



Five-Year Review Report

First Five-Year Review Report

for

**Little Mississinewa River Site
Union City
Randolph County, Indiana**

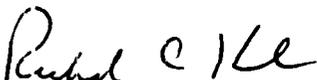
October 2010

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The United States Environmental Protection Agency
Region 5
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Approved By:

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10-5-10

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List of Acronyms

AOC	Administrative Order by Consent
ARAR	Applicable or relevant and appropriate requirement
ASL	Abandoned sewer line
BAF	Bioaccumulation Factor
bgs	below ground surface
BRA	Baseline Risk Assessment
BSAF	Biota Sediment Accumulation Factor
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cfs	cubic feet per second
CFR	Code of Federal Regulations
CUG	Cleanup Goal
CY	cubic yard
EPA	United States Environmental Protection Agency
EPC	Exposure Point Concentration
FS	Feasibility Study
Hi	hazard index
HQ	hazard quotient
ICs	Institutional controls
IDEM	Indiana Department of Environmental Management
IRA	Interim Removal Action
LMR	Little Mississinewa River
LOAEC	Lowest Observed Adverse Effects Concentration
LOAEL	Lowest Observed Adverse Effects Level
MNR	Monitored Natural Recovery
NCP	National Contingency Plan
NHPA	National Historic Preservation Act
NOAEC	No Observed Adverse Effects Concentration
NOAEL	No Observed Adverse Effects Level
O&M Plan	Operations and Maintenance Plan
OSWER	Office of Solid Waste and Emergency Response
PCB	Polychlorinated biphenyl
ppm	parts per million
PRP	potentially responsible party
RAL	Remedial Action Level
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RPM	Remedial Project Manager
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act of 1986

STP	Sewage Treatment Plant
SVOCs	Semi-Volatile Organic Compounds
TBC	to be considered
TOC	Total Organic Carbon
TRV	toxicity reference values
TSCA	Toxic Substances Control Act
VOCs	Volatile Organic Compounds
UU/UE	Unlimited use/ Unrestricted exposure
UTC	United Technologies Corporation
USC	United States Code
WQS	Water Quality Standard

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Executive Summary

The Little Mississinewa River (LMR) Site is located in Union City, Randolph County, Indiana and consists of an approximately 7-mile segment of the LMR and its associated flood plain, from the Division Street Bridge in Union City to its confluence with the Mississinewa River. Polychlorinated biphenyls (PCB) were the primary contaminant of concern and risk driver at the LMR Site. PCB contamination in river sediments constitutes the greatest risk to wildlife and human health at this Site. A fish advisory for the LMR has been in effect since 1990 due to high levels of PCB in fish tissues.

United Technologies Corporation (UTC) and Westinghouse have been identified as potentially responsible parties. UTC is the former ultimate parent corporation of United Technologies Automotive Systems, Inc. (UTAS) (f/k/a Sheller-Globe Corporation and n/k/a Lear Corporation Automotive Systems). The former Sheller-Globe facility was a plating facility that also manufactured small motors. The former Westinghouse facility manufactured small engines. For several decades, both of these facilities used polychlorinated biphenyls (PCB) oils in this process. The PCBs were released to the LMR directly via outfalls for the facilities and indirectly after processing at the Union City sewage treatment plant, which is located approximately one mile downstream from the former outfalls. PCBs have a tendency to adhere to sediment and soil, and they have contaminated the LMR channel sediments and flood plain soils.

The response actions at the Site are being led by potentially responsible parties (PRPs) under the oversight of the United States Environmental Protection Agency (EPA) and Indiana Department of Environmental Management (IDEM).

In February 1998, an action was initiated by the PRPs to address PCB contamination in the LMR. In 1999-2001, the PRPs conducted several voluntary actions to address potential PCB source areas associated with the former Sheller-Globe facility and the former Westinghouse facility.

In 2001-2002, the PRPs conducted a removal action under EPA oversight from the former outfall areas of the former Sheller-Globe facility and the former Westinghouse facility to the Division Street bridge in Union City, Indiana (i.e., principally within Harter Park and the Union City Cemetery). This removal action addressed PCB levels as high as 2300 parts per million (ppm) that could act as a continuing source of contaminated sediment movement within the river channel and to the flood plain areas downstream. This removal activity resulted in the removal and off-site disposal of approximately 58,000 tons of sediments and soils, and restored these properties to full reuse.

In 2002, UTC and Viacom Inc. (formerly Westinghouse) agreed to investigate the extent of contamination at the Site and to develop a plan to clean up the remaining contamination under the oversight of EPA. Since the PRPs were

willing to perform the investigation and cleanup under EPA oversight, the Superfund Alternative (SA) approach was used to facilitate the cleanup at the Site. There was no formal SA negotiation or agreement at the Site. In 2002-2003, the PRPs conducted and funded the Remedial Investigation (RI), Baseline Risk Assessment (BRA), Feasibility Study (FS), and Remedial Design (RD) under an Administrative Order by Consent (AOC) with oversight from EPA. EPA signed a Record of Decision (ROD) on July 20, 2004. In April 2005, the PRPs conducted the Remedial Action (RA) under a Unilateral Administrative Order (UAO). The PRPs began RA activities in the spring of 2005 and completed the actions in the fall of 2009. The RA activities included the excavation of the contaminated LMR sediment and floodplain soils, and restoration of the excavated areas. Following the completion of the RA, monitoring and maintenance will be conducted throughout the Site as outlined in the ROD. The Site achieved construction completion on August 9, 2010, with the signature of the Preliminary Close Out Report (PCOR).

This is the first five-year review report for the LMR Site. The report covers the RA activities that occurred within designated portions of the LMR Channel and adjacent floodplain from Division Street in Union City, Indiana and extending north to New Lisbon, Indiana.

The remedial action being implemented at LMR Site is protective of human health and environment in the short term and is expected to be protective in the long term. All exposure pathways that could result in unacceptable risks to humans are currently being controlled. However, in order for the remedy to be protective in the long-term, the monitoring data needs to show that PCB concentrations in fish tissue are decreasing which would allow a lowering of the fish consumption advisory from a Group 5 to Group 4 level.

Long-term protectiveness of the remedy will also require compliance with effective Institutional Controls (ICs). Those ICs are in the form of local, State and Federal regulations that currently exist for the LMR channels and floodplain areas. Compliance with effective ICs will be ensured through implementing effective ICs and conducting long-term stewardship (as part of the O&M Plan) by maintaining, monitoring and enforcing effective ICs as well as maintaining the fish advisories until such time as fish tissue concentrations decrease to acceptable levels.

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Five Year Review Summary Form

SITE IDENTIFICATION		
Site name (from WasteLAN): Little Mississinewa River		
EPA ID (from WasteLAN): INN000508120		
Region: 5	State: IN	City/County: Union City, Randolph County
SITE STATUS		
NPL status: Non-NPL		
Remediation status: Construction Complete -- O & M On-going		
Multiple OUs?* NO	Construction completion date: 08/09/2010	
Has site been put into reuse? NO		
REVIEW STATUS		
Lead agency: EPA		
Author name: Giang-Van Nguyen		
Author title: Project Manager	Author affiliation: U.S. EPA Region 5	
Review period: January to October 2010		
Date(s) of site inspection: August 19, 2010		
Type of review: Non-NPL Remedial Action Site , Statutory		
Review number: First		
Triggering action: Start of RA on-site construction		
Triggering action date (from WasteLAN) October 5, 2005		
Due date (five years after triggering action date): October 5, 2010		

Five-Year Review Summary Form, cont'd.

Issues:

- 1) Implementation of approved Operation and Maintenance Plan (O&M Plan)
- 2) Monitoring of sediment in downstream of New Lisbon and fish tissues needs to be conducted to evaluate remedy protectiveness and environmental recovery.
- 3) No fish advisory signs are posted along the LMR to prevent fish consumption.
- 4) The effectiveness of the existing ICs has not been fully evaluated. A review of the institutional controls may be needed to assure that the remedy is functioning as intended with regard to the ICs and to ensure *effective procedures are in-place for long-term stewardship at the Site.*

Recommendations and Follow-up Actions:

- 1) Implement the O&M Plan
- 2) Conduct monitoring of sediment in downstream of New Lisbon and fish tissues.
- 3) Fish advisory signs need to be placed along the LMR RA area
- 4) An IC Work Plan may be conducted to review the effectiveness of the ICs and the long-term stewardship procedures to ensure that effective ICs are monitored, maintained and enforced for long-term protectiveness.

Protectiveness Statements

The remedial action being implemented at LMR Site is protective of human health and environment in the short term and is expected to be protective in the long term. All exposure pathways that could result in unacceptable risks to humans are currently being controlled. However, in order for the remedy to be protective in the long-term, the monitoring data needs to show that PCB concentrations in fish tissue are decreasing which would allow a lowering of the fish consumption advisory from a Group 5 to Group 4 level.

Long-term protectiveness of the remedy will also require compliance with effective Institutional Controls (ICs). Those ICs are in the form of local, State and Federal regulations that currently exist for the LMR channels and floodplain areas. Compliance with effective ICs will be ensured through implementing

effective ICs and conducting long-term stewardship (as part of the O&M Plan) by maintaining, monitoring and enforcing effective ICs as well as maintaining the fish advisories until such time as fish tissue concentrations decrease to acceptable levels.

Other Comments: None

Environmental Indicator Data:

Date of last Regional review of Human Exposure Indicator (from WasteLAN):
5/27/2009

Human Exposure Survey Status (from WasteLAN): *Current Human Exposure Controlled*

Date of last Regional review of Groundwater Migration Indicator (from WasteLAN): *5/27/2009*

Groundwater Migration Survey Status (from WasteLAN): *Not a groundwater site*

Ready for Reuse Determination Status (from WasteLAN): *Not Ready for Reuse*

Five-Year Review Report

I. Introduction

The purpose of five-year reviews is to determine whether the remedy at a Site is protective of human health and the environment. The methods, findings and conclusions of such reviews are documented in site-specific five-year review reports. In addition, five-year review reports identify issues or deficiencies, if any, found during the review process for the Site and provide recommendations to address or correct them.

The United States Environmental Protection Agency (EPA) prepared this five-year review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) § 121 and the National Contingency Plan (NCP). CERCLA § 121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with Section [104J or [106J, the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

EPA interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

EPA has now conducted the first five-year review of the remedial actions being implemented at the LMR Site located in Union City, Indiana. The review was conducted for this Site from January 2010 through October 2010 by the EPA Remedial Project Manager. This report documents the results of the review.

This is the first five-year review for the LMR Site. The triggering action for this statutory review is the date of the start of on-site construction on October 5, 2005. This five-year review is required due to the fact that hazardous

substances, pollutants or contaminants will remain at the Site above levels that allow for unlimited use and unrestricted exposure.

II. Site Chronology

Table 1- Chronology of Site Events

Event	Date
LMR Sediment and Floodplain Investigations	1997
LMR Outfall Area- LMR Sampling and Interim Removal Action	1997-1998
LMR Park and Cemetery Area – Investigation and Engineering Evaluation/Cost Analysis	1998-1999
LMR Park and Cemetery Area – Removal Action Administrative Order By Consent and Statement of Work	March 2001
LMR Park and Cemetery Area – Work Plan for the LMR Time Critical Removal Action	July 17, 2001
LMR Park and Cemetery Area – Time Critical Removal Action	August 1 through December 31, 2001
LMR Downstream Area – Remedial Investigation/Feasibility Study – Administrative Order on Consent	May 2002
LMR Downstream Area – Final Work Plan for the remedial Investigation and Feasibility Study	October 2002
LMR Downstream Area - Remedial Investigation Field Work	Summer/Fall 2002
LMR Downstream Area - Baseline Risk Assessment (Final)	January 2004
LMR Downstream Area - Remedial Investigation Report (final)	February 2004
LMR Downstream Area - Feasibility Study Report (Final)	February 2004
Record of Decision for LMR Remedial Action	July 2004
LMR Downstream Area - Remedial Design – Administrative Order on Consent	September 2004
LMR Remedial Action - Unilateral Administrative Order	April 2005
LMR Downstream Area - Final Remedial Design Report	August 2005
LMR Downstream Area - Remedial Action Field Work	October 2005 through October 2008
Demobilization from Remedial Action	October 2008
Remedial Action Corrections Period	June 2009
Remedial Activities Completion	August 2009
Final Remedial Action Inspection	October 2009
Preliminary Close Out Report	August 9, 2010
Remedial Action Report	September 3, 2010
Operation and Maintenance Plan	September 3, 2010

III. Background

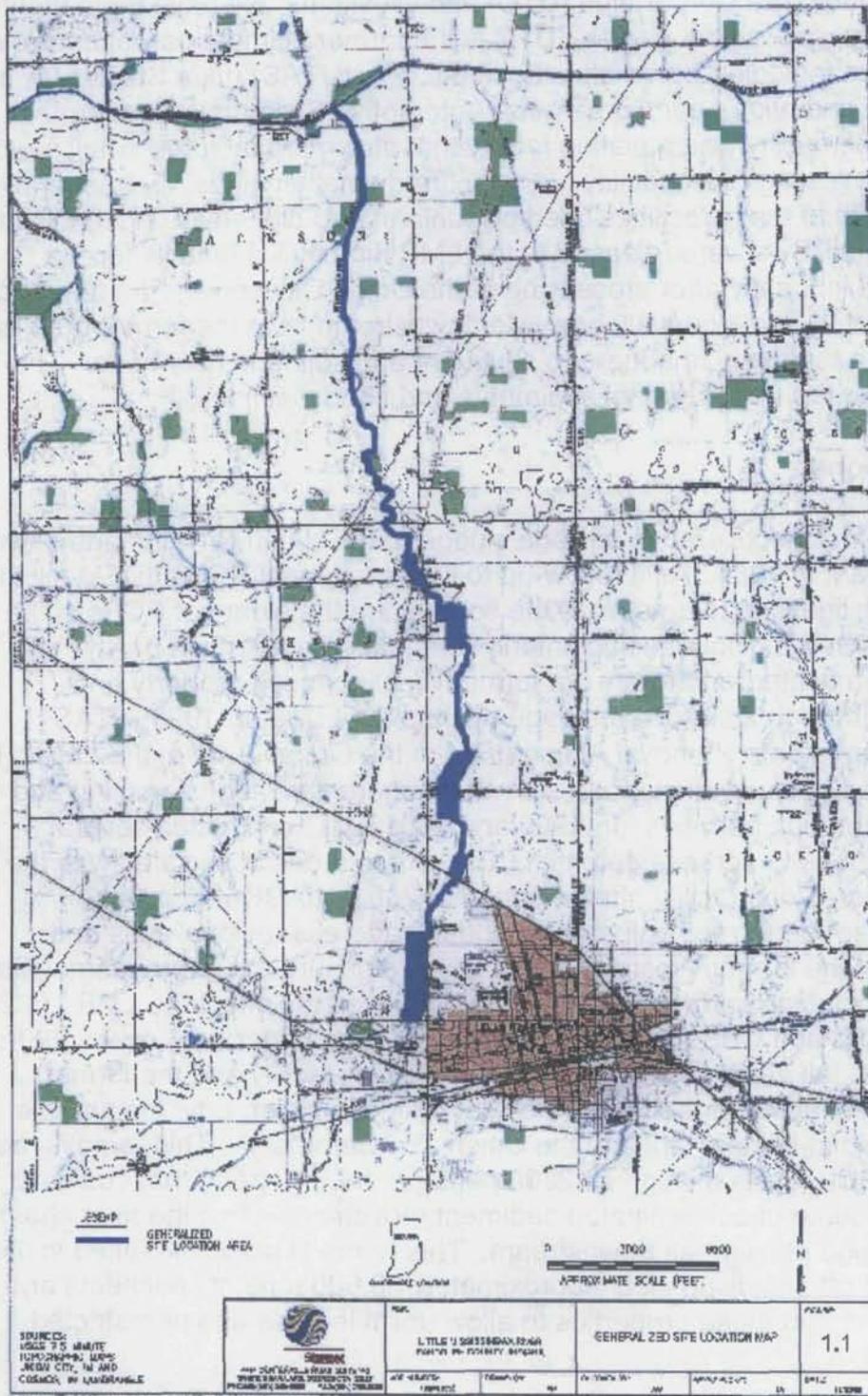
Physical Characteristics

The Little Mississinewa River (LMR) Site (the Site) is located in Randolph County near the eastern border of Indiana (see Figure 1.1 on next page). The LMR Site consists of an approximately 7-mile segment of the Little Mississinewa River and its associated flood plain, from the Division Street Bridge in Union City to its confluence with the Mississinewa River. The Site includes portions of Township 18N, Range 1W, Sections: 11, 12, 13, 23, 24, and 26 and Township 21N, Range 15E Sections: 10, 15, 22, and 27.

Land Resource and Use

The LMR flows through a combination urban (residential land use designation) and rural (recreational land use designation) settings that occur within both wooded and non-wooded areas. The LMR is defined as a "regulated drain" under Indiana law. The LMR primarily functions as drainage for the agricultural fields. Approximately 3,612 people live in Union City.

Land use in the vicinity of the LMR is primarily agricultural with the exception of residential and recreational use along the approximately 1.5 miles of the LMR that passes through the western edge of Union City, Indiana and limited sections traversing through scattered wooded areas that occur along its course. The residential land use designation was assigned to five properties throughout remedial action (RA) areas which mostly are located in the southern one third of the RA area. The recreational land use designations were assigned to the remainder of the RA areas and are located primarily in the northern two thirds of the RA areas. The recreational land use designation is applied to all non-residential RA areas and consists primarily of agricultural and wooded rural areas along the course of the LMR.



History of Contamination

United Technologies Corporation (UTC) and Westinghouse have been identified as potentially responsible parties. UTC is the former ultimate parent corporation of United Technologies Automotive Systems, Inc. (UTAS) (f/k/a Sheller-Globe Corporation and n/k/a Lear Corporation Automotive Systems). The former Sheller-Globe facility was a plating facility that also manufactured small motors. The former Westinghouse facility manufactured small engines. For several decades, both of these facilities used polychlorinated biphenyls (PCB) oils in this process. The PCBs were released to the LMR directly via outfalls for the facilities and indirectly after processing at the Union City sewage treatment plant, which is located approximately one mile downstream from the former outfalls. PCBs have a tendency to adhere to sediment and soil, and they have contaminated the LMR channel sediments and flood plain soils.

Initial Response

PCBs were first discovered in sewage sludge at the Union City, Indiana sewage treatment plant in 1984. As a follow-up to its discovery of PCBs, IDEM initiated several investigations to determine the source and the extent of PCBs in the LMR. In 1989, Westinghouse voluntarily remediated a retention basin that received stormwater runoff from the former Westinghouse property and discharged through a surface drainage ditch to the LMR. In 1998, UTAS conducted an Interim Removal Action (IRA) in the Outfall Area of the LMR. The IRA consisted of excavation, post-excavation characterization sampling and channel restoration activities. In 1999 and 2001, UTC conducted several voluntary actions to address potential PCB source areas associated with the former Sheller-Globe facility. In the spring of 2001, VIACOM (formerly Westinghouse) performed voluntary actions to address residual soils and sediments at the former Westinghouse facility to ensure the future storm water discharge, including surface runoff, would not adversely affect the LMR. In 2001-2002, the UTC and CBS conducted a removal action under EPA oversight from the former outfall areas of the former Sheller-Globe facility and the former Westinghouse facility to the Division Street bridge in Union City, Indiana (i.e., principally within Harter Park and the Union City Cemetery). This removal action addressed PCB levels as high as 2300 parts per million (ppm) that could act as a continuing source of contaminated sediment movement within the river channel and to the flood plain areas downstream. This removal activity resulted in the removal and off-site disposal of approximately 58,000 tons of sediments and soils, and restored these properties to allow unlimited use and unrestricted exposure.

Enforcement Activities

The 2001 removal action on the portion of the LMR between the outfall area to Division Street was conducted from August 1 to December 31, 2001, under an

Administrative Order by Consent (Docket No. V-W-01-C-636) that was entered into by UTA, Viacom and EPA. Under its terms, UTA and Viacom funded and managed the project in 2001 with oversight from EPA.

The RI/BRA/FS was conducted by UTA and Viacom under an Administrative Order by Consent (AOC) (Docket No. V-W-02-C-694). Under its terms, UTA and Viacom conducted and funded the RI/BRA/FS in 2002-2003 with oversight from EPA.

Basis of Taking Remedial Action

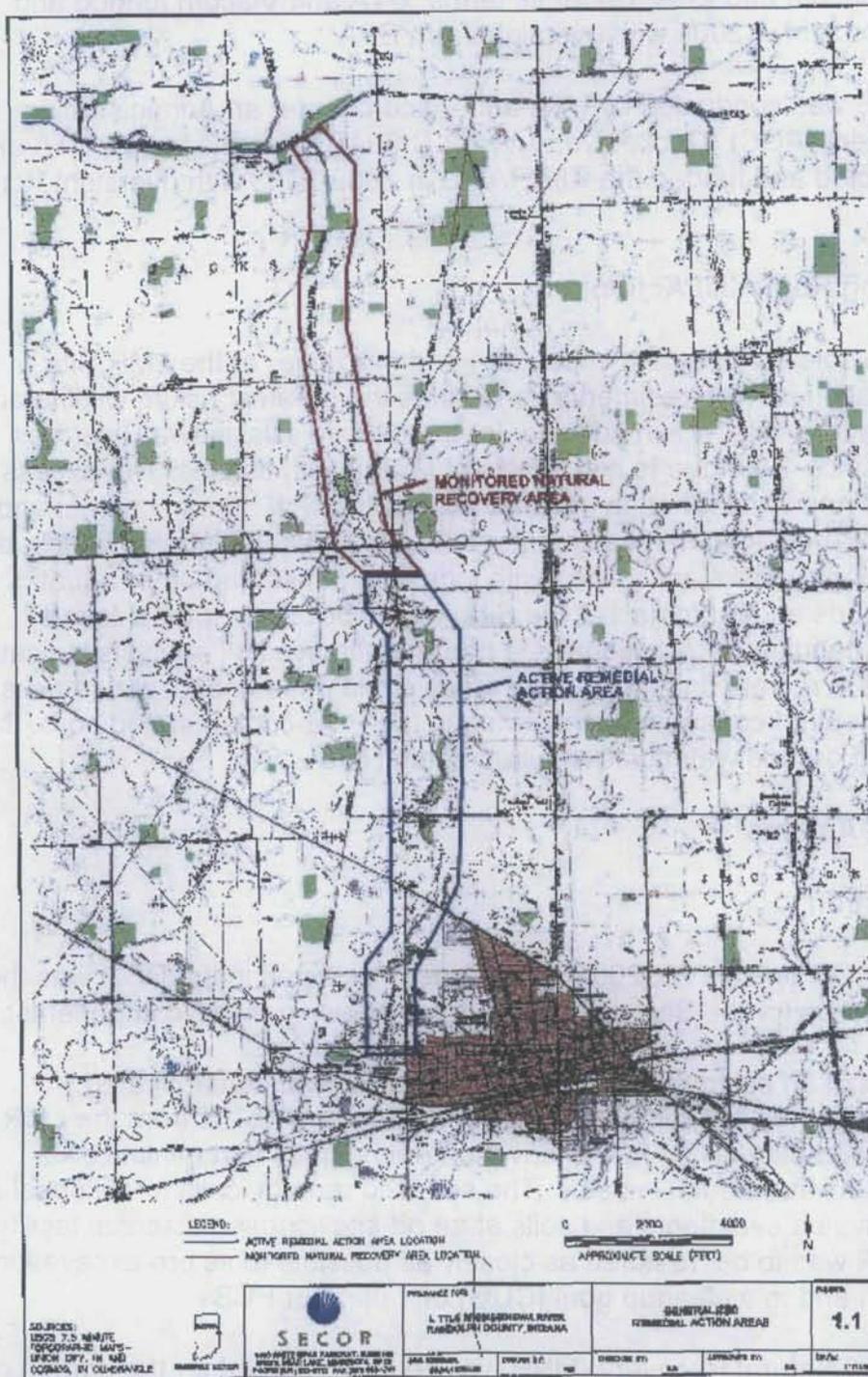
PCBs were the sole contaminant of concern and risk driver at the LMR Site. PCB contamination in river sediments constitutes the greatest risk to wildlife and human health at this Site. A fish advisory for the Little Mississinewa River has been in effect since 1990 due to high levels of PCB in fish tissues. The excess cancer risk and non-cancer health hazards associated with human contact and ingestion of PCB-contaminated sediments and soils and consumption of fish, as well as the ecological risks associated with ingestion of fish and other aquatic organisms by birds and mammals at the Site, were above acceptable levels under baseline conditions. Additionally, a non-quantitative risk analysis indicated that PCB levels in recreational flood plain areas could pose unacceptable risks to birds (i.e., robins) that consume worms living in the PCB-contaminated soils. No action regarding ground water was required in the ROD.

IV. Remedial Actions

Remedy Selection

EPA signed a ROD on July 20, 2004. The remedy selected in the ROD was the final remedial action for the Site and included the following major components:

- Removal of an estimated 57,000 cubic yards (cy) of contaminated sediment containing approximately 3500 pounds of PCBs from the LMR and its flood plain using "dry excavation" techniques that minimize adverse environmental impacts. The selected remedy calls for disposal of the excavated sediments and soils at an off-site licensed disposal facility. The LMR was to be restored as closely as possible to its pre-excitation condition and to a cleanup goal (CUG) of 1 ppm for PCBs.
- Monitored Natural Recovery (MNR) will be implemented for the portion of the LMR that is downstream from New Lisbon (see figure 1.1 on next page). Biomonitoring will be conducted after implementation of the cleanup to gauge the extent to which remedial action objectives have been and/or are being achieved at the Site. The fish consumption advisories will remain in place until concentrations of PCBs in fish tissue are reduced to acceptable levels.



- Use of existing land use controls administered by the Randolph County Drainage Board. To the extent, if any, that PCB-contaminated soils and sediments are left in place above levels that allow for unlimited use and unrestricted exposure, EPA will identify and seek additional land use and/or other institutional controls to protect the engineered remedy and

ensure that unacceptable levels of PCBs are not released to the environment in the future.

The ROD establishes an "action level" of 4 ppm PCB for river sediments in the top 12 inches and 5 ppm for sediments below the top 12 inches, a residential flood plain soil action level of 5 ppm, and a recreational flood plain soil action level of 20 ppm for this cleanup effort. Implementation of the cleanup using these action levels achieved the cleanup goals for the Site of a 1 ppm average for river sediments in the top 12 inches, 5 ppm for sediments below the top 12 inches, 1.2 ppm average for residential flood plain areas, and 20 ppm for recreational flood plain areas. Reducing the concentration of PCBs in the LMR channel sediments and flood plain soils to these levels dramatically reduces the risks to human health and ecological receptors. Following the remedial implementation, biomonitoring of the LMR will take place. This monitoring will cover sampling of aquatic organisms to gauge the reductions of PCB concentrations in the ecological receptors. MNR will be implemented in a portion of the LMR channel that does not require excavation downstream of New Lisbon.

The remedy consists of six remedial action objectives (RAOs):

- Protect humans from exposure to PCBs at levels that could pose a health risk in residential flood plain areas;
- Protect humans who consume fish from exposure to PCBs that exceed protective levels;
- Protect ecological receptors from PCBs in the river channel and recreational flood plain areas that exceed protective levels;
- Protect the LMR and its flood plains from recontamination from PCBs at depth in river sediments and flood plain areas during and after the implementation of the remedy;
- Remove the encumbrances on local residents resulting from long-term contamination of their properties with PCBs; and
- Achieve, to the extent practicable, surface water quality criteria throughout the LMR.

Remedy Implementation

The Remedial Investigation was completed by PRPs in 2003. A UAO for RA was issued by EPA on April 6, 2005. The RA was implemented following approval of the RD. Excavation and sampling activities associated with the RA occurred over four construction seasons: October and November 2005; April through November 2006; May through October 2007, and May through September 2009.

The RA was performed by diverting river water around a portion of the LMR, which allowed for the use of dry excavation of contaminated floodplain soil and channel sediment. The channel sediments and floodplain soils were excavated to remove contaminated material. The excavated areas were then restored and replaced with clean material. The clean material used as restoration material were obtained from local sources and prior to selection were sampled for the VOC, SVOC, pesticides, PCBs and RCRA metals. The sampling methodologies employed throughout the RA to insure the adequacy of excavation work are described in the RA report. A total of 13 channel grids in the channel excavated area contained PCB levels above the deep sediment Remedial Action Level (RAL) of 5 ppm, with 11 of those grids excavated to at least 36 inches below the final restored channel bottom. Geotextile fabric was installed at the base of the excavation in each of these grids. Geotextile fabric was used to provide a protective layer directly above excavated surfaces with a RAL exceedance still existing after excavating to the final required depth. Geotextile fabric was also used for non-engineered control purposes in some Floodplain and Channel Grids to act as a demarcation boundary in areas that required backfilling prior to the receipt of final laboratory data (e.g., weather related or access related situations). In those cases, the final laboratory data later confirmed compliance with the applicable RAL, but the geotextile liner was nonetheless left in place.

All other areas of the LMR Site achieved the project's cleanup goals and RALs. Upon completion of all required excavation activities, the following amounts of sediment and soil were removed from the Site and disposed in off-site landfills: 11,371 tons of materials exhibiting concentrations of 50 ppm or greater PCBs were sent to the Environmental Quality Hazardous Waste Landfill in Portland, IN; 88,664 tons of material exhibiting concentrations less than 50 ppm were sent to Jay County Landfill in Indiana.

The Site achieved construction completion status when the Preliminary Close Out Report was signed on August 9, 2010. The RA report and O&M Plan were approved on September 3, 2010.

EPA and the State have determined that all RA construction activities were performed according to the approved RA Work Plan and specifications.

Institutional Controls

ICs are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for any areas which do not allow for unlimited use or unrestricted exposure (UU/UE).

Table 2 below summarizes the institutional controls that are in place and/or needed for the areas of the Site that do not allow for UU/UE whether due to exceedance of RALs or existing governmental land-use controls.

Table 2 - Institutional Controls Summary Table

Media, remedy components & areas that do not support UU/UE based on current Conditions*	IC Objective	IC Instrument Implemented or Planned
LMR Channel	Prevent consumption of fish until levels meet standards	State of Indiana Group 5 Fish advisories (in place)
LMR Channel	Prohibit construction, reconstruction, and any maintenance activities in the LMR. Prohibit any permanent structures within the LMR's 75 foot-right-of-way.	Indiana Drainage Law (1C 36-9-27) Randolph County Ordinance
	Restrictions on dredging in federal navigational channels.	Clean Water Act (404 Executive Order, Floodplain Management E.G.11988)
LMR channel and flood plain area	Prohibit construction or intrusive activities within the LMR's 100-year floodplain.	Indiana Floodplain Laws (1C 14-28-1; 1C 14-28-3; 312 IAC 10-1-1 et. seq.; and related Randolph County Ordinances.
Area A in LMR Channel	Prohibit interference with geotextile fabric; any excavation requires proper management	- Same as above
Areas F, G, H in Flood Plain	Maintain recreational use only; prohibit residential use; any excavation requires proper management.	- Same as above - Possible need for Proprietary Controls (under review)

*Maps which depict the current conditions of the site and areas which do not

allow for UU/UE may be developed.

The IC ROD Requirements

The July 2004 ROD required institutional controls (ICs) for the properties where PCB contamination is left in place in excess of the RAL. The ROD required use of existing land use controls administered by the Randolph County Drainage Board. To the extent, if any, that PCB-contaminated soils and sediments are left *in place above levels that allow for unlimited use and unrestricted exposure*, if needed, EPA will identify and seek additional land use and/or other institutional controls to protect the engineered remedy and ensure that unacceptable levels of PCB are not released to the environment in the future. Additionally, the ROD required that current fish advisories for the LMR be maintained until the concentrations of PCBs in fish tissue are reduced to an acceptable level. The fish consumption advisories will remain in place until acceptable PCB levels are achieved.

Cleanup goals for media allow for and were based on mixed use. Some areas allow for UU/UE, some are restricted residential and/or recreational uses.

Existing ICs

At this time, initial IC evaluation activities have-determined that required ICs have been implemented on the non UU/UE areas. Those ICs consist of governmental controls put in place by the various governmental entities and informational controls in the form of fish advisories. Also, additional ICs are being considered in the form of proprietary controls to protect the engineered remedy and ensure that unacceptable levels of PCB are not released to the environment in the future.

Governmental Controls

Several existing legal land use controls are in place to limit any future intrusive activities within the LMR channel and floodplain soil areas. These are as follows:

- Indiana Drainage Laws
- Indiana Floodplain Laws
- Clean Water Act – Section 404 Permit

Also, the Randolph County Ordinance restricting construction and other activities within 75 feet of the LMR's right-of-way at the Site was specifically referred to in the ROD.

The 13 channel grids with RAL exceedances are limited to two properties traversed by the LMR. These properties are found in Area A. The RAL exceedances on both properties are located solely within the LMR channel and banks.

The existing governmental controls (i.e., Indiana Drainage Law, Indiana Floodplain Law, and Section 404 Permitting under the Clean Water Act) already

in place appear to limit any future intrusive activities within the channel; however further analysis may be required to determine if any proprietary land use controls (i.e., deed restrictions and restrictive covenants) are required at the LMR Site as is noted below. The governmental controls may be reviewed to assess their effectiveness and to determine whether any corrective measures should be undertaken to enhance the reliability of them. The ICs may be reviewed to ensure that they cover the intended objectives, to ensure that no unintended exemptions exist, that they can be readily enforced and that they cannot be revoked without notice or input to EPA.

Proprietary Controls

Proprietary controls may be required for the areas where the future use will be limited to recreational use. That criteria appears to apply to Areas F, G, H, and J on the floodplain areas.

A restrictive covenant will most likely be implemented in the area with the highest and likely deepest PCB concentrations throughout the entire LMR Site. The PRPs have indicated a willingness to work with the trustees to get the covenant implemented. The covenant will cover approximately 25 acres of the property and will restrict the use of the property to recreational use. Also, as is indicated below, the approved risk mitigation plan will be followed in the event there are any future subsurface activities undertaken on the property to ensure long-term stewardship of the Site.

Informational Controls

The LMR is currently listed as a Group 5 Waterway by the State of Indiana. This means that humans should not consume any fish caught in the LMR. The fish consumption advisories are presently in-place. The fish advisory should be reviewed to determine if enhancements can be made to increase its effectiveness and reliability. Based on initial review, it has been determined that signage is required along the river informing people that the fish advisories are in place and indicating a contact for more information. The PRPs will propose details regarding the signage for approval by U.S. EPA and then promptly install the signs.

Follow-up Actions Required

As mentioned, additional steps may be taken to evaluate the effectiveness and long-term protectiveness of the ICs. An IC Work Plan may be required from the PRPs for them to conduct specific IC evaluation activities, upon request from the U.S. EPA. The IC Work Plan would include studies to determine the effectiveness of the existing ICs and the Risk Mitigation Plan. The studies would include maps, review of the ICs to ensure that the objectives to be served are properly covered and to ensure that the ICs are maintained and enforceable.

Current Compliance

Based upon inspections and interviews, there is no evidence of site or media uses which are inconsistent with the stated objectives of the ICs and clean up goal.

The use of these areas in Union City and Randolph County for Recreational purposes is likely to remain unchanged for the foreseeable future, particularly within the 75 foot "regulated drain" right-of way and 100-year floodplain along the LMR that overlay the majority of the LMR Site.

No potential redevelopment is envisioned for or near the LMR Site.

Long-Term Stewardship:

Long-term protectiveness at the Site requires compliance with use restrictions to ensure the Site is not being used in a manner that is inconsistent with the IC objectives. To that end, a Risk Mitigation Plan, as part of the O&M Plan, has been approved in September 2010. This Risk Mitigation plan provides explicit instruction on the procedures to be utilized when future land uses changes or intrusive activities are being contemplated or planned at the LMR Site. This plan requires that an annual report be submitted to U.S. EPA and IDEM to demonstrate that the ICs remain in-place and effective.

Post- Remediation Action Operation and Monitoring

Following completion of the remedial action activities in 2009, a Post-RA O&M Plan was developed by the PRPs and approved by the EPA in September 3, 2010. The fish tissue and sediment of the LMR downstream of New Lisbon area will also be monitored for PCB as part of this O&M Plan, as required by the 2004 ROD. The baseline fish monitoring sampling events occurred in 2004 and 2005 prior to the start of the RA activities at the LMR Site.

Pre-RA Fish Tissue Sampling

Green sunfish, white sucker, creek chub, yellow bullhead, and redbreast sunfish were selected for monitoring as they have assigned target species for the Pre-RA fish tissue sampling. The collection of fish from the LMR for tissue analysis PCBs occurred in 2004 and 2005 before the start of the active RA activities. The results of the Pre-RA fish tissue concentrations will serve as the baseline for the evaluation of the reduction in the PCB level associated with the completion of the RA in the LMR channel. The post-RA monitoring data needs to show that PCB concentrations in fish tissue are decreasing which would allow a lowering of the fish consumption advisory from a Group 5 to Group 4 level. See attachment 8 which contains a table showing the fish tissue sampling results and figure showing fish collection locations in 2004 and 2005 pre-RA sampling events.

V. Progress Since The Last Five-Year Review

This is the first five-year review for the Site. The triggering action was the initiation of the first remedial action that began October 5, 2005, with the start of soil and sediment excavations. In 2005 to 2009, a total 100,035 tons of TSCA and non-TSCA PCB-contaminated sediments and soils were excavated and disposed of in an off-site landfill; and 1,088,500 gallons of Remedial Action-generated liquid waste were treated and discharged downstream within the LMR. This five-year review is required because hazardous substances, pollutants, or contaminants remain above levels that allow for unlimited use and unrestricted exposure.

VI. Five-Year Review Process

Administrative Components

During February 2010, EPA verbally notified the IDEM and PRPs that it was undertaking a five-year review. EPA also sent a letter to IDEM on May 10, 2010 to notify the State agency that EPA was initiating a five-year review (Attachment 4).

From January 2010 to October 2010, the EPA Remedial Project Manager established a review schedule whose components included:

- Community Involvement;
- Document Review;
- Data Review;
- Site Inspection; and
- Five-Year Review Report Development and Review.

Community Notification and Involvement

Activities to involve the community in the five-year review were initiated with a public notice prepared by the EPA and published in The Garrett Winchester newspaper on May 2010, informing people that a five-year review was to be conducted at the LMR Site (Attachment 3). The notice informed members of the public about the initiation of the five-year review process and provided the opportunity to request additional information from or provide information to EPA.

There were several information requests from nearby residents about the remedial actions and the five-year review process. Several meetings and discussions with residents indicated a few issues of concern to their properties. In particular, one property owner near the Site has requested to have a resampling of his property and to have a revision of the cleanup criteria on his property. Currently, EPA is reviewing the Site data to determine if such actions are necessary for the protection of human health and/or the environment.

EPA also received two complaints from residents about the odor from the confined hog operation at Price Creek where the LMR starts.

Since the issuance of the 2004 ROD, staff from EPA, IDEM and the PRPs' contractor have also made presentations or attended several meetings to discuss Site cleanup progress, restoration or other Site-related issues with local officials and residents.

This five-year review report will be placed in the Site files and local repositories for the LMR Site at:

Union City Public Library
408 North Columbia Street
Union City, IN 47390-1404
(765) 964-4748

and in EPA's Record Center, Room 714 at EPA's office in Chicago, Illinois.

Document Review

The list of the documents that were reviewed for this five-year review can be found in Attachment 2.

Data Review

During the 2005 to 2009 seasons, the contaminated sediment and soils were excavated and disposed of in an offsite landfill from five floodplain RA areas (Area E, F, G, H and J) and from three LMR channel RA areas (Area A, B and C) (see Attachment 6). All RA construction activities were performed in compliance with the approved RA Work Plan and specifications.

LMR Channel and Floodplain RA Cleanup Goals and Project Design

LMR Floodplains

PCB concentrations in Floodplain Soil samples collected during the RI process ranged from below analytical detection limits to a maximum of 450 ppm. Floodplain Soil RALs of 5 ppm for Residential areas and 20 ppm for Recreational areas were established in the ROD. PCB-impacted Soils present at concentrations greater than or equal to the designated Recreational and Residential RALs were required to be remediated. Approximately 487,212 ft² of the RA Floodplain Areas required remediation, primarily through excavation.

To facilitate excavation activities, the RA Floodplain Areas were divided into Grids. Each Grid Area with PCBs above the applicable RAL was excavated to predefined limits. Excavation depths within wooded Floodplain Areas typically

ranged between 6 inches and 1 foot below ground surface (bgs) with a maximum excavation depth of 18 inches. Excavation depths within open Floodplain Areas typically ranged between 6 inches and 2 feet bgs with a maximum excavation depth of 72 inches. Following excavation, both open and wooded Floodplain Areas were restored using clean backfill and/or appropriate Habitat Mix (which consisted of various mixes of topsoil with predetermined organic content).

LMR Channel

PCB concentrations in Channel Sediment collected during the RI process ranged from below analytical detection limits to a maximum of 460 ppm. These impacted Sediments generally decreased in concentrations from upstream to downstream and were present at depths typically ranging from 6 inches to 2 feet below Channel surface (bcs). A Channel Sediment RAL of 4 ppm in the top 12 inches of Sediment and 5 ppm in the Sediment below 12 inches was established in the ROD. Sediments containing PCBs above the RALs were present within approximately 543,636 ft² of the RA Channel Area (including Channel Areas A, B and C), and required remediation, primarily through excavation.

Based on RI analytical data, identified Channel Areas were excavated to predefined depths, to achieve the established Channel RALs. Predefined excavation depths typically ranged between 1 foot and 2 feet bcs, or to approximately 3 to 6 inches into the underlying clay till Channel Bottom, whichever was encountered first. Discretion was maintained to excavate to depths of 3 feet bcs or greater under "special site conditions", such as where PCB concentrations exceeded 50 ppm at the maximum prescribed excavation depth or where reasonable additional excavation would facilitate achievement of the RAL throughout an entire Channel Grid. Deep Sediment Channel Areas, which typically did not exhibit the presence of a clay till Channel Bottom at depths of less than 36 inches bcs, were excavated up to a total maximum depth of 5 feet bcs, or to approximately 3 to 6 inches into the underlying clay till Channel bottom, whichever was encountered first. Discretion was maintained to continue excavation to depths of 5 feet bcs or greater in Deep Sediment Areas under "special site conditions", such as where PCB concentrations exceeded 50 ppm at the maximum prescribed excavation depth or where reasonable additional excavation would facilitate achievement of the RAL throughout the entire Deep Sediment Area.

During the 2005 to 2009 seasons, the contaminated sediment and soils were excavated and disposed off site landfill from five floodplain RA areas (Area E, F, G, H and J) and from three LMR channel RA areas (Area A, B and C) (see Attachment 10). Approximately 487,212 ft² of the RA floodplain area and 543,636 ft² of the LMR channel were excavated. All RA construction activities were performed in compliance with the approval RA Work Plan and specifications

The following is the summary of the LMR Floodplain and Channel Excavation

results. See Attachment 7 for tables containing the Final post-excavation residual PCB concentration for all floodplain areas and LMR channel areas.

LMR Floodplain Excavation Results

Area E

RA activities associated with RA Area E occurred between mid-October 2005 and early December 2005. Floodplain Area E consisted solely of Residential Floodplains. Final excavation depths associated with RA Area E ranged from approximately 12 to 18 inches (1 to 1.5 feet) below the pre-excavation grade. Post-excavation residual PCB concentrations within RA Area E (collected at depths ranging from 12 to 18 inches below grade) ranged from 0.260 ppm to 3.17 ppm, which are below the established RAL for Residential Floodplain Areas of 5 ppm. Geotextile fabric was not installed in any RA Area E Grids. The post-excavation residual area weighted average concentrations for RA Area E (collected from the pre-restoration surface at depths ranging from 12 to 18 inches below grade) is 1.46 ppm. Following restoration of all excavated areas within RA Area E with clean fill, the average surface (i.e., 0 to 6 inch depth) residual PCB concentrations in Floodplain Soils throughout this Residential Floodplain Area is calculated to be 0.39 ppm, which is below the overall CUG of 1.3 ppm.

Area F

RA activities associated with RA Area F occurred between mid-November 2005 and early October 2006. Floodplain Area F consisted of a mix of Residential and Recreational Floodplains. Final excavation depths associated with RA Area F ranged from approximately 6 to 72 inches (0.5 to 6 feet) below the pre-excavation grade. Post-excavation residual PCB concentrations within Residential Floodplain Areas of RA Area F (collected at depths ranging from 6 to 72 inches below grade) ranged from below the laboratory limit of detection to 4.96 ppm, which is below the established RAL for Residential Floodplain Areas of 5 ppm. The post-excavation residual area weighted average concentration for Residential RA Area F (collected from the pre-restoration surface at depths ranging from 6 to 72 inches below grade) is 1.2 ppm. Post-excavation residual PCB concentrations within Recreational Floodplain Areas of RA Area F (collected at depths ranging from 6 to 36 inches below grade) ranged from below the laboratory limit of detection to 19.0 ppm, which is below the established RAL for Recreational Floodplain Areas of 20 ppm. Geotextile fabric was installed in six RA Area F Grids as a result of laboratory reporting delays but none due to RAL exceedances. The post-excavation residual area weighted average concentration for Recreational RA Area F (collected from the pre-restoration surface at depths ranging from 6 to 36 inches below grade) is 3.06 ppm. Following restoration of all excavated Residential Floodplain Areas within RA Area F with clean fill, the average surface (i.e., 0 to 6 inch depth) residual PCB concentrations in Floodplain Soils throughout this Residential Floodplain Area is

calculated to be 0.72 ppm, which is below the overall CUG of 1.3 ppm. Following restoration of all excavated Recreational Floodplain Areas within RA Area F with clean fill, the average surface (i.e., 0 to 6 inch depth) residual PCB concentrations in Floodplain Soils throughout this Recreational Floodplain Area is calculated to be 3.8 ppm.

Area G

RA activities associated with RA Area G occurred between late November 2006 and early August 2007. Floodplain Area G consisted of a mix of Residential and Recreational Floodplains. Final excavation depths associated with RA Area G ranged from approximately 6 to 50 inches (0.5 to approximately 4.2 feet) below the pre-excavation grade. Post-excavation residual PCB concentrations within Residential Floodplain Areas of RA Area G (collected at depths ranging from 6 to 50 inches below grade) ranged from below the laboratory limit of detection to 4.36 ppm, which is below the RAL for Residential Floodplain Areas of 5 ppm. The post-excavation residual area weighted average concentration for Residential RA Area G (collected from the pre-restoration surface at depths ranging from 6 to 50 inches below grade) is 1.14 ppm. Post-excavation residual PCB concentrations within Recreational Floodplain Areas of RA Area G (collected at depths ranging from 6 to 36 inches below grade) ranged from below the laboratory limit of detection to 16.2 ppm, which is below the RAL for Recreational Floodplain Areas of 20 ppm. Geotextile fabric was not installed in any RA Area G grids. The post-excavation residual area weighted average concentration for Recreational Floodplain Area G (collected from the pre-restoration surface at depths ranging from 6 to 36 inches below grade) is 4.99 ppm. Following restoration of all excavated Residential Floodplain Areas within RA Area G with clean fill, the average surface (i.e., 0 to 6 inch depth) residual PCB concentrations in Floodplain Soils throughout this Residential Floodplain Area is calculated to be 1.2 ppm, which is below the overall CUG of 1.3 ppm. Following restoration of all excavated Recreational Floodplain Areas within RA Area G with clean fill, the average surface (i.e., 0 to 6 inch depth) residual PCB concentrations in Floodplain Soils throughout this Recreational Floodplain Area is calculated to be 4.3 ppm.

Area H

RA activities associated with RA Area H occurred between late June 2007 and mid-November 2007. Floodplain Area H consisted solely of Recreational Floodplains. Final excavation depths associated with RA Area H ranged from approximately 6 to 24 inches (0.5 to 2 feet) below the pre-excavation grade. Post-excavation residual PCB concentrations within Recreational Floodplain Areas of RA Area H (collected at depths ranging from 6 to 24 inches below grade) ranged from below the laboratory limit of detection to 12.6 ppm, which is below the RAL for Recreational Floodplain Areas of 20 ppm. Geotextile fabric was not installed in any RA Area H Grids. The post-excavation residual area

weighted average concentration for Recreational RA Area H (collected from the pre-restoration surface at depths ranging from 6 to 24 inches below grade) is 3.64 ppm. Following restoration of all excavated Recreational Floodplain Areas within RA Area H with clean fill, the average surface (i.e., 0 to 6 inch depth) residual PCB concentrations in Floodplain Soils throughout this Recreational Floodplain Area is calculated to be 3.1 ppm.

Area J

RA activities associated with RA Area J occurred between early May 2008 and early August 2008. Floodplain Area J consisted of a mix of Residential and Recreational Floodplains. Final excavation depths associated with RA Area J ranged from approximately 6 to 18 inches (0.5 to 1.5 feet) below the pre-excavation grade. Post-excavation residual PCB concentrations for Residential Floodplain Areas of RA Area J (collected at depths ranging from 6 to 18 inches below grade) ranged from 0.432 ppm to 3.45 ppm, which is below the RAL for Residential Floodplain Areas of 5 ppm. The post-excavation residual area weighted average concentration within Residential RA Area J (based on samples collected from the pre-restoration surface at depths ranging from 6 to 18 inches below grade) is 1.98 ppm. Post-excavation residual PCB concentrations within Recreational Floodplain Areas of RA Area J (collected from a depth 12 inches below grade) ranged from 0.180 ppm to 4.59 ppm, which is below the RAL for Recreational Floodplain Areas of 20 ppm. Geotextile fabric was not installed in any RA Area J Grids. The post-excavation residual area weighted average concentration for Recreational RA Area J (collected from the pre-restoration surface at a depth of 12 inches below grade) is 2.20 ppm. Following restoration of all excavated Residential Floodplain Areas within RA Area J with clean fill, the average surface (i.e., 0 to 6 inch depth) residual PCB concentrations in Floodplain Soils throughout this Residential Floodplain Area is calculated to be 1.1 ppm, which is below the overall CUG of 1.3 ppm. Following restoration of all excavated Recreational Floodplain Areas within RA Area J with clean fill, the average surface (i.e., 0 to 6 inch depth) residual PCB concentrations in Floodplain Soils throughout this Recreational Floodplain Area is calculated to be 1.1 ppm.

LMR Channel Excavation Results

Area A

RA activities associated with RA Area A occurred between early October 2005 and early October 2006. Final depths of excavation associated with RA Area A ranged from approximately 12 to 204 inches (1 to 17 feet, including DSP Areas) beyond the pre-excavation grade. Post-excavation residual PCB concentrations within RA Area A (collected at intervals ranging from 12 to 204 inches) ranged from below the laboratory limit of detection to 41.2 ppm. A total of 13 post-excavation grids samples collected from RA Area A contained PCBs at

concentrations above the established deep Sediment RAL of 5 ppm. Geotextile fabric was installed in all excavated grids containing PCB concentrations above the 5 ppm deep Sediment RAL. The remaining post-excavation Grid samples for Channel Area A were below the established deep Sediment RAL of 5 ppm. Geotextile fabric was also installed in 28 Area A Grids as a result of laboratory reporting delays rather than RAL exceedances.

Following restoration of all excavated Channel Bottom and Channel Bank Areas within RA Area A with clean fill, the average surface (i.e., 0 to 12 inch interval) residual PCB concentrations in Channel Sediments throughout the 1-mile reach of the LMR that encompasses Channel Area A and a portion of RA Area B is calculated to be 0.31 ppm, which is below the surface Sediment CUG of 1.0 ppm. At intervals beyond 12 inches, the residual PCB concentrations are estimated to be 0.25 ppm for the 12 to 24 inch interval, 0.63 ppm for the 24 to 36 inch interval and 0.77 ppm for the 36 to 48 inch interval, which are all below the surface Sediment CUG of 1.0 ppm.

Area B

RA activities associated with RA Area B occurred between mid-September 2006 and mid-October 2007. Final extents of excavation associated with RA Area B ranged from approximately 12 to 78 inches (1 to 6.5 feet) beyond the pre-excavation grade. Post-excavation residual PCB concentrations within RA Area B (collected at intervals ranging from 12 to 78 inches) ranged from below the laboratory limit of detection to 4.95 ppm, below the deep Sediment RAL of 5 ppm. Although there were no RAL exceedances in any RA Area B grids, geotextile fabric was placed in eight RA Area B Grids as a result of laboratory reporting delays.

Following restoration of all excavated Channel Bottom and Channel Bank Areas within RA Area B with clean fill, the average surface (i.e., 0 to 12 inch interval) residual PCB concentrations in Channel Sediments throughout the 1-mile reach of the LMR that encompasses RA Area B and a portion of RA Area C is calculated to be 0.47 ppm, which is below the surface Sediment CUG of 1.0 ppm. At intervals beyond 12 inches, the residual PCB concentrations are estimated to be 0.49 ppm for the 12 to 24 inch interval, 0.43 ppm for the 24 to 36 inch interval and 0.47 ppm for the 36 to 48 inch interval, which are all below the surface Sediment CUG of 1.0 ppm.

Area C

RA activities associated with RA Area C occurred between late September 2007 and early October 2008. Final extents of excavation associated with RA Area C ranged from approximately 12 to 78 inches (1 to 6.5 feet) beyond the pre-excavation grade. Post-excavation residual PCB concentrations within RA Area C (collected at depths ranging from 12 to 78 inches) ranged from below the

laboratory limit of detection to 4.85 ppm, below the deep Sediment RAL of 5 ppm. Geotextile fabric was not placed in any RA Area C Grids.

Following restoration of all excavated Channel Bottom and Channel Bank Areas within RA Area C with clean fill, the average surface (i.e., 0 to 12 inch interval) residual PCB concentrations in Channel Sediments throughout each of the two consecutive 1-mile reaches of the LMR that are encompassed by RA Area C are calculated to be 0.73 ppm (mile reach 3) and 0.81 ppm (mile reach 4), which are below the surface Sediment CUG of 1.0 ppm. At intervals greater than 12 inches within mile 3, the residual concentrations are estimated to be 0.46 ppm for the 12 to 24 inch interval, 0.41 ppm for the 24 to 36 inch interval, and 0.46 ppm for the 36 to 48 inch interval. Within mile 4, the residual concentrations are estimated to be 0.44 ppm for the 12 to 24 inch interval, 0.40 ppm for the 24 to 36 inch interval and 0.41 ppm for 36 to 48 inch interval, which are all below the surface Sediment CUG of 1.0 ppm.

Areas with post-RA RAL exceedences

A total of 13 final post-excavation Grid samples collected from Channel Area A contained PCBs at concentrations above the established RAL of 5 ppm. Geotextile fabric was installed in each of these Grids. There were no RAL exceedences in any Floodplain Grids or in River Channel Areas B and C; however, for operational reasons geotextile fabric was placed as a demarcation layer between excavated and unexcavated surfaces in select Grids in Area A, Area B and Area F (see Attachment 7, table 3.3 and 3.4). After implementation of the RA activities, biomonitoring will be conducted to gage the extent to which remedial action objectives have been and/or are being achieved at the Site.

Site Inspection

EPA made arrangements with IDEM, PRPs representatives and their consultants to be present at a Site inspection conducted on August 19, 2010. The inspection examined the LMR channel and floodplain soil areas to determine if the remedial action activities were constructed according to the ROD and RD plan, to confirm the current remedy status of ongoing remedial activities and whether the Site condition has been changed. Site conditions are unchanged since active remedial activities were completed in 2009. The Site inspection checklist is included as Attachment 1.

Some concerns from nearby residents have been received by the PRPs, IDEM and EPA regarding the RA activities and dead trees in the RA areas. The agencies and PRPs are working with the property owner to resolve their concerns.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision

documents?

Yes. The remedial action activities that have occurred to date at the LMR Site have been constructed in accordance with the requirements of the ROD and the design specifications. The remedy will be protective in the long term, although it may take some time after completion of remedial construction activities for the Site to achieve the RAOs as specified in the ROD. Following the completion of the remedial action, monitoring of fish will be conducted to determine if the remedy is functioning as intended and described in the decision documents.

In the short-term, fish consumption advisories are presently in place. The restrictions on dredging in the LMR river channel and floodplain soil area and dredging as required by the Clean Water Act permits (401/404) are governmental restrictions that are already in place. Currently, the Site is not being used in a manner that is inconsistent with the required use restrictions. Thus, exposure, if any, is controlled at the Site. However, additional IC evaluation activities may be undertaken to ensure the remedy continues to function as intended. Monitoring data needs to be collected by way of fish tissue to evaluate whether the remedy is functioning as intended, and additional information needs to be gathered to further assess the effectiveness of the fish advisories. This is presently scheduled for 2010 for sediments and 2013 for fish tissues.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Yes. Site conditions are changed due to river diversion, excavation, and backfill since the time of remedy selection and there are no new promulgated standards applicable to the Site.

Question C: Has any other information come to light that could call into questioned the protectiveness of the remedy?

No. At this time, nothing has come to light that would call into question the protectiveness of the remedy.

Technical Assessment Summary

The remedial action activities that have occurred to date at the LMR Site have been constructed in accordance with the requirements of the ROD and the design specifications. Fish consumption advisories are in place in preventing fishing along the LMR, existing legal land use controls are also already in place to limit any future intrusive activities within the LMR channel and floodplain soil areas, and the Site is not being used in a manner that is inconsistent with the required use restrictions. Thus, exposure is controlled at the Site. However, additional IC evaluation activities may be undertaken to ensure the remedy

continues to function as intended. Monitoring data needs to be collected by way of fish tissue to evaluate whether the remedy is functioning as intended, and additional information needs to be gathered to further assess the effectiveness of the fish advisories. This is presently scheduled for 2010 for sediments and 2013 for fish tissues.

VIII. Issues

Table 3 – Issues

Issue	Affects Current Protectiveness (Y/N)	Affect Future Protectiveness (Y/N)
1). Operation and Maintenance Plan (O&M Plan) to be implemented.	N	Y
2) Monitoring of sediment in downstream New Lisbon and fish tissues needs to be conducted to evaluate remedy protectiveness and environmental recovery.	N	Y
3) No fish advisory signs are posted along the LMR to prevent fish consumption.	N	Y
4) The effectiveness of the existing ICs has not been fully evaluated. A review of the institutional controls may be needed to assure that the remedy is functioning as intended with regard to the ICs and to ensure effective procedures are in-place for long-term stewardship at the Site.	N	Y

IX. Recommendations and Follow-up Actions

Table 4 – Recommendations and Follow-up Actions

Issue	Recommendations And Follow-up	Party Responsible	Oversight/Support Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
1) Operation and Maintenance Plan (O&M Plan) to be implemented.	Implement the O&M Plan	PRPs	EPA & IDEM	October 2010	N	Y
2) Monitoring of sediment in downstream of New Lisbon and fish tissues needs to be conducted to evaluate remedy protectiveness and environmental recovery.	Conduct monitoring of sediment and fish tissues.	PRPs	EPA & IDEM	October 2010	N	Y
3) No fish advisory signs are posted along the LMR to prevent fish consumption.	Fish advisory signs need to be placed along the LMR RA area	PRPs	EPA & IDEM	April 2011	N	Y
4) The effectiveness of the existing ICs has not been fully evaluated. A review of the institutional controls may be needed to assure that the	An IC Work Plan may be required to conduct IC evaluation activities to review the effectiveness of the ICs and the long-term	PRPs	EPA & IDEM	December 2011	N	Y

remedy is functioning as intended with regard to the ICs and to ensure effective procedures are in-place for long-term stewardship at the Site.	stewardship procedures to ensure that effective ICs are monitored, maintained and enforced for long-term protectiveness.					
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X. Protectiveness Statement

The remedial action being implemented at LMR Site is protective of human health and environment in the short term and is expected to be protective in the long term. All exposure pathways that could result in unacceptable risks to humans are currently being controlled. However, in order for the remedy to be protective in the long-term, the monitoring data needs to show that PCB concentrations in fish tissue are decreasing which would allow a lowering of the fish consumption advisory from a Group 5 to Group 4 level.

Long-term protectiveness of the remedy will also require compliance with effective Institutional Controls (ICs). Those ICs are in the form of local, State and Federal regulations that currently exist for the LMR channels and floodplain areas. Compliance with effective ICs will be ensured through implementing effective ICs and conducting long-term stewardship (as part of the O&M Plan) by maintaining, monitoring and enforcing effective ICs as well as maintaining the fish advisories until such time as fish tissue concentrations decrease to acceptable levels.

XI. Next Review

The next five-year review for the Site is required no later than five years from the date of this review.

ATTACHMENTS

Attachment 1

Site Inspection Check List

Please note that "O&M" is referred to throughout this checklist. At sites where Long-Term Response Actions are in progress, O&M activities may be referred to as "system operations" since these sites are not considered to be in the O&M phase while being remediated under the Superfund program.

Five-Year Review Site Inspection Checklist (Template)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION													
Site name: <u>Little Mississinewa River</u>	Date of inspection: <u>08/19/10</u>												
Location and Region: <u>Union City, IN</u>	EPA ID: <u>INN 000508120</u>												
Agency, office, or company leading the five-year review: <u>USEPA RC</u>	Weather/temperature: <u>Sunny / 85°F</u>												
Remedy Includes: (Check all that apply) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Landfill cover/containment</td> <td style="width: 50%;">Monitored natural attenuation</td> </tr> <tr> <td>Access controls</td> <td>Groundwater containment</td> </tr> <tr> <td>Institutional controls</td> <td>Vertical barrier walls</td> </tr> <tr> <td>Groundwater pump and treatment</td> <td></td> </tr> <tr> <td>Surface water collection and treatment</td> <td></td> </tr> <tr> <td colspan="2">Other <u>Excavation/off-site disposal of soil/sediment on floodplain and river channel</u></td> </tr> </table>		Landfill cover/containment	Monitored natural attenuation	Access controls	Groundwater containment	Institutional controls	Vertical barrier walls	Groundwater pump and treatment		Surface water collection and treatment		Other <u>Excavation/off-site disposal of soil/sediment on floodplain and river channel</u>	
Landfill cover/containment	Monitored natural attenuation												
Access controls	Groundwater containment												
Institutional controls	Vertical barrier walls												
Groundwater pump and treatment													
Surface water collection and treatment													
Other <u>Excavation/off-site disposal of soil/sediment on floodplain and river channel</u>													
Attachments: <u>Inspection team roster attached</u>	<u>Site map attached</u>												
II. INTERVIEWS (Check all that apply)													
1. O&M site manager <u>Jon Albert</u> <u>Project Manager, Stantec</u> <u>8/19/10</u> Name Title Date Interviewed <input checked="" type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. _____ Problems, suggestions; Report attached <u>N/A</u>													
2. O&M staff <u>Same as above</u> Name Title Date Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. _____ Problems, suggestions; Report attached <u>N/A</u>													

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	O&M Documents O&M manual As-built drawings Maintenance logs Remarks _____	<input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	Up to date Up to date Up to date	N/A N/A N/A
2.	Site-Specific Health and Safety Plan Contingency plan/emergency response plan Remarks _____	<input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	Up to date Up to date	N/A N/A
3.	O&M and OSHA Training Records Remarks _____	Readily available	Up to date	N/A
4.	Permits and Service Agreements Air discharge permit Effluent discharge Waste disposal, POTW Other permits _____ Remarks _____	Readily available Readily available Readily available Readily available	Up to date Up to date Up to date Up to date	N/A N/A N/A N/A
5.	Gas Generation Records Remarks _____	Readily available	Up to date	N/A
6.	Settlement Monument Records Remarks _____	Readily available	Up to date	N/A
7.	Groundwater Monitoring Records Remarks _____	Readily available	Up to date	N/A
8.	Leachate Extraction Records Remarks _____	Readily available	Up to date	N/A
9.	Discharge Compliance Records Air Water (effluent) Remarks _____	Readily available Readily available	Up to date Up to date	N/A N/A
10.	Daily Access/Security Logs Remarks _____	Readily available	Up to date	N/A

IV. O&M COSTS			
1.	O&M Organization		
	State in-house	Contractor for State	
	PRP in-house	Contractor for PRP	
	Federal Facility in-house	Contractor for Federal Facility	
	Other _____	N/A	
2.	O&M Cost Records		
	Readily available	Up to date	
	Funding mechanism/agreement in place		
	Original O&M cost estimate _____	N/A	Breakdown attached
	Total annual cost by year for review period if available		
	From _____	To _____	Breakdown attached
	Date	Date	Total cost
	From _____	To _____	Breakdown attached
	Date	Date	Total cost
	From _____	To _____	Breakdown attached
	Date	Date	Total cost
	From _____	To _____	Breakdown attached
	Date	Date	Total cost
	From _____	To _____	Breakdown attached
	Date	Date	Total cost
3.	Unanticipated or Unusually High O&M Costs During Review Period		
	Describe costs and reasons: _____		

	N/A		

V. ACCESS AND INSTITUTIONAL CONTROLS		Applicable	N/A
A. Fencing			
1.	Fencing damaged	Location shown on site map	Gates secured
	Remarks _____		(N/A)
B. Other Access Restrictions			
1.	Signs and other security measures	Location shown on site map	N/A
	Remarks <u>Fish advisory signs are not in place</u>		

C. Institutional Controls (ICs)				
1.	Implementation and enforcement			
	Site conditions imply ICs not properly implemented	Yes	No	N/A
	Site conditions imply ICs not being fully enforced	Yes	No	N/A
	Type of monitoring (e.g., self-reporting, drive by)	_____		
	Frequency	_____		
	Responsible party/agency	_____		
	Contact	_____		
		Name	Title	Phone no.
	Reporting is up-to-date	Yes	No	N/A
	Reports are verified by the lead agency	Yes	No	N/A
	Specific requirements in deed or decision documents have been met	Yes	No	N/A
	Violations have been reported	Yes	No	N/A
	Other problems or suggestions:	Report attached		
	_____	_____		
	_____	_____		
	_____	_____		
2.	Adequacy	ICs are adequate	ICs are inadequate	N/A
	Remarks	_____		
	_____	_____		
	_____	_____		
D. General				
1.	Vandalism/trespassing	Location shown on site map	No vandalism evident	
	Remarks	_____		
	_____	_____		
2.	Land use changes on site	N/A		
	Remarks	_____		
	_____	_____		
3.	Land use changes off site	N/A		
	Remarks	_____		
	_____	_____		
VI. GENERAL SITE CONDITIONS				
A. Roads	Applicable	N/A		
1.	Roads damaged	Location shown on site map	Roads adequate	N/A
	Remarks	_____		
	_____	_____		

B. Other Site Conditions			
Remarks _____ _____ _____ _____ _____			
VII. LANDFILL COVERS		Applicable	(N/A)
A. Landfill Surface			
1.	Settlement (Low spots) Areal extent _____ Remarks _____	Location shown on site map _____ Depth _____	Settlement not evident
2.	Cracks Lengths _____ Widths _____ Remarks _____	Location shown on site map _____ Depths _____	Cracking not evident
3.	Erosion Areal extent _____ Remarks _____	Location shown on site map _____ Depth _____	Erosion not evident
4.	Holes Areal extent _____ Remarks _____	Location shown on site map _____ Depth _____	Holes not evident
5.	Vegetative Cover Trees/Shrubs (indicate size and locations on a diagram) Remarks _____	Grass _____ Cover properly established _____	No signs of stress
6.	Alternative Cover (armored rock, concrete, etc.) Remarks _____	N/A	
7.	Bulges Areal extent _____ Remarks _____	Location shown on site map _____ Height _____	Bulges not evident

8.	Wet Areas/Water Damage	Wet areas/water damage not evident	
	Wet areas	Location shown on site map	Areal extent _____
	Ponding	Location shown on site map	Areal extent _____
	Seeps	Location shown on site map	Areal extent _____
	Soft subgrade	Location shown on site map	Areal extent _____
	Remarks _____		
9.	Slope Instability	Slides	Location shown on site map No evidence of slope instability
	Areal extent _____		
	Remarks _____		
B. Benches	Applicable	N/A	
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)			
1.	Flows Bypass Bench	Location shown on site map	N/A or okay
	Remarks _____		
2.	Bench Breached	Location shown on site map	N/A or okay
	Remarks _____		
3.	Bench Overtopped	Location shown on site map	N/A or okay
	Remarks _____		
C. Letdown Channels	Applicable	N/A	
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)			
1.	Settlement	Location shown on site map	No evidence of settlement
	Areal extent _____	Depth _____	
	Remarks _____		
2.	Material Degradation	Location shown on site map	No evidence of degradation
	Material type _____	Areal extent _____	
	Remarks _____		
3.	Erosion	Location shown on site map	No evidence of erosion
	Areal extent _____	Depth _____	
	Remarks _____		

4.	Undercutting	Location shown on site map	No evidence of undercutting
	Areal extent _____	Depth _____	
	Remarks _____		
5.	Obstructions	Type _____	No obstructions
	Location shown on site map	Areal extent _____	
	Size _____		
	Remarks _____		
6.	Excessive Vegetative Growth	Type _____	
	No evidence of excessive growth		
	Vegetation in channels does not obstruct flow		
	Location shown on site map	Areal extent _____	
	Remarks _____		
D. Cover Penetrations			
	Applicable	<u>N/A</u>	
1.	Gas Vents	Active	Passive
	Properly secured/locked	Functioning	Routinely sampled
	Evidence of leakage at penetration		Needs Maintenance
	N/A		
	Remarks _____		
2.	Gas Monitoring Probes	Functioning	Routinely sampled
	Properly secured/locked		Good condition
	Evidence of leakage at penetration		Needs Maintenance
			N/A
	Remarks _____		
3.	Monitoring Wells (within surface area of landfill)	Functioning	Routinely sampled
	Properly secured/locked		Good condition
	Evidence of leakage at penetration		Needs Maintenance
			N/A
	Remarks _____		
4.	Leachate Extraction Wells	Functioning	Routinely sampled
	Properly secured/locked		Good condition
	Evidence of leakage at penetration		Needs Maintenance
			N/A
	Remarks _____		
5.	Settlement Monuments	Located	Routinely surveyed
			N/A
	Remarks _____		

E. Gas Collection and Treatment		Applicable	(N/A)
1.	Gas Treatment Facilities Flaring Good condition Remarks _____	Thermal destruction Needs Maintenance	Collection for reuse
2.	Gas Collection Wells, Manifolds and Piping Good condition Remarks _____	Needs Maintenance	
3.	Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings) Good condition Remarks _____	Needs Maintenance	N/A
F. Cover Drainage Layer		Applicable	(N/A)
1.	Outlet Pipes Inspected Remarks _____	Functioning	N/A
2.	Outlet Rock Inspected Remarks _____	Functioning	N/A
G. Detention/Sedimentation Ponds		Applicable	(N/A)
1.	Siltation Areal extent _____ Siltation not evident Remarks _____	Depth _____	N/A
2.	Erosion Areal extent _____ Erosion not evident Remarks _____	Depth _____	
3.	Outlet Works Remarks _____	Functioning	N/A
4.	Dam Remarks _____	Functioning	N/A

H. Retaining Walls		Applicable	N/A
1.	Deformations	Location shown on site map	Deformation not evident
	Horizontal displacement _____	Vertical displacement _____	
	Rotational displacement _____		
	Remarks _____		
2.	Degradation	Location shown on site map	Degradation not evident
	Remarks _____		
I. Perimeter Ditches/Off-Site Discharge		Applicable	N/A
1.	Siltation	Location shown on site map	Siltation not evident
	Areal extent _____	Depth _____	
	Remarks _____		
2.	Vegetative Growth	Location shown on site map	N/A
	Vegetation does not impede flow		
	Areal extent _____	Type _____	
	Remarks _____		
3.	Erosion	Location shown on site map	Erosion not evident
	Areal extent _____	Depth _____	
	Remarks _____		
4.	Discharge Structure	Functioning	N/A
	Remarks _____		
VIII. VERTICAL BARRIER WALLS		Applicable	N/A
1.	Settlement	Location shown on site map	Settlement not evident
	Areal extent _____	Depth _____	
	Remarks _____		
2.	Performance Monitoring	Type of monitoring _____	
	Performance not monitored		
	Frequency _____	Evidence of breaching	
	Head differential _____		
	Remarks _____		

IX. GROUNDWATER/SURFACE WATER REMEDIES		Applicable	N/A	
A. Groundwater Extraction Wells, Pumps, and Pipelines		Applicable	N/A	
1.	Pumps, Wellhead Plumbing, and Electrical Good condition All required wells properly operating	Needs Maintenance	N/A	
Remarks _____ _____				
2.	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances Good condition Needs Maintenance			
Remarks _____ _____				
3.	Spare Parts and Equipment Readily available Good condition Requires upgrade Needs to be provided			
Remarks _____ _____				
B. Surface Water Collection Structures, Pumps, and Pipelines		Applicable	N/A	
1.	Collection Structures, Pumps, and Electrical Good condition Needs Maintenance			
Remarks _____ _____				
2.	Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances Good condition Needs Maintenance			
Remarks _____ _____				
3.	Spare Parts and Equipment Readily available Good condition Requires upgrade Needs to be provided			
Remarks _____ _____				

D. Monitored Natural Attenuation			
1.	Monitoring Wells (natural attenuation remedy)		
	Properly secured/locked	Functioning	Routinely sampled
	All required wells located	Needs Maintenance	Good condition
	Remarks		N/A
X. OTHER REMEDIES			
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.			
XI. OVERALL OBSERVATIONS			
A. Implementation of the Remedy			
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).			
<p>Site conditions are unchanged since Remedial Action activities were completed in 2009.</p> <p>Remedy was implemented as per the 2004 ROD</p>			
B. Adequacy of O&M			
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.			
<p>Future monitoring for sediment (in 2010) and fish tissues (in 2013) will help assess the long term protectiveness of remedy</p>			

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Attachment 2

List of Documents Reviewed

SECOR. January 24, 2003. *Final Removal Action Report*, Little Mississinewa River, Union City, Indiana.

SECOR. April 30, 2003. *Remedial Investigation Report*, Little Mississinewa River, Randolph County, Indiana.

SECOR. February 2, 2004. *Feasibility Study/Baseline Risk Assessment*. Little Mississinewa River, Randolph County, Indiana

SECOR. August 15, 2005. *Final (100%) Remedial Design*. Little Mississinewa River. Randolph County, Indiana.

USEPA. July 2004. *Record Of Decision*, Little Mississinewa River Site, Union City, Indiana.

USEPA. September 2004. Administrative Order on Consent. EPA Docket No. V-W-04-C-801.

USEPA. April 2005. Unilateral Administrative Order. EPA Docket No. V-W-05-C-812.

SECOR. November 2009. Remedial Action Report. Little Mississinewa River Site, Union City, Indiana.

SECOR. November 2009. Post-Remedial Action Operation and Maintenance Plan, Little Mississinewa River, Randolph County, Indiana.

Attachment 3

Copy of Public Notice Ad

Fw: Electronic tearsheet

Giang-Van Nguyen

05/25/2010 04:11 PM

Little Mississinewa ad.

janet

----- Forwarded by Janet Pope/R5/USEPA/US on 05/25/2010 04:11 PM -----

From: Susan Pastor/R5/USEPA/US
To: Janet Pope/R5/USEPA/US@EPA
Date: 05/25/2010 04:03 PM
Subject: Fw: Electronic tearsheet

----- Forwarded by Susan Pastor/R5/USEPA/US on 05/25/2010 04:03 PM -----

From: Lesa Hawkins <ngcomp@comcast.net>
To: Susan Pastor/R5/USEPA/US@EPA
Date: 05/25/2010 01:59 PM
Subject: Electronic tearsheet

Attached is the tearsheet you requested for the ad published in the News Gazette on May 14, 2010.

Lesla Carter-Hawkins
Composing Manager



US EPA 4x10 051410.pdf



EPA Begins Review of Little Mississinewa River Superfund Site Union City, Indiana

U.S. Environmental Protection Agency, in consultation with Indiana Department of Environmental Management, is conducting a five-year review of the Little Mississinewa River Superfund Site. The Site is located in Randolph County, Indiana, and consists of an approximately seven-mile segment of the Little Mississinewa River and its associated flood plain. The LMR Site extends from the Division Street Bridge in Union City, Indiana to the confluence with the Mississinewa River. The area includes a mix of recreational, industrial, residential, and agricultural properties. The Superfund law requires regular checkups of sites that have been cleaned up – with waste managed on-site – to make sure the cleanup continues to protect people and the environment.

PCBs are the primary contaminants of concern and risk driver at the Site. River channel sediments and flood plain areas were contaminated with levels of PCBs that exceeded 400 parts per million. The vast majority of the PCB contamination in the sediments and flood plain soils occurs between Division Street and New Lisbon. There is no appreciable PCB contamination between New Lisbon and the confluence with the Mississinewa River. The cleanup of the contamination at the site consists of excavating contaminated river sediments and flood plain soil, restoration the excavated area, implementation monitored natural recovery for sediment in the northern half of the river where contains PCBs concentration that did not required excavation, and imposing land-use control to prevent the future land use change or construction or excavation activities within the river channel or flood plains. The review should be completed by the end of October 2010.

More information is available at Union City Public Library, 408 North Columbia Street. The five-year review is an opportunity for you to tell EPA about site conditions and any concerns you have. You may contact:

Janet Pope
Community Involvement Coordinator
312-353-0628
pope.janet@epa.gov

Giang-Van Nguyen
Remedial Project Manager
312-886-6726
nguyen.giangvan@epa.gov

You may call Region 5 toll-free at 800-621-8431, 8:30 a.m. to 4:30 p.m., weekdays.

**EPA Region 5
77 W. Jackson Blvd.
Chicago, IL 60604**

Attachment 4

Notice of Five Year Review to State



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

May 10, 2010

Stephanie Andrews
Senior Environmental Manager
Indiana Department of Environmental Management
Office of Land Quality/Remediation Services Branch
100 North Senate Avenue Room IGCN 1101
Indianapolis, IN 46204

Subject: Notification of Five Year Review Start for the Little Mississinewa River site,
Union City, Indiana

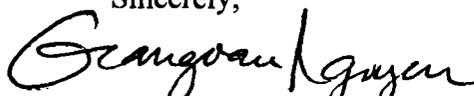
Dear Ms. Andrews:

This letter is to notify you that U.S. Environmental Protection Agency (EPA) has begun the process of the five-year review for the Little Mississinewa River (LMR) site in Union City, Indiana. EPA will lead the LMR five-year review. A Statutory Five Year Review for the Site will be conducted as required by Section 121 of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA); the law requires that remedial actions which result in any hazardous substances, pollutants, or contaminants remaining at the site shall be subject to a five-year review to determine if the remedy remains protective of human health and the environment.

The five-year review for the LMR site is due on October 05, 2010, and we are providing you this notification so that EPA and Indiana Department of Environmental Management (IDEM) can begin the necessary coordination activities. Necessary activities include such matters as notifying the public of the five-year review process and accepting public input, gathering data in order to summarize performance of site remediation, arranging for a site visit and inspection to review remediation and operation and maintenance functions, develop any pertinent recommendations, etc. A site inspection will be scheduled, and I will contact you regarding this event.

I look forward to working with the IDEM and Stantec in compiling the Five Year Review report for the LMR sites. If you have any questions, please feel free to call me at (312)886-6726 or email me at nguyen.giang-van@epa.gov.

Sincerely,


Giang-Van Nguyen

**Remedial Project Manager
U.S. EPA Region 5**

**cc: D. Bruce, U.S. EPA
S. Bianchin, U.S. EPA
S. Jaffess, Section Chief, U.S. EPA
J. Pope, Community Involvement Coordinator, U.S. EPA
P. Felitti, Associate Regional Counsel, U.S. EPA
J. Alberg, Stantec**

Attachment 5

Comments received from IDEM and Headquarter

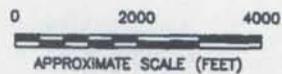
Attachment 6

LMR Remedial Action Floodplain and Channel Areas



LEGEND:

 REMEDIAL ACTION FLOODPLAIN AREAS



SOURCES:
USGS 7.5 MINUTE
TOPOGRAPHIC MAPS—
UNION CITY, IN AND
COSMOS, IN QUADRANGLE




SECOR
4463 WHITE BEAR PARKWAY, SUITE 100
WHITE BEAR LAKE, MINNESOTA 55193
PHONE (612) 853-8112 FAX (612) 853-1781

PREPARED FOR:
**LITTLE MISSISNEWA RIVER
RANDOLPH COUNTY, INDIANA**

JOB NUMBER:
EQUIL1039L20

DRAWN BY:
HBI

**GENERALIZED
REMEDIAL ACTION FLOODPLAIN AREAS**

CHECKED BY:
AG

APPROVED BY:
JA

FIGURE:
1.3

DATE:
09/20/05

Attachment 7

Tables Document Residual PCB Concentrations and Associated
CUGS

and

Tables Document Geotextile Lined Grids

TABLE 3.1
 Residual PCB Concentrations and Associated CUGs
 Floodplain Soils
 Little Mississinewa River - RA
 Randolph County, Indiana

RA Area	Post Restoration Area Weighted Average Surface (0 to 6") Residual Concentration	CUG (ppm)
Area E Residential	0.39	1.3
Area F Residential	0.72	1.3
Area F Recreational	3.8	NA
Area G Residential	1.2	1.3
Area G Recreational	4.3	NA
Area H Recreational	3.1	NA
Area J Residential	1.1	1.3
Area J Recreational	1.1	NA
Total Residential	0.70	1.3
Total Recreational	3.2	NA

NA - Not Applicable

TABLE 3.2
 Residual PCB Concentrations and Associated CUGs
 Channel Sediment
 Little Mississinewa River - RA
 Randolph County, Indiana

Mile Reach	RA Areas	Post Restoration Area Weighted Average Surface Residual Concentration			
		0-12" Interval	12-24" Interval	24-36" Interval	36-48" Interval
Mile Reach 1	A0 - B13	0.31	0.25	0.63	0.77
Mile Reach 2	B14 - C12	0.47	0.49	0.43	0.47
Mile Reach 3	C13 - C47	0.73	0.46	0.41	0.46
Mile Reach 4	C48 - C69	0.81	0.44	0.40	0.41

TABLE 3.3
Geotextile Lined Grids - RAL Exceedances
Little Mississinewa River - RA
Randolph County, Indiana

Channel Segment	Final Excavated Depth (Inches)	Total PCB Concentration (mg/kg)	Comments
A0-RB	30	29.8	RAL Exceedance
A2-LB	48	31.9	RAL Exceedance
A3-LB	48	16.8	RAL Exceedance
A4-LB	48	35.8	RAL Exceedance
A4-RB	60	41.2	RAL Exceedance
A5-LB	42	14.9	RAL Exceedance
A6-LB	18	6.34	RAL Exceedance
A7-CB	36	5.16	RAL Exceedance
A46-RB	60	13.6	RAL Exceedance
A48-RB	60	7.27	RAL Exceedance
A49-RB	60	7.27	RAL Exceedance
A50-RB	60	6.65	RAL Exceedance
A54-LB	108	7.34	RAL Exceedance

TABLE 3.4
Geotextile Lined Grids - Non RAL Exceedances
Little Mississinewa River - RA
Randolph County, Indiana

Floodplain Grid	Final Excavated Depth (Inches)	Total PCB Concentration (mg/kg)	Comments
F4W	12	0.107	Non-RAL Exceedance
F5W	48	ND	Non-RAL Exceedance
F6W	36	ND	Non-RAL Exceedance
F20E	24	ND	Non-RAL Exceedance
F21E	36	ND	Non-RAL Exceedance
F25E	30	19.0	Non-RAL Exceedance
A5-RB	36	ND	Non-RAL Exceedance
A6-RB	36	ND	Non-RAL Exceedance
A8-LB	36	ND	Non-RAL Exceedance
A8-RB	36	ND	Non-RAL Exceedance
A13-RB	36	1.68	Non-RAL Exceedance
A14-LB	36	0.266	Non-RAL Exceedance
A16-LB	36	1.79	Non-RAL Exceedance
A17-LB	36	0.28	Non-RAL Exceedance
A18-RB	36	1.36	Non-RAL Exceedance
A22-CB	42	ND	Non-RAL Exceedance
A22-RB	36	0.356	Non-RAL Exceedance
A26-LB	60	ND	Non-RAL Exceedance
A27-LB	60	0.137	Non-RAL Exceedance
A43-LB	42	ND	Non-RAL Exceedance
A45-LB	42	ND	Non-RAL Exceedance
A47-CB	18	ND	Non-RAL Exceedance
A47-RB	18	ND	Non-RAL Exceedance
A48-LB	60	0.372	Non-RAL Exceedance
A49-LB	60	3.54	Non-RAL Exceedance
A52-LB	36	ND	Non-RAL Exceedance
A53-LB	110	ND	Non-RAL Exceedance
A62-LB	30	ND	Non-RAL Exceedance
A63-LB	30	1.51	Non-RAL Exceedance
A64-LB	30	2.31	Non-RAL Exceedance
A65-LB	30	1.64	Non-RAL Exceedance
A69-LB	36	ND	Non-RAL Exceedance
A74-RB	18	ND	Non-RAL Exceedance
A77-RB	24	ND	Non-RAL Exceedance
B15-LB	72	ND	Non-RAL Exceedance
B28-LB	36	0.514	Non-RAL Exceedance
B28-CB	12	ND	Non-RAL Exceedance
B28-RB	12	1.47	Non-RAL Exceedance
B38-RB	36	0.289	Non-RAL Exceedance
B39-RB	36	ND	Non-RAL Exceedance
B40-RB	36	ND	Non-RAL Exceedance
B43-LB	72	ND	Non-RAL Exceedance

ND: Not detected above laboratory detection limit

Attachment 8

Tables Document 2004 and 2005 Fish Tissues Sample Results and
Figure Showing Fish Collection Areas

TABLE 4.1
LMR PRE-REMEDIAL FISH PCB RESULTS
FALL 2004
 Little Mississinewa River
 Randolph County, Indiana

STATION	SAMPLE DATE	SAMPLE ID	INDIVIDUAL/COMPOSITE	PELAGIC/DEMERSAL	SPECIES	# OF FISH	LENGTH (mm)	WEIGHT (g)	WET WEIGHT BASIS				% Moisture	% Lipids
									Total PCBs	Aroclor 1248	Aroclor 1254	Aroclor 1260		
FS #1	11/30/2004	1001	Individual	pelagic	green sunfish	1	137	54	2,850	1,700.	700.	270.	76.8	0.31
		1002	Individual	demersal	white sucker	1	210	105	5,190	2,600.	1,700.	810.	77.8	0.42
		1003	Composite	demersal	white sucker	1	129	16	53,300	38,000.	14,000.	3,800.	74.6	4.9
		1003			white sucker	1	113	5						
		1003			white sucker	1	103	5						
		1003			white sucker	1	95	4						
1003	white sucker	1	103	5										
FS #2	11/30/2004	2001	Composite	pelagic	creek chub	1	113	7	35,700	27,000.	8,500.	< 3,400.	72.4	4.7
		2001			creek chub	1	117	7						
		2001			creek chub	1	120	10						
		2001			creek chub	1	112	7						
		2001			creek chub	1	111	5						
		2002	Individual	demersal	yellow bullhead	1	180	85	161,000	140,000.	24,000.	< 14,000.	77.0	2.2
2003	Composite	demersal	yellow bullhead	1	137	25	97,200	71,000.	17,000.	8,000.	77.8	1.3		
2003			yellow bullhead	1	145	35								
FS #3	12/2/2004	3001	Composite	demersal	white sucker	1	98	5	16,700	11,000.	4,800.	1,200.	73.4	6.3
		3001			white sucker	1	93	4						
		3001			white sucker	1	90	3						
		3001			white sucker	1	92	3						
		3001			white sucker	1	87	2						
		3001			white sucker	1	84	2						
		3001			white sucker	1	85	2						
		3001			white sucker	1	80	2						
		3001			white sucker	1	109	9						
		3002	Composite	pelagic	redbreast sunfish	2	103	25	33,400	22,000.	8,000.	3,700.	73.8	1.6
3002	redbreast sunfish	1	97	15										
FS #4	12/3/2004	4001	Composite	pelagic	redbreast sunfish	1	114	25	9,740	8,000.	2,500.	1,200.	75.7	1.3
		4001			redbreast sunfish	1	107	20						
		4002	Individual	demersal	yellow bullhead	1	217	193	29,000	24,000.	5,500.	< 3,400.	80.9	1.7
FS #5	12/3/2004	5001	Individual	pelagic	creek chub	1	147	30	< 34.0	< 34.	< 34.	< 34.	76.6	2.2
		5002	Individual	demersal	white sucker	1	168	42	< 34.0	< 34.	< 34.	< 34.	77.0	1.3
		5003	Composite	pelagic	green sunfish	1	81	10	< 34.0	< 34.	< 34.	< 34.	76.5	1.5
		5003			green sunfish	1	81	8						
		5003			green sunfish	1	88	12						
		5004	Individual	pelagic	redbreast sunfish	1	120	30	59	60.	< 34.	< 34.	71.7	3.4
5005	Composite	demersal	yellow bullhead	1	114	20	< 34.0	< 34.	< 34.	< 34.	79.4	1.5		
5005			yellow bullhead	1	125	25								

COLLECTION LOCATIONS

- Field Station 1 (FS #1) - From the Penn Central Railroad Trestle to Harter Park Bridge.
- Field Station 2 (FS #2) - From the Econoline graveyard (vicinity of RI transect A58) upstream to Division St.
- Field Station 3 (FS #3) - From New Lisbon church upstream approximately 500-800 ft. [Approximately RI Areas C-1 through C-4]
- Field Station 4 (FS #4) - From CR 700 N upstream approximately 600-700 ft. [Approximately RI Areas D-20 through D-21]
- Field Station 5 (FS #5) - In Gray's Branch (in Ohio) from Brock-Cosmos Rd. upstream approximately 500 ft. and from Ellis Rd. upstream approximately 200 ft.

NOTES

- # = number
- mm = millimeters
- g = grams
- PCBs = polychlorinated biphenyls
- % = percent
- FS # = field station number
- NA = not analyzed
- < = indicates concentrations less than the laboratory reporting limit

TABLE 4.2
LMR PRE-REMEDIAL FISH PCB RESULTS
SPRING 2005
 Little Mississinewa River
 Randolph County, Indiana

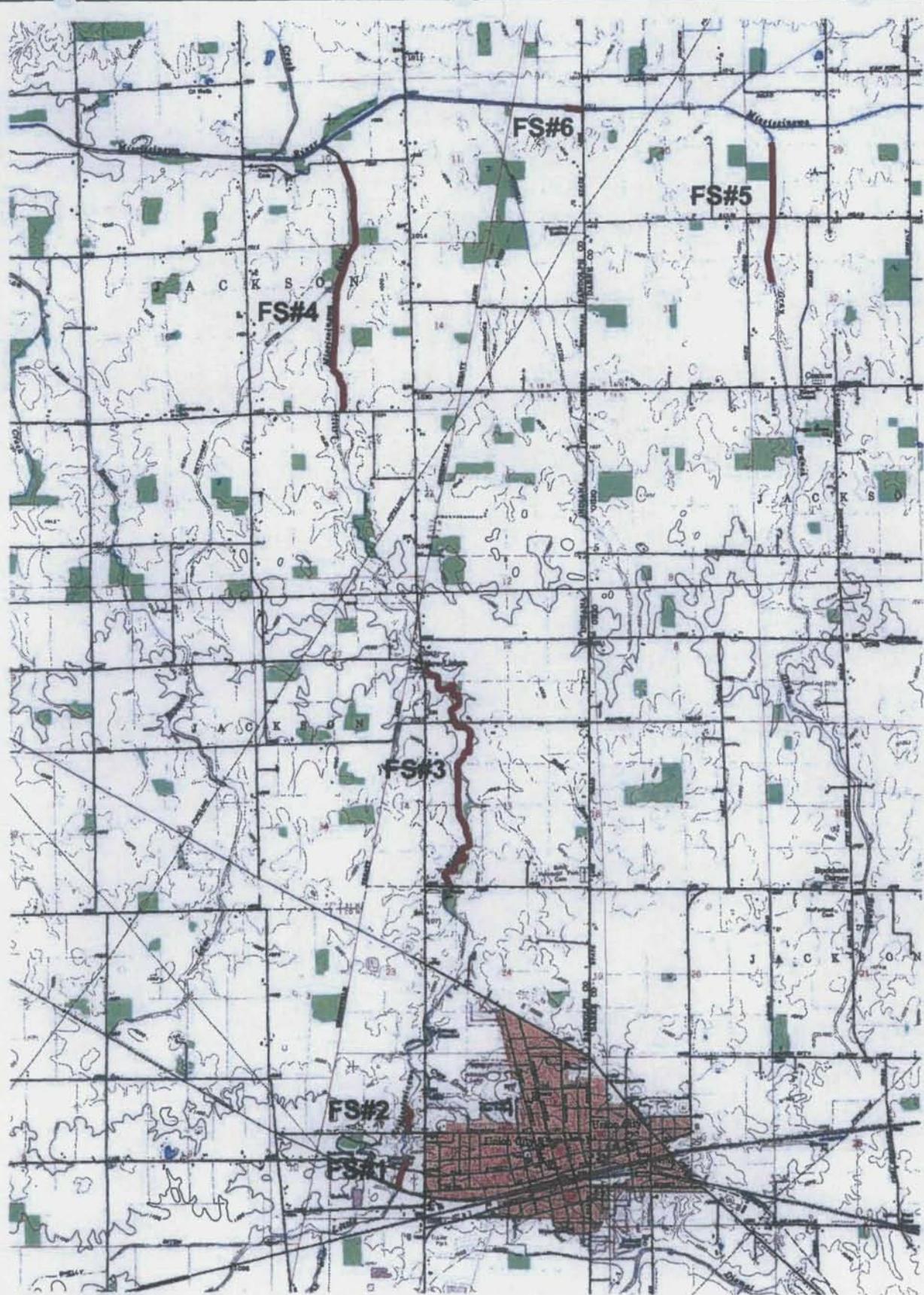
STATION	SAMPLE DATE	SAMPLE ID	INDIVIDUAL/COMPOSITE	PELAGIC/DEMERSAL	SPECIES	# OF FISH	LENGTH (mm)	WEIGHT (g)	WET WEIGHT BASIS				% Moisture	% Lipids
									Total PCBs	Aroclor 1248	Aroclor 1254	Aroclor 1260		
FS #1	6/16/2005	1004	composite	demersal	yellow bullhead	2	170	103	1,990	1,200	610	180	78	2
		1004			yellow bullhead	164	100							
		1005	composite	demersal	white sucker	5	130	32						
		1005			white sucker	139	39							
		1005			white sucker	112	13							
		1005			white sucker	111	13							
		1005			white sucker	93	9							
1006	individual	pelagic	creek chub	1	132	32	3,080	1,900	1,000	180	NA	3		
FS #2	6/16/2005	2004	composite	demersal	yellow bullhead	4	182	101	11,400	5,100	5,200	1,100	73.7	1.8
		2004			yellow bullhead	221	200							
		2004			yellow bullhead	165	94							
		2004			yellow bullhead	176	100							
		2005	composite	pelagic	green sunfish	4	98	18						
		2005			green sunfish	104	31							
		2005			green sunfish	90	18							
2005	green sunfish	78	10	27,000	15,000	12,000	< 3,400	75.8	3					
FS #3	6/16/2005	3003	individual	demersal	yellow bullhead	1	203	173	14,000	5,600	7,200	1,200	78.2	1.7
		3004	composite	demersal	yellow bullhead	4	211	162	12,800	6,200	5,500	1,100	76.7	2.5
		3004			yellow bullhead		171	78						
		3004			yellow bullhead		172	89						
		3004			yellow bullhead		168	90						
		3005	composite	pelagic	green sunfish	3	108	29						
		3005			green sunfish	90	11							
		3005			green sunfish	78	10							
		3006	composite	pelagic	creek chub	2	160	53						
3006	creek chub	113			13	10,000	6,400	3,600						
FS #4	6/16/2005	4003	individual	demersal	yellow bullhead	1	166	80	6,530	2,500	3,400	630	78.9	2.5
		4004	composite	pelagic	creek chub	2	147	39	4,000	2,400	1,600	< 430	NA	1.5
		4004			creek chub		101	10						
FS #5	6/15/2005	5008	composite	demersal	yellow bullhead	5	135	42						
		5008			yellow bullhead		100	20						
		5008			yellow bullhead		95	13						
		5008			yellow bullhead		98	12						
		5008			yellow bullhead		100	14						
		5007	composite	pelagic	creek chub	3	125	15						
		5007			creek chub	120	9							
5007	creek chub	93			4	22.0	< 17	22	< 17	NA	2.3			
FS #6	6/17/2005	6001	composite	pelagic	green sunfish	3	95	9	144	68	76	< 17	74.2	2.6
		6001			green sunfish		97	10						
		6001			green sunfish		98	11						
		6002	composite	pelagic	creek chub	3	108	8						
		6002			creek chub		95	6						
6002	creek chub	95	6											

COLLECTION LOCATIONS

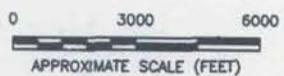
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LEGEND:
 FISH TISSUE FIELD STATION SAMPLE LOCATION



SOURCES:
 USGS 7.5 MINUTE
 TOPOGRAPHIC MAPS—
 UNION CITY, IN AND
 COSMOS, IN QUADRANGLES




444 CENTERVILLE ROAD, SUITE 140
 WHITE BEAR LAKE, MINNESOTA 55127
 PHONE (951) 255-6950 FAX (951) 255-6950

FOR:
**LITTLE MISSISSINEWA RIVER
 RANDOLPH COUNTY, INDIANA**

JOB NUMBER:
 123201055

DRAWN BY:
 KM

2004 & 2005
**FISH TISSUE FIELD STATION
 SAMPLING AREAS**

CHECKED BY:
 AG

APPROVED BY:
 JA

FIGURE:
1.1

DATE:
 11/18/05