of the OU5 Record of Decision to WDNR and USEPA and was denied. Brown County again wants to go on the record that these facilities contain dredged materials from the Fox River from 1978 to 2020 and the clean-up plans failed to clean up these known sources of contaminated sediments leaving Brown County financially and socially responsible in perpetuity for these known contaminated sediments. If the WDNR and USEPA want to factually state that all contaminated sediment sources have been remediated, then these CDFs should be remediated as well.*

Response: Per the 2009 "Lower Green Bay & Fox River Area of Concern Beneficial Use Impairment Delisting Targets" document, the Restrictions on Dredging Activities BUI can be delisted when:

- All remediation actions for known contaminated sediment sources are completed and monitored according to the approved remediation plans, the remedial action goals have been achieved, and institutional controls have been implemented.

This document also explains that the delisting target for this BUI is not intended to create specific measures that would restrict agency decision-making and will not be used as the basis for cleanup levels for contaminated sites or for regulatory enforcement. The ROD did not require any remedial action at Renard Island or Bayport CDFs as neither facility was identified in the BLRA (Baseline Level Risk Assessment) as a specific source of risk. The WDNR and USEPA acknowledge that closure of the CDF and operation of the Bayport facility are responsibilities of the USACE and the local sponsor, Brown County, under the Rivers and Harbor Act and the Water Resources Development Act and, as such, remediation of these CDFs is not included in the ROD as these facilities are subject to other state and federal jurisdiction.

> ***Comment:*** *This statement is reinforced on Page 15, where it states that "...the remedial action goal of achieving <1 ppm PCB in sediment has been met both in the river and at the upland sediment processing facility site."*
>
> *Once again, the fact that both Renard Island and the Bay Port CDFs contain sediment that exceeds this threshold does not appear to satisfy this goal.*

Response: The statement on page 15 is specific to the PCB sediment in OU4 as well as the upland sediment processing and dewatering facility constructed-for the Lower Fox River PCB cleanup project. This statement does not pertain to the sediment within the Bayport and Renard Island CDFs.

Again, thank you for your time.

Sincerely,

Brie Kupsky
Green Bay Program Coordinator – Office of Great Waters
2984 Shawano Ave.,
Green Bay, WI 54313
(920) 662-5465
Brianna.Kupsky@wisconsin.gov

cc:

Steve Galarneau – Director, Office of Great Waters
Jim Killian – Water Resources Management Specialist, Office of Great Waters
Rebecca Fedak – Lake Michigan Field Supervisor, Office of Great Waters
Beth J. Olson – Field Integration, Secretary's Office
Judy Fassbender – Section Chief, Remediation and Redevelopment
Kristin DuFresne – Northeast Field Supervisor, Waste and Materials Management

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