

**UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF WISCONSIN**

-----  
UNITED STATES OF AMERICA,

Plaintiff,

v.

MERCURY MARINE, A DIVISION  
OF BRUNSWICK CORPORATION,

Defendant.  
-----

:  
:  
:  
:  
:  
:  
:  
:  
:  
:  
:  
:

Civil Action No. 12-C-1022

**REMEDIAL ACTION CONSENT DECREE FOR THE  
PLANT 2 OPERABLE UNIT AT THE CEDARVILLE DAMS  
(A/K/A CEDAR CREEK OU1 – PLANT 2) SUPERFUND SITE**

## TABLE OF CONTENTS

I.	BACKGROUND .....	1
II.	JURISDICTION .....	2
III.	PARTIES BOUND.....	2
IV.	DEFINITIONS .....	3
V.	GENERAL PROVISIONS.....	6
VI.	PERFORMANCE OF THE WORK BY SETTLING DEFENDANT .....	8
VII.	REMEDY REVIEW.....	10
VIII.	QUALITY ASSURANCE, SAMPLING, AND DATA ANALYSIS .....	11
IX.	ACCESS AND INSTITUTIONAL CONTROLS.....	12
X.	REPORTING REQUIREMENTS.....	15
XI.	EPA APPROVAL OF PLANS, REPORTS, AND OTHER DELIVERABLES .....	17
XII.	PROJECT COORDINATORS.....	17
XIII.	PERFORMANCE GUARANTEE .....	18
XIV.	CERTIFICATION OF COMPLETION .....	21
XV.	EMERGENCY RESPONSE .....	22
XVI.	PAYMENTS FOR RESPONSE COSTS .....	23
XVII.	INDEMNIFICATION AND INSURANCE .....	25
XVIII.	FORCE MAJEURE.....	26
XIX.	DISPUTE RESOLUTION .....	28
XX.	STIPULATED PENALTIES .....	30
XXI.	COVENANTS BY PLAINTIFF .....	32
XXII.	COVENANTS BY SETTLING DEFENDANT .....	34
XXIII.	EFFECT OF SETTLEMENT; CONTRIBUTION.....	35
XXIV.	ACCESS TO INFORMATION.....	36
XXV.	RETENTION OF RECORDS .....	37
XXVI.	NOTICES AND SUBMISSIONS .....	38
XXVII.	RETENTION OF JURISDICTION .....	39
XXVIII.	APPENDICES.....	39
XXIX.	COMMUNITY INVOLVEMENT.....	39
XXX.	MODIFICATION.....	40
XXXI.	LODGING AND OPPORTUNITY FOR PUBLIC COMMENT .....	40
XXXII.	SIGNATORIES/SERVICE .....	41
XXXIII.	FINAL JUDGMENT.....	41

## I. BACKGROUND

A. The United States of America (“United States”), on behalf of the Administrator of the United States Environmental Protection Agency (“EPA”), filed a complaint in this matter pursuant to Sections 106 and 107 of the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”), 42 U.S.C. §§ 9606, 9607.

B. The United States in its complaint seeks, *inter alia*: (1) reimbursement of costs incurred by EPA and the Department of Justice (“DOJ”) for response actions at the Cedarville Dams (Cedar Creek) Superfund Alternative Approach Site in Cedarburg, Wisconsin, together with accrued interest; and (2) performance of response actions by the Defendant at the Site consistent with the National Contingency Plan, 40 C.F.R. Part 300 (“NCP”).

C. In accordance with the NCP and Section 121(f)(1)(F) of CERCLA, 42 U.S.C. § 9621(f)(1)(F), EPA notified the State of Wisconsin (the “State”) on March 4, 2008, of negotiations with a potentially responsible party (“PRP”) regarding the implementation of the remedial design and remedial action for the Site, and EPA has provided the State with an opportunity to participate in such negotiations and be a party to this Consent Decree.

D. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the Department of Interior initially on March 4, 2008, and again on March 8, 2012, of the negotiations with a PRP regarding response action to address the release of hazardous substances that may have resulted in injury to the natural resources under federal trusteeship and encouraged the trustee(s) to participate in the negotiation of this Consent Decree.

E. The Defendant that has entered into this Consent Decree (“Settling Defendant”) does not admit any liability to Plaintiff arising out of the transactions or occurrences alleged in the complaint, nor does it acknowledge that the release or threatened release of hazardous substance(s) at or from the Site constitutes an imminent and substantial endangerment to the public health or welfare or the environment.

F. In response to a release or a substantial threat of a release of hazardous substances at or from the Site, on September 27, 2002, Settling Defendant commenced a Remedial Investigation and Feasibility Study (“RI/FS”) for the Site pursuant to 40 C.F.R. § 300.430.

G. Settling Defendant completed a Remedial Investigation (“RI”) Report and a Focused Feasibility Study (“FS”) Report for the Plant 2 Operable Unit in October 2007.

H. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the FS and of the proposed plan for remedial action on October 7, 2007, in a major local newspaper of general circulation. EPA provided an opportunity for written and oral comments from the public on the proposed plan for remedial action. A copy of the transcript of the public meeting is available to the public as part of the administrative record upon which the Regional Administrator, EPA Region 5, based the selection of the response action.

I. The decision by EPA on the remedial action to be implemented at the Site is embodied in a final Record of Decision (“ROD”) for the Plant 2 Operable Unit, executed on March 31, 2008, on which the State had a reasonable opportunity to review and comment. The ROD includes EPA’s explanation for any significant differences between the final plan and the proposed plan as well as a responsiveness summary to the public comments. Notice of the final plan was published in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b). On September 29, 2008, Settling Defendant signed an administrative order with EPA to undertake

the Remedial Design for the Plant 2 Operable Unit. That design was completed on February 27, 2012.

J. Based on the information presently available to EPA, EPA believes that the Work will be properly and promptly conducted by Settling Defendant if conducted in accordance with the requirements of this Consent Decree and its appendices.

K. Solely for the purposes of Section 113(j) of CERCLA, 42 U.S.C. § 9613(j), the Remedial Action set forth in the ROD and the Work to be performed by Settling Defendant shall constitute a response action taken or ordered by the President for which judicial review shall be limited to the administrative record.

L. The Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and implementation of this Consent Decree will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Parties, and that this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, it is hereby Ordered, Adjudged, and Decreed:

## II. JURISDICTION

1. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1345, and 42 U.S.C. §§ 9606, 9607, and 9613(b). This Court also has personal jurisdiction over Settling Defendant. Solely for the purposes of this Consent Decree and the underlying complaint, Settling Defendant waives all objections and defenses that it may have to jurisdiction of the Court or to venue in this District. Settling Defendant shall not challenge the terms of this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree.

## III. PARTIES BOUND

2. This Consent Decree applies to and is binding upon the United States and upon Settling Defendant and its successors, and assigns. Any change in ownership or corporate status of Settling Defendant including, but not limited to, any transfer of assets or real or personal property, shall in no way alter Settling Defendant's responsibilities under this Consent Decree.

3. Settling Defendant shall provide a copy of this Consent Decree to each contractor hired to perform the Work required by this Consent Decree and to each person representing Settling Defendant with respect to the Site or the Work, and shall condition all contracts entered into hereunder upon performance of the Work in conformity with the terms of this Consent Decree. Settling Defendant or its contractors shall provide written notice of the Consent Decree to all subcontractors hired to perform any portion of the Work required by this Consent Decree. Settling Defendant shall nonetheless be responsible for ensuring that its contractors and subcontractors perform the Work in accordance with the terms of this Consent Decree. With regard to the activities undertaken pursuant to this Consent Decree, each contractor and subcontractor shall be deemed to be in a contractual relationship with Settling Defendant within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

#### IV. DEFINITIONS

4. Unless otherwise expressly provided in this Consent Decree, terms used in this Consent Decree that are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Consent Decree or its appendices, the following definitions shall apply solely for purposes of this Consent Decree:

“CERCLA” shall mean the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675.

“Consent Decree” shall mean this Consent Decree and all appendices attached hereto (listed in Section XXVIII). In the event of conflict between this Consent Decree and any appendix, this Consent Decree shall control.

“Day” or “day” shall mean a calendar day unless expressly stated to be a working day. The term “working day” shall mean a day other than a Saturday, Sunday, or federal or state holiday. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal or state holiday, the period shall run until the close of business of the next working day.

“DOJ” shall mean the United States Department of Justice and its successor departments, agencies, or instrumentalities.

“Effective Date” shall mean the date upon which this Consent Decree is entered by the Court as recorded on the Court docket or, if the Court instead issues an order approving the Consent Decree, the date such order is recorded on the Court docket.

“EPA” shall mean the United States Environmental Protection Agency and its successor departments, agencies, or instrumentalities.

“Future Oversight Costs” shall mean that portion of Future Response Costs that EPA incurs in monitoring and supervising Settling Defendant’s performance of the Work to determine whether such performance is consistent with the requirements of this Consent Decree, including costs incurred in reviewing plans, reports, and other deliverables submitted pursuant to this Consent Decree, as well as costs incurred in overseeing implementation of the Work; however, Future Oversight Costs do not include, *inter alia*, the costs incurred by the United States pursuant to Paragraph 9 (Notice to Successors-in-Title and Transfers of Real Property), Sections VII (Remedy Review), IX (Access and Institutional Controls), XV (Emergency Response), and Paragraph 47 (Funding for Work Takeover), or the costs incurred by the United States in enforcing the terms of this Consent Decree, including all costs incurred in connection with Dispute Resolution pursuant to Section XIX (Dispute Resolution) and all litigation costs.

“Future Response Costs” shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs in reviewing or developing plans, reports, and other deliverables submitted pursuant to this Consent Decree, in overseeing implementation of the Work, or otherwise implementing, overseeing, or enforcing this Consent Decree, including, but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to Paragraph 9 (Notice to Successors-in-Title and Transfers of Real Property), Sections VII (Remedy Review), IX (Access and Institutional Controls) (including, but not limited to, the cost of attorney time and any monies paid to secure access and/or to secure, implement, monitor, maintain, or enforce Institutional Controls including, but not limited to, the amount of just

compensation), XV (Emergency Response), Paragraph 47 (Funding for Work Takeover), and Section XXIX (Community Involvement). Future Response Costs shall also include all Interim Response Costs, and all Interest on those Past Response Costs Settling Defendant has agreed to pay under this Consent Decree that has accrued pursuant to 42 U.S.C. § 9607(a) during the period from December 31, 2011, to the Effective Date. Future Response Costs shall not include Interest on Past Response Costs that accrues between the Effective Date and the date EPA determines the amount of Past Response Costs to be paid by Settling Defendant pursuant to Paragraph 52.a.

“Institutional Controls” or “ICs” shall mean Proprietary Controls and state or local laws, regulations, ordinances, zoning restrictions, or other governmental controls or notices that: (a) limit land, water, and/or resource use to minimize the potential for human exposure to Waste Material at or in connection to the Site; (b) limit land, water, and/or resource use to implement, ensure non-interference with, or ensure the protectiveness of the Remedial Action; and/or (c) provide information intended to modify or guide human behavior at or in connection with the Site.

“Institutional Control Implementation and Assurance Plan” or “ICIAP” shall mean the plan for implementing, maintaining, monitoring, and reporting on the Institutional Controls set forth in the ROD, prepared in accordance with the Statement of Work (“SOW”).

“Interim Response Costs” shall mean all costs, including, but not limited to, direct and indirect costs, (a) paid by the United States in connection with the Site between December 31, 2011, and the Effective Date, or (b) incurred prior to the Effective Date but paid after that date.

“Interest” shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.

“National Contingency Plan” or “NCP” shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

“Operation and Maintenance” or “O&M” shall mean all activities required to maintain the effectiveness of the Remedial Action as required under the Operation and Maintenance Plan approved or developed by EPA pursuant to Section VI (Performance of the Work by Settling Defendant) and the SOW, and maintenance, monitoring, and enforcement of Institutional Controls as provided in the ICIAP.

“Paragraph” shall mean a portion of this Consent Decree identified by an Arabic numeral or an upper or lower case letter.

“Parties” shall mean the United States and Settling Defendant.

“Past Response Costs” shall mean all costs, including, but not limited to, direct and indirect costs, that the United States paid at or in connection with the Site through December 31, 2011, plus Interest on all such costs that has accrued pursuant to 42 U.S.C. § 9607(a) through such date. Past Response Costs shall not include Interest on all such costs to the extent such Interest accrues between the Effective Date and the date EPA determines the amount of Past Response Costs to be paid by Settling Defendant pursuant to Paragraph 52.a.

“Performance Standards” shall mean the cleanup standards and other measures of achievement of the goals of the Remedial Action, set forth in Section IV of the ROD and Section II of the SOW and any modified standards established pursuant to this Consent Decree.

“Plaintiff” shall mean the United States.

“Proprietary Controls” shall mean restrictions, limitations, or other conditions established in accordance with Section 292.12 of the Wisconsin Statutes, as such statute exists as of the Effective Date.

“RCRA” shall mean the Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6992 (also known as the Resource Conservation and Recovery Act).

“Record of Decision” or “ROD” shall mean the EPA Record of Decision relating to the Operable Unit at the Site signed on March 31, 2008, by the Regional Administrator, EPA Region 5, or his/her delegate and all attachments thereto. The ROD is attached as Appendix A.

“Remedial Action” shall mean all activities Settling Defendant is required to perform under the Consent Decree to implement the ROD, in accordance with the SOW, the final approved remedial design, the approved Remedial Action Work Plan, and other plans approved by EPA, including implementation of Institutional Controls, until the Performance Standards are met, and excluding performance of the Remedial Design, O&M, and the activities required under Section XXV (Retention of Records).

“Remedial Action Work Plan” shall mean the document developed pursuant to Paragraph 11 (Remedial Action) and approved by EPA and any modifications thereto.

“Remedial Design” shall mean the final approved design produced by Settling Defendant pursuant to the Administrative Order between Settling Defendant and EPA to develop the final plans and specifications for the Remedial Action pursuant to the Remedial Design Work Plan.

“Remedial Design Work Plan” shall mean the finally approved work plan produced by Settling Defendant pursuant to the Administrative Order between Settling Defendant and EPA to develop the Remedial Design.

“Section” shall mean a portion of this Consent Decree identified by a Roman numeral.

“Settling Defendant” shall mean Mercury Marine, a division of Brunswick Corporation.

“Site” shall mean the Cedarville Dams (a/k/a Cedar Creek) Superfund Alternative Approach Site, encompassing 4.6 miles of Cedar Creek from just below the Ruck Pond dam until the confluence of Cedar Creek with the Milwaukee River and Mercury Marine’s former Plant 2 at 2526 St. John Avenue in Cedarburg, Ozaukee County, Wisconsin, and depicted generally on the map attached as Appendix C.

“State” shall mean the State of Wisconsin.

“Statement of Work” or “SOW” shall mean the statement of work for implementation of the Remedial Action for the Plant 2 Operable Unit, and O&M at the Site, as set forth in Appendix B to this Consent Decree and any modifications made in accordance with this Consent Decree.

“Supervising Contractor” shall mean the principal contractor retained by Settling Defendant to supervise and direct the implementation of the Work under this Consent Decree.



“Transfer” shall mean to sell, assign, convey, lease, mortgage, or grant a security interest in, or where used as a noun, a sale, assignment, conveyance, or other disposition of any interest by operation of law or otherwise.

“United States” shall mean the United States of America and each department, agency, and instrumentality of the United States, including EPA.

“Waste Material” shall mean (a) any “hazardous substance” under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (b) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); and (c) any “solid waste” under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27).

“WDNR” shall mean the Wisconsin Department of Natural Resources and any successor departments or agencies of the State.

“Work” shall mean all activities and obligations Settling Defendant is required to perform under this Consent Decree, except the activities required under Section XXV (Retention of Records).

## V. GENERAL PROVISIONS

5. Objectives of the Parties. The objectives of the Parties in entering into this Consent Decree are to protect public health or welfare or the environment by the design and implementation of response actions at the Site by Settling Defendant, to pay response costs of the Plaintiff, and to resolve the claims of Plaintiff against Settling Defendant as provided in this Consent Decree.

6. Commitments by Settling Defendant.

a. Settling Defendant shall finance and perform the Work in accordance with this Consent Decree, the ROD, the approved design, the SOW, and all work plans and other plans, standards, specifications, and schedules set forth in this Consent Decree or developed by Settling Defendant and approved by EPA pursuant to this Consent Decree. Settling Defendant shall pay the United States for Past Response Costs and Future Response Costs as provided in this Consent Decree.

7. Compliance With Applicable Law. All activities undertaken by Settling Defendant pursuant to this Consent Decree shall be performed in accordance with the requirements of all applicable federal and state laws and regulations. Settling Defendant must also comply with all applicable or relevant and appropriate requirements of all federal and state environmental laws as set forth in the ROD and the SOW. The activities conducted pursuant to this Consent Decree, if approved by EPA, shall be deemed to be consistent with the NCP.

8. Permits.

a. As provided in Section 121(e) of CERCLA, 42 U.S.C. § 9621(e), and Section 300.400(e) of the NCP, no permit shall be required for any portion of the Work conducted entirely on-site (i.e., within the areal extent of contamination or in very close proximity to the contamination and necessary for implementation of the Work). Where any portion of the Work that is not on-site requires a federal or state permit or approval, Settling Defendant shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals.



b. Settling Defendant may seek relief under the provisions of Section XVIII (Force Majeure) for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, any permit or approval referenced in Paragraph 8.a and required for the Work, provided that it has submitted timely and complete applications and taken all other actions necessary to obtain all such permits or approvals.

c. This Consent Decree is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

9. Notice to Successors-in-Title and Transfers of Real Property.

a. For any real property owned or controlled by Settling Defendant located at the Site, Settling Defendant shall, within 15 days after the Effective Date, submit to EPA for review and approval a proposed notice to be filed with the appropriate land records office that provides a description of the real property and provides notice to all successors-in-title that the real property is part of the Site, that EPA has selected a remedy for the Site, and that a potentially responsible party has entered into a Consent Decree requiring implementation of the remedy. The notice also shall describe the land use restrictions, if any, set forth in Paragraphs 25.b and 26.a(2) and shall identify the United States District Court in which the Consent Decree was filed, the name and civil action number of this case, and the date the Consent Decree was entered by the Court. Settling Defendant shall record the notice within ten days after EPA's approval of the notice. Settling Defendant shall provide EPA with a certified copy of the recorded notice within ten days after recording such notice.

b. Settling Defendant shall, at least 60 days prior to any Transfer of any real property located at the Site, give written notice (1) to the transferee regarding the Consent Decree and any Institutional Controls regarding the real property and (2) to EPA and the State regarding the proposed Transfer, including the name and address of the transferee and the date on which the transferee was notified of the Consent Decree and any Institutional Controls.

c. Settling Defendant may Transfer any real property located at the Site only if: (1) any Proprietary Controls required by Paragraph 25.c have been established with respect to the real property; or (2) Settling Defendant has obtained an agreement from the transferee, enforceable by Settling Defendant and the United States, to (i) allow access and restrict land/water use, pursuant to Paragraphs 26.a(1) and 26.a(2), (ii) establish any Proprietary Controls on the real property, pursuant to Paragraph 26.a(3), and (iii) subordinate its rights to any such Proprietary Controls, pursuant to Paragraph 26.a(3), and EPA has approved the agreement in writing. If, after a Transfer of the real property, the transferee fails to comply with the agreement provided for in this Paragraph 9.c, Settling Defendant shall take all reasonable steps to obtain the transferee's compliance with such agreement. The United States may seek the transferee's compliance with the agreement and/or assist Settling Defendant in obtaining compliance with the agreement. Settling Defendant shall reimburse the United States under Section XVI (Payments for Response Costs), for all costs incurred, direct or indirect, by the United States regarding obtaining compliance with such agreement, including, but not limited to, the cost of attorney time.

d. In the event of any Transfer of real property located at the Site, unless the United States otherwise consents in writing, Settling Defendant shall continue to comply with its obligations under the Consent Decree, including, but not limited to, its obligation to provide

and/or secure access, to implement, maintain, monitor, and report on Institutional Controls, and to abide by such Institutional Controls.

## VI. PERFORMANCE OF THE WORK BY SETTLING DEFENDANT

### 10. Selection of Supervising Contractor.

a. All aspects of the Work to be performed by Settling Defendant pursuant to Sections VI (Performance of the Work by Settling Defendant), VII (Remedy Review), VIII (Quality Assurance, Sampling, and Data Analysis), IX (Access and Institutional Controls), and XV (Emergency Response) shall be under the direction and supervision of the Supervising Contractor, the selection of which shall be subject to disapproval by EPA after a reasonable opportunity for review and comment by the State. Within ten days after the lodging of this Consent Decree, Settling Defendant shall notify EPA and the State in writing of the name, title, and qualifications of any contractor proposed to be the Supervising Contractor. With respect to any contractor proposed to be Supervising Contractor, Settling Defendant shall demonstrate that the proposed contractor has a quality assurance system that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), by submitting a copy of the proposed contractor's Quality Management Plan ("QMP"). The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001, reissued May 2006) or equivalent documentation as determined by EPA. EPA will issue a notice of disapproval or an authorization to proceed regarding hiring of the proposed contractor. If at any time thereafter, Settling Defendant proposes to change a Supervising Contractor, Settling Defendant shall give such notice to EPA and the State and must obtain an authorization to proceed from EPA, after a reasonable opportunity for review and comment by the State, before the new Supervising Contractor performs, directs, or supervises any Work under this Consent Decree.

b. If EPA disapproves a proposed Supervising Contractor, EPA will notify Settling Defendant in writing. Settling Defendant shall submit to EPA and the State a list of contractors, including the qualifications of each contractor that would be acceptable to them within 30 days after receipt of EPA's disapproval of the contractor previously proposed. EPA will provide written notice of the names of any contractor(s) that it disapproves and an authorization to proceed with respect to any of the other contractors. Settling Defendant may select any contractor from that list that is not disapproved and shall notify EPA and the State of the name of the contractor selected within 21 days after EPA's authorization to proceed.

c. If EPA fails to provide written notice of its authorization to proceed or disapproval as provided in this Paragraph and this failure prevents Settling Defendant from meeting one or more deadlines in a plan approved by EPA pursuant to this Consent Decree, Settling Defendant may seek relief under Section XVIII (Force Majeure).

### 11. Remedial Action.

a. Within 21 days after the lodging of this Consent Decree, Settling Defendant shall submit to EPA and the State a work plan for the performance of the Remedial Action at the Site ("Remedial Action Work Plan"). The Remedial Action Work Plan shall provide for construction and implementation of the remedy for the Plant 2 Operable Unit set

forth in the ROD and achievement of the Performance Standards, in accordance with this Consent Decree, the ROD, the SOW, and the design plans and specifications developed in accordance with the Remedial Design and approved by EPA. Upon its approval by EPA, the Remedial Action Work Plan shall be incorporated into and enforceable under this Consent Decree. At the same time as it submits the Remedial Action Work Plan, Settling Defendant shall submit to EPA and the State a Health and Safety Plan for field activities required by the Remedial Action Work Plan that conforms to the applicable Occupational Safety and Health Administration and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120.

b. The Remedial Action Work Plan shall include the following: (1) schedule for completion of the Remedial Action; (2) method for selection of the contractor; (3) schedule for developing and submitting other required Remedial Action plans; (4) groundwater monitoring plan; (5) methods for satisfying permitting requirements; (6) methodology for implementing the Operation and Maintenance Plan; (7) methodology for implementing the Contingency Plan; (8) tentative formulation of the Remedial Action team; (9) CQAP (by construction contractor); and (10) procedures and plans for the decontamination of equipment and the disposal of contaminated materials. The Remedial Action Work Plan also shall include the methodology for implementing the CQAP and a schedule for implementing all Remedial Action tasks identified in the final design submission and shall identify the initial formulation of Settling Defendant's Remedial Action project team (including, but not limited to, the Supervising Contractor).

c. Upon approval of the Remedial Action Work Plan by EPA, after a reasonable opportunity for review and comment by the State, Settling Defendant shall implement the activities required under the Remedial Action Work Plan. Settling Defendant shall submit to EPA and the State all reports and other deliverables required under the approved Remedial Action Work Plan in accordance with the approved schedule for review and approval pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables). Unless otherwise directed by EPA, Settling Defendant shall not commence physical Remedial Action activities at the Site prior to approval of the Remedial Action Work Plan and the Effective Date of this Consent Decree.

12. Settling Defendant shall continue to implement the Remedial Action until the Performance Standards are achieved. Settling Defendant shall implement O&M for so long thereafter as is required by this Consent Decree.

13. Modification of SOW or Related Work Plans.

a. If EPA determines that it is necessary to modify the work specified in the SOW and/or in work plans developed pursuant to the SOW to achieve and maintain the Performance Standards or to carry out and maintain the effectiveness of the remedy set forth in the ROD, and such modification is consistent with the scope of the remedy set forth in the ROD, then EPA may issue such modification in writing and shall notify Settling Defendant of such modification. For the purposes of this and Paragraph 49 (Completion of the Work) only, the "scope of the remedy set forth in the ROD" is the removal and proper disposal of PCB and VOC contaminated soils from around and under the Plant 2 foundation and the installation and sampling of groundwater wells as specified in the Plant 2 Operable Unit ROD and SOW. If Settling Defendant objects to the modification, it may, within 30 days after EPA's notification, seek dispute resolution under Paragraph 67 (Record Review).

b. The SOW and/or related work plans shall be modified: (1) in accordance with the modification issued by EPA; or (2) if Settling Defendant invokes dispute resolution, in accordance with the final resolution of the dispute. The modification shall be incorporated into and enforceable under this Consent Decree, and Settling Defendant shall implement all work required by such modification. Settling Defendant shall incorporate the modification into the Remedial Design Work Plan or Remedial Action Work Plan under Paragraph 11 (Remedial Action), as appropriate.

c. Nothing in this Paragraph shall be construed to limit EPA's authority to require performance of further response actions as otherwise provided in this Consent Decree.

14. Nothing in this Consent Decree, the SOW, the Remedial Design Work Plan or Remedial Action Work Plan constitutes a warranty or representation of any kind by Plaintiff that compliance with the work requirements set forth in the SOW and the work plans will achieve the Performance Standards.

15. Off-Site Shipment of Waste Material.

a. Settling Defendant may ship Waste Material from the Site to an off-site facility only if it verifies, prior to any shipment, that the off-site facility is operating in compliance with the requirements of Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440, by obtaining a determination from EPA that the proposed receiving facility is operating in compliance with 42 U.S.C. § 9621(d)(3) and 40 C.F.R. § 300.440.

b. Settling Defendant may ship Waste Material from the Site to an out-of-state waste management facility only if, prior to any shipment, it provides written notice to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator. This notice requirement shall not apply to any off-site shipments when the total quantity of all such shipments will not exceed ten cubic yards. The written notice shall include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Settling Defendant also shall notify the state environmental official referenced above and the EPA Project Coordinator of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. Settling Defendant shall provide the written notice after the award of the contract for Remedial Action construction and before the Waste Material is shipped.

## VII. REMEDY REVIEW

16. Periodic Review. Settling Defendant shall conduct any studies and investigations that EPA requests in order to permit EPA to conduct reviews of whether the Remedial Action is protective of human health and the environment at least every five years as required by Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations.

17. EPA Selection of Further Response Actions. If EPA determines, at any time, that the Remedial Action is not protective of human health and the environment, EPA may select further response actions for the Site in accordance with the requirements of CERCLA and the NCP.

18. Opportunity to Comment. Settling Defendant and, if required by Section 113(k)(2) or 117 of CERCLA, 42 U.S.C. § 9613(k)(2) or 9617, the public, will be provided with an opportunity to comment on any further response actions proposed by EPA as a

result of the review conducted pursuant to Section 121(c) of CERCLA and to submit written comments for the record during the comment period.

19. Settling Defendant's Obligation to Perform Further Response Actions. If EPA selects further response actions relating to OU1, EPA may require Settling Defendant to perform such further response actions, but only to the extent that EPA's determination that the selected Remedial Action is not protective of human health and the environment. Disputes pertaining to whether the Remedial Action is protective or to EPA's selection of further response actions shall be resolved pursuant to Paragraph 67 (Record Review).

20. Submission of Plans. If Settling Defendant is required to perform further response actions pursuant to Paragraph 19, it shall submit a plan for such response action to EPA for approval in accordance with the procedures of Section VI (Performance of the Work by Settling Defendant). Settling Defendant shall implement the approved plan in accordance with this Consent Decree.

#### VIII. QUALITY ASSURANCE, SAMPLING, AND DATA ANALYSIS

21. Quality Assurance.

a. Settling Defendant shall use quality assurance, quality control, and chain of custody procedures for all compliance, and monitoring samples in accordance with "EPA Requirements for Quality Assurance Project Plans (QA/R5)" (EPA/240/B-01/003, March 2001, reissued May 2006), "Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/240/R-02/009, December 2002), and subsequent amendments to such guidelines upon notification by EPA to Settling Defendant of such amendment. Amended guidelines shall apply only to procedures conducted after such notification.

b. Prior to the commencement of any monitoring project under this Consent Decree, Settling Defendant shall submit to EPA for approval, after a reasonable opportunity for review and comment by the State, a Quality Assurance Project Plan ("QAPP") that is consistent with the SOW, the NCP, and applicable guidance documents. If relevant to the proceeding, the Parties agree that validated sampling data generated in accordance with the QAPP(s) and reviewed and approved by EPA shall be admissible as evidence, without objection, in any proceeding under this Consent Decree. Settling Defendant shall ensure that EPA and State personnel and their authorized representatives are allowed access at reasonable times to all laboratories utilized by Settling Defendant in implementing this Consent Decree. In addition, Settling Defendant shall ensure that such laboratories shall analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring. Settling Defendant shall ensure that the laboratories it uses for the analysis of samples taken pursuant to this Consent Decree perform all analyses according to accepted EPA methods. Accepted EPA methods consist of those methods that are documented in the "USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, ILM05.4," and the "USEPA Contract Laboratory Program Statement of Work for Organic Analysis, SOM01.2," and any amendments made thereto during the course of the implementation of this Consent Decree; however, upon approval by EPA, after opportunity for review and comment by the State, Settling Defendant may use other analytical methods that are as stringent as or more stringent than the CLP-approved methods. Settling Defendant shall ensure that all laboratories they use for analysis of samples taken pursuant to this Consent Decree participate in an EPA or EPA-equivalent quality assurance/quality control ("QA/QC") program. Settling Defendant shall use only laboratories that have a documented



Quality System that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), and "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001, reissued May 2006) or equivalent documentation as determined by EPA. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program ("NELAP") as meeting the Quality System requirements. Settling Defendant shall ensure that all field methodologies utilized in collecting samples for subsequent analysis pursuant to this Consent Decree are conducted in accordance with the procedures set forth in the QAPP approved by EPA.

22. Upon request, Settling Defendant shall allow split or duplicate samples to be taken by EPA or its authorized representatives. Settling Defendant shall notify EPA not less than 28 days in advance of any sample collection activity unless shorter notice is agreed to by EPA. In addition, EPA shall have the right to take any additional samples that it deems necessary. Upon request, EPA shall allow Settling Defendant to take split or duplicate samples of any samples it takes as part of Plaintiff's oversight of Settling Defendant's implementation of the Work.

23. Settling Defendant shall submit to EPA and the State two copies of the results of all sampling and/or tests or other data obtained or generated by or on behalf of Settling Defendant with respect to the Site and/or the implementation of this Consent Decree unless EPA agrees otherwise.

24. Notwithstanding any provision of this Consent Decree, the United States retains all of its information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

#### IX. ACCESS AND INSTITUTIONAL CONTROLS

25. If the Site, or any other real property where access or land/water use restrictions are needed, is owned or controlled by Settling Defendant:

a. Settling Defendant shall, commencing on the date of lodging of the Consent Decree, provide the United States, the State, and their representatives, contractors, and subcontractors, with access at all reasonable times to the Site, or such other real property, to conduct any activity regarding the Consent Decree including, but not limited to, the following activities:

- (1) monitoring the Work;
- (2) verifying any data or information submitted to the United States or the State;
- (3) conducting investigations regarding contamination at or near the Site;
- (4) obtaining samples;
- (5) assessing the need for, planning, or implementing additional response actions at or near the Site;
- (6) assessing implementation of quality assurance and quality control practices as defined in the approved CQAP;

(7) implementing the Work pursuant to the conditions set forth in Paragraph 84 (Work Takeover);

(8) inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Settling Defendant or its agents, consistent with Section XXIV (Access to Information);

(9) assessing Settling Defendant's compliance with the Consent Decree;

(10) determining whether the Site or other real property is being used in a manner that is prohibited or restricted, or that may need to be prohibited or restricted under the Consent Decree; and

(11) implementing, monitoring, maintaining, reporting on, and enforcing any Institutional Controls and the requirements of the ICIAP.

b. Commencing on the date of lodging of the Consent Decree, Settling Defendant shall not use the Site, or such other real property, in any manner that EPA determines will pose an unacceptable risk to human health or to the environment due to exposure to Waste Material or interfere with or adversely affect the implementation, integrity, or protectiveness of the Remedial Action. The restrictions shall include, but not be limited to, unauthorized excavation at the Plant 2 site and use of the groundwater.

c. Settling Defendant shall:

(1) Establish Proprietary Controls that: (i) grant a right of access to conduct any activity regarding the Consent Decree including, but not limited to, those activities listed in Paragraph a, and (ii) grant the right to enforce the land/water use restrictions set forth in Paragraph b, including, but not limited to, the specific restrictions listed therein and any land/water use restrictions listed in the ICIAP, as further specified in this Paragraph c. The Proprietary Controls shall be granted to one or more of the following persons, as determined by EPA: (i) the United States, on behalf of EPA, and its representatives, (ii) the State and its representatives, and/or (iii) the City of Cedarburg. The Proprietary Controls, other than those granted to the United States, shall include a designation that EPA (and/or the State as appropriate) is a "third-party beneficiary," allowing EPA to maintain the right to enforce the Proprietary Controls without acquiring an interest in real property.

(2) In accordance with the schedule set forth in the ICIAP, Settling Defendant shall submit to EPA for review and approval regarding such real property: (i) draft Proprietary Controls that are enforceable under state law; and (ii) a current title insurance commitment or other evidence of title acceptable to EPA, that shows title to the land affected by the Proprietary Controls to be free and clear of all prior liens and encumbrances (except when EPA waives the release or subordination of such prior liens or encumbrances or when, despite best efforts, Settling Defendant is unable to obtain release or subordination of such prior liens or encumbrances).

(3) Within 15 days after EPA's approval and acceptance of the Proprietary Controls and the title evidence, update the title search and, if it is determined that nothing has occurred since the effective date of the commitment, or other title evidence, to affect the title adversely, establish the Proprietary Controls in accordance



with Section 292.12 of the Wisconsin Statutes, as such statute exists as of the Effective Date. Within 30 days after the establishment of the Proprietary Controls, Settling Defendant shall provide EPA with a final title insurance policy, or other final evidence of title acceptable to EPA. If the Proprietary Controls are to be conveyed to the United States, the Proprietary Controls and title evidence (including final title evidence) shall be prepared in accordance with the U.S. Department of Justice Title Standards 2001, and approval of the sufficiency of title shall be obtained as required by 40 U.S.C. § 3111.

26. If the Site, or any other real property where access and/or land/water use restrictions are needed, is owned or controlled by persons other than Settling Defendant:

a. Settling Defendant shall use best efforts to secure from such persons:

(1) an agreement to provide access thereto for the United States, the State, and their representatives, contractors, and subcontractors, to conduct any activity regarding the Consent Decree including, but not limited to, the activities listed in Paragraph 25.a;

(2) an agreement, enforceable by Settling Defendant and the United States, to refrain from using the Site, or such other real property, in any manner that EPA determines will pose an unacceptable risk to human health or to the environment due to exposure to Waste Material or interfere with or adversely affect the implementation, integrity, or protectiveness of the Remedial Action. The agreement shall include, but not be limited to, the land/water use restrictions listed in Paragraph 25.b; and

(3) the establishment of Proprietary Controls, that (i) grant a right of access to conduct any activity regarding the Consent Decree including, but not limited to, those activities listed in Paragraph 25.a, and (ii) grant the right to enforce the land/water use restrictions set forth in Paragraph 25.b, including, but not limited to, the specific restrictions listed therein and any land/water use restrictions listed in the ICIAP. The Proprietary Controls shall be granted to one or more of the following persons, as determined by EPA: (i) the United States, on behalf of EPA, and its representatives, (ii) the State and its representatives, and/or (iii) the City of Cedarburg. The Proprietary Controls, other than those granted to the United States, shall include a designation that EPA is a third party beneficiary, allowing EPA to maintain the right to enforce the Proprietary Controls without acquiring an interest in real property.

b. In accordance with the schedule set forth in the ICIAP, Settling Defendant shall submit to EPA for review and approval regarding such property: (i) draft Proprietary Controls that are enforceable under state law; and (ii) a current title insurance commitment, or other evidence of title acceptable to EPA, that shows title to the land affected by the Proprietary Controls to be free and clear of all prior liens and encumbrances (except when EPA waives the release or subordination of such prior liens or encumbrances or when, despite best efforts, Settling Defendant is unable to obtain release or subordination of such prior liens or encumbrances).

c. Within 15 days of EPA's approval and acceptance of the Proprietary Controls and the title evidence, Settling Defendant shall update the title search and, if it is

determined that nothing has occurred since the effective date of the commitment, or other title evidence, to affect the title adversely, shall establish the Proprietary Controls in accordance with Section 292.12 of the Wisconsin Statutes, as such statute exists as of the Effective Date. Within 30 days after the establishment of the Proprietary Controls, Settling Defendant shall provide EPA with a final title insurance policy, or other final evidence of title acceptable to EPA. If the Proprietary Controls are to be conveyed to the United States, the Proprietary Controls and title evidence (including final title evidence) shall be prepared in accordance with the U.S. Department of Justice Title Standards 2001, and approval of the sufficiency of title shall be obtained as required by 40 U.S.C. § 3111.

27. For purposes of Paragraphs 25.c and 26.a and 26.b, “best efforts” includes the payment of reasonable sums of money to obtain access, an agreement to restrict land/water use, Proprietary Controls, and/or an agreement to release or subordinate a prior lien or encumbrance. If, within 90 days after EPA’s approval of the ICIAP, Settling Defendant has not (a) obtained agreements to provide access, restrict land/water use, or establish Proprietary Controls, as required by Paragraph 26.a(1), 26.a(2), or 26.a(3); or (b) obtained, pursuant to Paragraph 25.c(2) or 26.b, agreements from the holders of prior liens or encumbrances to release or subordinate such liens or encumbrances to the Proprietary Controls, Settling Defendant shall promptly notify the United States, in writing, and shall include in that notification a summary of the steps that Settling Defendant has taken to attempt to comply with Paragraph 25 or 26. The United States may, as it deems appropriate, assist Settling Defendant in obtaining access, agreements to restrict land/water use, Proprietary Controls, or the release or subordination of a prior lien or encumbrance. Settling Defendant shall reimburse the United States under Section XVI (Payments for Response Costs) for all costs incurred, direct or indirect, by the United States in obtaining such access, agreements to restrict land/water use, Proprietary Controls, and/or the release/subordination of prior liens or encumbrances including, but not limited to, the cost of attorney time and the amount of monetary consideration paid or just compensation.

28. If EPA determines that Institutional Controls in the form of state or local laws, regulations, ordinances, zoning restrictions, or other governmental controls are needed at or in connection with the Site, Settling Defendant shall cooperate with EPA’s efforts to secure and ensure compliance with such governmental controls.

29. Notwithstanding any provision of the Consent Decree, the United States and the State retain all of their access authorities and rights, as well as all of their rights to require Institutional Controls, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statute or regulations.

#### X. REPORTING REQUIREMENTS

30. In addition to any other requirement of this Consent Decree, Settling Defendant shall submit to EPA and the State two copies each of written monthly progress reports that: (a) describe the actions that have been taken toward achieving compliance with this Consent Decree during the previous month; (b) include a summary of all results of sampling and tests and all other data received or generated by Settling Defendant or its contractors or agents in the previous month; (c) identify all plans, reports, and other deliverables required by this Consent Decree completed and submitted during the previous month; (d) describe all actions, including, but not limited to, data collection and implementation of work plans, that are scheduled for the next six weeks and provide other information relating to the progress of construction, including,

but not limited to, critical path diagrams, Gantt charts and Pert charts; (e) include information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays; (f) include any modifications to the work plans or other schedules that Settling Defendant has proposed to EPA or that have been approved by EPA; and (g) describe all activities undertaken in support of the Community Involvement Plan during the previous month and those to be undertaken in the next six weeks. Settling Defendant shall submit these progress reports to EPA and the State by the tenth day of every month following the lodging of this Consent Decree until EPA notifies Settling Defendant pursuant to Paragraph 49.b of Section XIV (Certification of Completion). If requested by EPA, Settling Defendant shall also provide briefings for EPA to discuss the progress of the Work.

31. Settling Defendant shall notify EPA of any change in the schedule described in the monthly progress report for the performance of any activity, including, but not limited to, data collection and implementation of work plans, no later than seven days prior to the performance of the activity.

32. Upon the occurrence of any event during performance of the Work that Settling Defendant is required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-Know Act (“EPCRA”), 42 U.S.C. § 11004, Settling Defendant shall within 24 hours of the onset of such event orally notify the EPA Project Coordinator or the Alternate EPA Project Coordinator (in the event of the unavailability of the EPA Project Coordinator), or, in the event that neither the EPA Project Coordinator nor Alternate EPA Project Coordinator is available, the Emergency Response Section, Region 5, United States Environmental Protection Agency. These reporting requirements are in addition to the reporting required by CERCLA Section 103 or EPCRA Section 304.

33. Within 20 days after the onset of such an event, Settling Defendant shall furnish to EPA and the State a written report, signed by Settling Defendant’s Project Coordinator, setting forth the events that occurred and the measures taken, and to be taken, in response thereto. Within 30 days after the conclusion of such an event, Settling Defendant shall submit a report setting forth all actions taken in response thereto.

34. Settling Defendant shall submit two copies of all plans, reports, data, and other deliverables required by the SOW, the Remedial Design Work Plan, the Remedial Action Work Plan, or any other approved plans to EPA in accordance with the schedules set forth in such plans. Settling Defendant shall simultaneously submit two copies of all such plans, reports, data, and other deliverables to the State. Upon request by EPA, Settling Defendant shall submit in electronic form all or any portion of any deliverables Settling Defendant is required to submit pursuant to the provisions of this Consent Decree.

35. All deliverables submitted by Settling Defendant to EPA that purport to document Settling Defendant’s compliance with the terms of this Consent Decree shall be signed by an authorized representative of Settling Defendant.

## XI. EPA APPROVAL OF PLANS, REPORTS, AND OTHER DELIVERABLES

### 36. Initial Submissions.

a. After review of any plan, report, or other deliverable that is required to be submitted for approval pursuant to this Consent Decree, EPA, after reasonable opportunity for review and comment by the State, shall: (1) approve, in whole or in part, the submission; (2) approve the submission upon specified conditions; (3) disapprove, in whole or in part, the submission; or (4) any combination of the foregoing.

b. EPA also may modify the initial submission to cure deficiencies in the submission if (1) EPA determines that disapproving the submission and awaiting a resubmission would cause substantial disruption to the Work or (2) previous submission(s) have been disapproved due to material defects and the deficiencies in the initial submission under consideration indicate a bad faith lack of effort to submit an acceptable plan, report, or deliverable.

37. Resubmissions. Upon receipt of a notice of disapproval under Paragraph 36.a(3) or (4), or if required by a notice of approval upon specified conditions under Paragraph 36.a(2), Settling Defendant shall, within 20 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the plan, report, or other deliverable for approval. After review of the resubmitted plan, report, or other deliverable, EPA may: (a) approve, in whole or in part, the resubmission; (b) approve the resubmission upon specified conditions; (c) modify the resubmission; (d) disapprove, in whole or in part, the resubmission, requiring Settling Defendant to correct the deficiencies; or (e) any combination of the foregoing.

38. Material Defects. If an initially submitted or resubmitted plan, report, or other deliverable contains a material defect, and the plan, report, or other deliverable is disapproved or modified by EPA under Paragraph 36.b(2) or 37 due to such material defect, then the material defect shall constitute a lack of compliance for purposes of Paragraph 70. The provisions of Section XIX (Dispute Resolution) and Section XX (Stipulated Penalties) shall govern the accrual and payment of any stipulated penalties regarding Settling Defendant's submissions under this Section.

39. Implementation. Upon approval, approval upon conditions, or modification by EPA under Paragraph 36 (Initial Submissions) or Paragraph 37 (Resubmissions), of any plan, report, or other deliverable, or any portion thereof: (a) such plan, report, or other deliverable, or portion thereof, shall be incorporated into and enforceable under this Consent Decree; and (b) Settling Defendant shall take any action required by such plan, report, or other deliverable, or portion thereof, subject only to their right to invoke the Dispute Resolution procedures set forth in Section XIX (Dispute Resolution) with respect to the modifications or conditions made by EPA. The implementation of any non-deficient portion of a plan, report, or other deliverable submitted or resubmitted under Paragraph 36 or 37 shall not relieve Settling Defendant of any liability for stipulated penalties under Section XX (Stipulated Penalties).

## XII. PROJECT COORDINATORS

40. Within 20 days after lodging this Consent Decree, Settling Defendant and EPA will notify each other, in writing, of the name, address, telephone number, and email address of their respective designated Project Coordinators and Alternate Project Coordinators. If a Project Coordinator or Alternate Project Coordinator initially designated is changed, the identity of the

successor will be given to the other Parties at least five working days before the change occurs, unless impracticable, but in no event later than the actual day the change is made. Settling Defendant's Project Coordinator shall be subject to disapproval by EPA and shall have the technical expertise sufficient to adequately oversee all aspects of the Work. Settling Defendant's Project Coordinator shall not be an attorney for the Settling Defendant in this matter. He or she may assign other representatives, including other contractors, to serve as a Site representative for oversight of performance of daily operations during remedial activities.

41. Plaintiff may designate other representatives, including, but not limited to, EPA and State employees, and federal and State contractors and consultants, to observe and monitor the progress of any activity undertaken pursuant to this Consent Decree. EPA's Project Coordinator and Alternate Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager ("RPM") and an On-Scene Coordinator ("OSC") by the NCP, 40 C.F.R. Part 300. EPA's Project Coordinator or Alternate Project Coordinator shall have authority, consistent with the NCP, to halt any Work required by this Consent Decree and to take any necessary response action when he or she determines that conditions at the Site constitute an emergency situation or may present an immediate threat to public health or welfare or the environment due to release or threatened release of Waste Material.

42. EPA's Project Coordinator and Settling Defendant's Project Coordinator will meet, at a minimum, on a monthly basis.

### XIII. PERFORMANCE GUARANTEE

43. In order to ensure the full and final completion of the Work, Settling Defendant shall establish and maintain a performance guarantee, initially in the amount of \$3 million, for the benefit of EPA (hereinafter "Estimated Cost of the Work"). The performance guarantee, which must be satisfactory in form and substance to EPA, shall be in the form of one or more of the following mechanisms (provided that, if Settling Defendant intends to use multiple mechanisms, such multiple mechanisms shall be limited to surety bonds guaranteeing payment, letters of credit, trust funds, and insurance policies):

a. A surety bond unconditionally guaranteeing payment and/or performance of the Work that is issued by a surety company among those listed as acceptable sureties on federal bonds as set forth in Circular 570 of the U.S. Department of the Treasury;

b. One or more irrevocable letters of credit, payable to or at the direction of EPA, that is issued by one or more financial institution(s) (1) that has the authority to issue letters of credit and (2) whose letter-of-credit operations are regulated and examined by a federal or state agency;

c. A trust fund established for the benefit of EPA that is administered by a trustee (1) that has the authority to act as a trustee and (2) whose trust operations are regulated and examined by a federal or state agency; and

d. A policy of insurance that (1) provides EPA with acceptable rights as a beneficiary thereof; and (2) is issued by an insurance carrier (i) that has the authority to issue insurance policies in the applicable jurisdiction(s) and (ii) whose insurance operations are regulated and examined by a federal or state agency.

44. Settling Defendant has selected, and EPA has found satisfactory, as an initial performance guarantee the surety bond pursuant to Paragraph 43.a, in the form attached hereto as



Appendix D. Within ten days after the Effective Date, Settling Defendant shall execute or otherwise finalize all instruments or other documents required in order to make the selected performance guarantee legally binding in a form substantially identical to the documents attached hereto as Appendix D, and such performance guarantee(s) shall thereupon be fully effective.

45. Within 30 days after the Effective Date, Settling Defendant shall submit copies of all executed and/or otherwise finalized instruments or other documents required in order to make the selected performance guarantee(s) legally binding to the EPA Regional Financial Management Officer in accordance with Section XXVI (Notices and Submissions), with a copy to the United States and EPA as specified in Section XXVI.

46. In the event that EPA determines at any time that a performance guarantee provided by Settling Defendant pursuant to this Section is inadequate or otherwise no longer satisfies the requirements set forth in this Section, whether due to an increase in the estimated cost of completing the Work or for any other reason, or in the event that Settling Defendant becomes aware of information indicating that a performance guarantee provided pursuant to this Section is inadequate or otherwise no longer satisfies the requirements set forth in this Section, whether due to an increase in the estimated cost of completing the Work or for any other reason, Settling Defendant, within 30 days after receipt of notice of EPA's determination or, as the case may be, within 30 days after Settling Defendant becoming aware of such information, shall obtain and present to EPA for approval a proposal for a revised or alternative form of performance guarantee listed in Paragraph 43 that satisfies all requirements set forth in this Section XIII; provided, however, that if Settling Defendant cannot obtain such revised or alternative form of performance guarantee within such 30-day period, and provided further that Settling Defendant shall have commenced to obtain such revised or alternative form of performance guarantee within such 30-day period, and thereafter diligently proceeds to obtain the same, EPA shall extend such period for such time as is reasonably necessary for Settling Defendant in the exercise of due diligence to obtain such revised or alternative form of performance guarantee, such additional period not to exceed 60 days. On day 30, Settling Defendant shall provide to EPA a status report on its efforts to obtain the revised or alternative form of guarantee. In seeking approval for a revised or alternative form of performance guarantee, Settling Defendant shall follow the procedures set forth in Paragraph 48.b(2). Settling Defendant's inability to post a performance guarantee for completion of the Work shall in no way excuse performance of any other requirements of this Consent Decree, including, without limitation, the obligation of Settling Defendant to complete the Work in strict accordance with the terms of this Consent Decree.

47. Funding for Work Takeover. The commencement of any Work Takeover pursuant to Paragraph 84 shall trigger EPA's right to receive the benefit of any performance guarantee(s) provided pursuant to Paragraphs 43.a, 43.b, 43.c, or 43.d and at such time EPA shall have immediate access to resources guaranteed under any such performance guarantee(s), whether in cash or in kind, as needed to continue and complete the Work assumed by EPA under the Work Takeover. Upon the commencement of any Work Takeover, if for any reason EPA is unable to promptly secure the resources guaranteed under any such performance guarantee(s), whether in cash or in kind, necessary to continue and complete the Work assumed by EPA under the Work Takeover, Settling Defendant shall immediately upon written demand from EPA deposit into a special account within the EPA Hazardous Substance Superfund or such other

account as EPA may specify, in immediately available funds and without setoff, counterclaim, or condition of any kind, a cash amount up to but not exceeding the estimated cost of completing the Work as of such date, as determined by EPA. In addition, if at any time EPA is notified by the issuer of a performance guarantee that such issuer intends to cancel the performance guarantee mechanism it has issued, then, unless Settling Defendant provides a substitute performance guarantee mechanism in accordance with this Section XIII no later than 30 days prior to the impending cancellation date, EPA shall be entitled (as of and after the date that is 30 days prior to the impending cancellation) to draw fully on the funds guaranteed under the then-existing performance guarantee. All EPA Work Takeover costs not reimbursed under this Paragraph shall be reimbursed under Section XVI (Payments for Response Costs).

48. Modification of Amount and/or Form of Performance Guarantee.

a. Reduction of Amount of Performance Guarantee. If Settling Defendant believes that the estimated cost of completing the Work has diminished below the amount set forth in Paragraph 43, Settling Defendant may, on any anniversary of the Effective Date, or at any other time prior to the completion of the Work, petition EPA in writing to request a reduction in the amount of the performance guarantee provided pursuant to this Section so that the amount of the performance guarantee is equal to the estimated cost of completing the Work. Settling Defendant shall submit a written proposal for such reduction to EPA that shall specify, at a minimum, the estimated cost of completing the Work and the basis upon which such cost was calculated. In seeking approval for a reduction in the amount of the performance guarantee, Settling Defendant shall follow the procedures set forth in Paragraph 48.b(2) for requesting a revised or alternative form of performance guarantee, except as specifically provided in this Paragraph 48.a. If EPA decides to accept Settling Defendant's proposal for a reduction in the amount of the performance guarantee, either to the amount set forth in Settling Defendant's written proposal or to some other amount as selected by EPA, EPA will notify the petitioning Settling Defendant of such decision in writing. Upon EPA's acceptance of a reduction in the amount of the performance guarantee, the Estimated Cost of the Work shall be deemed to be the estimated cost of completing the Work set forth in EPA's written decision. After receiving EPA's written decision, Settling Defendant may reduce the amount of the performance guarantee in accordance with and to the extent permitted by such written acceptance and shall submit copies of all executed and/or otherwise finalized instruments or other documents required in order to make the selected performance guarantee(s) legally binding in accordance with Paragraph 48.b(2). In the event of a dispute, Settling Defendant may reduce the amount of the performance guarantee required hereunder only in accordance with a final administrative or judicial decision resolving such dispute pursuant to Section XIX (Dispute Resolution). No change to the form or terms of any performance guarantee provided under this Section, other than a reduction in amount, is authorized except as provided in Paragraph 46 or 48.b.

b. Change of Form of Performance Guarantee.

(1) If, after the Effective Date, Settling Defendant desires to change the form or terms of any performance guarantee(s) provided pursuant to this Section, Settling Defendant may, on any anniversary of the Effective Date, or at any other time agreed to by the Parties, petition EPA in writing to request a change in the form or terms of the performance guarantee provided hereunder. The submission of such proposed revised or alternative performance guarantee shall be as provided in Paragraph 48.b(2). Any decision made by EPA on a petition submitted under this Paragraph shall be made



in EPA's sole and unreviewable discretion, and such decision shall not be subject to challenge by Settling Defendant pursuant to the dispute resolution provisions of this Consent Decree or in any other forum.

(2) Settling Defendant shall submit a written proposal for a revised or alternative performance guarantee to EPA that shall specify, at a minimum, the estimated cost of completing the Work, the basis upon which such cost was calculated, and the proposed revised performance guarantee, including all proposed instruments or other documents required in order to make the proposed performance guarantee legally binding. The proposed revised or alternative performance guarantee must satisfy all requirements set forth or incorporated by reference in this Section. Settling Defendant shall submit such proposed revised or alternative performance guarantee to the EPA Regional Financial Management Officer in accordance with Section XXVI (Notices and Submissions). EPA will notify Settling Defendant in writing of its decision to accept or reject a revised or alternative performance guarantee submitted pursuant to this Paragraph. Within ten days after receiving a written decision approving the proposed revised or alternative performance guarantee, Settling Defendant shall execute and/or otherwise finalize all instruments or other documents required in order to make the selected performance guarantee(s) legally binding in a form substantially identical to the documents submitted to EPA as part of the proposal, and such performance guarantee(s) shall thereupon be fully effective. Settling Defendant shall submit copies of all executed and/or otherwise finalized instruments or other documents required in order to make the selected performance guarantee(s) legally binding to the EPA Regional Financial Management Officer within 30 days after receiving a written decision approving the proposed revised or alternative performance guarantee in accordance with Section XXVI (Notices and Submissions) and to the United States and EPA as specified in Section XXVI.

c. Release of Performance Guarantee. Settling Defendant shall not release, cancel, or discontinue any performance guarantee provided pursuant to this Section except as provided in this Paragraph. If Settling Defendant receives written notice from EPA in accordance with Paragraph 49 that the Work has been fully and finally completed in accordance with the terms of this Consent Decree, or if EPA otherwise so notifies Settling Defendant in writing, Settling Defendant may thereafter release, cancel, or discontinue the performance guarantee(s) provided pursuant to this Section. In the event of a dispute, Settling Defendant may release, cancel, or discontinue the performance guarantee(s) required hereunder only in accordance with a final administrative or judicial decision resolving such dispute pursuant to Section XIX (Dispute Resolution).

#### XIV. CERTIFICATION OF COMPLETION

##### 49. Completion of the Work.

a. Within 90 days after Settling Defendant concludes that all phases of the Work, other than any remaining activities required under Section VII (Remedy Review), have been fully performed, Settling Defendant shall schedule and conduct a pre-certification inspection to be attended by Settling Defendant and EPA. If, after the pre-certification inspection, Settling Defendant still believes that the Work has been fully performed, Settling Defendant shall submit a written report by a registered professional engineer stating that the

Work has been completed in full satisfaction of the requirements of this Consent Decree. The report shall contain the following statement, signed by a responsible corporate official of Settling Defendant or Settling Defendant's Project Coordinator:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If, after review of the written report, EPA, after reasonable opportunity for review and comment by the State, determines that any portion of the Work has not been completed in accordance with this Consent Decree, EPA will notify Settling Defendant in writing of the activities that must be undertaken by Settling Defendant pursuant to this Consent Decree to complete the Work, provided, however, that EPA may only require Settling Defendant to perform such activities pursuant to this Paragraph to the extent that such activities are consistent with the "scope of the remedy set forth in the ROD," as that term is defined in Paragraph 13.a. EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW or require Settling Defendant to submit a schedule to EPA for approval pursuant to Section XI (EPA Approval of Plans, Reports, and Other Deliverables). Settling Defendant shall perform all activities described in the notice in accordance with the specifications and schedules established therein, subject to their right to invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution).

b. If EPA concludes, based on the initial or any subsequent request for Certification of Completion of the Work by Settling Defendant and after a reasonable opportunity for review and comment by the State, that the Work has been performed in accordance with this Consent Decree, EPA will so notify Settling Defendant in writing.

## XV. EMERGENCY RESPONSE

50. If any action or occurrence during the performance of the Work that causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Settling Defendant shall, subject to Paragraph 51, immediately take all appropriate action to prevent, abate, or minimize such release or threat of release, and shall immediately notify the EPA's Project Coordinator, or, if the Project Coordinator is unavailable, EPA's Alternate Project Coordinator. If neither of these persons is available, Settling Defendant shall notify the EPA Emergency Response Center, Region 5. Settling Defendant shall take such actions in consultation with EPA's Project Coordinator or other available authorized EPA officer and in accordance with all applicable provisions of the Health and Safety Plans, the Contingency Plans, and any other applicable plans or documents developed pursuant to the SOW. In the event that Settling Defendant fails to take appropriate response action as required by this Section, and EPA or, as appropriate, the State takes such action instead, Settling Defendant shall reimburse EPA and the State all costs of the response action under Section XVI (Payments for Response Costs).

51. Subject to Section XXI (Covenants by Plaintiffs), nothing in the preceding Paragraph or in this Consent Decree shall be deemed to limit any authority of the United States (a) to take all appropriate action to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site, or (b) to direct or order such action, or seek an order from the Court, to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site.

#### XVI. PAYMENTS FOR RESPONSE COSTS

52. Payment by Settling Defendant for Past Response Costs.

a. Settling Defendant shall pay to EPA all Past Response Costs not inconsistent with the NCP. Settling Defendant shall make all payments within 30 days after Settling Defendant's receipt of EPA's bill requiring payment, except as otherwise provided in Paragraph 55, in accordance with Paragraphs 54.a (Instructions for Past Response Cost Payments).

b. The total amount to be paid by Settling Defendant pursuant to Paragraph 52.a shall be deposited by EPA in the Cedarville Dams (Cedar Creek) Special Account to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

53. Payments by Settling Defendant for Future Response Costs.

a. Settling Defendant shall pay to EPA all Future Response Costs not inconsistent with the NCP. On a periodic basis, EPA will send Settling Defendant a bill requiring payment that includes a Regional Cost Summary (ICIS), which includes direct and indirect costs incurred by EPA and its contractors, and a DOJ case cost summary. Settling Defendant shall make all payments within 30 days after Settling Defendant's receipt of each bill requiring payment, except as otherwise provided in Paragraph 55, in accordance with Paragraph 54.b (Instructions for Future Response Cost Payments).

b. The total amount to be paid by Settling Defendant pursuant to Paragraph 53.a shall be deposited by EPA in the Cedarville Dams (Cedar Creek) Special Account or the EPA Hazardous Substance Superfund.

54. Payment Instructions for Settling Defendant.

a. Instructions for Past Response Costs Payments. All payments required, elsewhere in this Consent Decree, to be made in accordance with this Paragraph shall be made at <https://www.pay.gov> to the U.S. Department of Justice account, in accordance with instructions provided to Settling Defendant by the Financial Litigation Unit ("FLU") of the United States Attorney's Office for the Eastern District of Wisconsin after the Effective Date. The payment instructions provided to Settling Defendant by the FLU shall include a Consolidated Debt Collection System ("CDCS") number, which shall be used to identify all payments required to be made in accordance with this Consent Decree. The FLU shall provide the payment instructions to:

Tom Baumgartner  
W6250 Pioneer Road  
Post Office Box 1939

Fond du Lac, WI 54936-1939  
(920) 929-5379  
Tom.Baumgartner@mercmarine.com

on behalf of Settling Defendant.

When making payments under this Paragraph, Settling Defendant shall also comply with Paragraph 54.c.

b. Instructions for Future Response Costs Payments and Stipulated Penalties. All payments required, elsewhere in this Consent Decree, to be made in accordance with this Paragraph 54.b shall be made by Fedwire EFT to:

Federal Reserve Bank of New York  
ABA = 021030004  
Account = 68010727  
SWIFT address = FRNYUS33  
33 Liberty Street  
New York NY 10045  
Field Tag 4200 of the Fedwire message should read "D 68010727 Environmental Protection Agency"

When making payments under this Paragraph, Settling Defendant shall also comply with Paragraph 54.c.

c. Instructions for All Payments. All payments made under Paragraph 54.a (Instructions for Past Response Cost Payments) or 54.b (Instructions for Future Response Cost Payments) shall reference the CDCS Number, Site/Spill ID Number WID988590261, and DOJ Case Number 90-11-3-10575. At the time of any payment required to be made in accordance with Paragraph 54.a or 54.b, Settling Defendant shall send notice that payment has been made to the United States, and to EPA, in accordance with Section XXVI (Notices and Submissions), and to the EPA Cincinnati Finance Office by email at [acctsreceivable.cinwd@epa.gov](mailto:acctsreceivable.cinwd@epa.gov), or by mail at 26 Martin Luther King Drive, Cincinnati, Ohio 45268. Such notice shall also reference the CDCS Number, Site/Spill ID Number, and DOJ Case Number.

55. Settling Defendant may contest any Past Response Costs or Future Response Costs billed under Paragraphs 52.a (Payment by Settling Defendant for Past Response Costs) and 53.a (Payments by Settling Defendant for Future Response Costs) if it determines that EPA has made a mathematical error or included a cost item that is not within the definition of Past or Future Response Costs, or if it believes EPA incurred excess costs as a direct result of an EPA action that was inconsistent with a specific provision or provisions of the NCP. Such objection shall be made in writing within 30 days after receipt of the bill and must be sent to the United States pursuant to Section XXVI (Notices and Submissions). Any such objection shall specifically identify the contested Past or Future Response Costs and the basis for objection. In the event of an objection, Settling Defendant shall pay all uncontested Past or Future Response Costs to the United States within 30 days after Settling Defendant's receipt of the bill requiring payment. Simultaneously, Settling Defendant shall establish, in a duly chartered bank or trust company, an interest-bearing escrow account that is insured by the Federal Deposit Insurance Corporation ("FDIC") and remit to that escrow account funds equivalent to the amount of the contested Past or Future Response Costs. Settling Defendant shall send to the United States, as

provided in Section XXVI (Notices and Submissions), a copy of the transmittal letter and check paying the uncontested Past or Future Response Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. Simultaneously with establishment of the escrow account, Settling Defendant shall initiate the Dispute Resolution procedures in Section XIX (Dispute Resolution). If the United States prevails in the dispute, Settling Defendant shall pay the sums due (with accrued interest) to the United States within five days after the resolution of the dispute. If Settling Defendant prevails concerning any aspect of the contested costs, Settling Defendant shall pay that portion of the costs (plus associated accrued interest) for which it did not prevail to the United States within five days after the resolution of the dispute. Settling Defendant shall be disbursed any balance of the escrow account. All payments to the United States under this Paragraph shall be made in accordance with Paragraphs 54.a (Instructions for Past Response Cost Payments) or 54.b (Instructions for Future Response Cost Payments). The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XIX (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding Settling Defendant's obligation to reimburse the United States for its Past Response Costs or Future Response Costs.

56. Interest. In the event that any payment for Past Response Costs or for Future Response Costs required under this Section is not made by the date required, Settling Defendant shall pay Interest on the unpaid balance. The Interest to be paid on Past Response Costs under this Paragraph shall begin to accrue on the Effective Date. The Interest on Future Response Costs shall begin to accrue on the date of the bill. The Interest shall accrue through the date of Settling Defendant's payment. Settling Defendant shall not be required to pay Interest on Past Response Costs to the extent such Interest accrues between the Effective Date and the date EPA determines the amount of Past Response Costs to be paid by Settling Defendant pursuant to Paragraph 52.a and bills Settling Defendant for that amount. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to Plaintiff by virtue of Settling Defendant's failure to make timely payments under this Section including, but not limited to, payment of stipulated penalties pursuant to Paragraph 71.

## XVII. INDEMNIFICATION AND INSURANCE

### 57. Settling Defendant's Indemnification of the United States.

a. The United States does not assume any liability by entering into this Consent Decree or by virtue of any designation of Settling Defendant as EPA's authorized representatives under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). Settling Defendant shall indemnify, save and hold harmless the United States and its officials, agents, employees, contractors, subcontractors, and representatives for or from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Settling Defendant, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Consent Decree, including, but not limited to, any claims arising from any designation of Settling Defendant as EPA's authorized representative under Section 104(e) of CERCLA. Further, Settling Defendant agrees to pay the United States all costs it incurs including, but not limited to, attorneys' fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States based on negligent or other wrongful acts or omissions of



Settling Defendant, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out activities pursuant to this Consent Decree. The United States shall not be held out as a party to any contract entered into by or on behalf of Settling Defendant in carrying out activities pursuant to this Consent Decree. Neither Settling Defendant nor any such contractor shall be considered an agent of the United States.

b. The United States shall give Settling Defendant notice of any claim for which the United States plans to seek indemnification pursuant to this Paragraph 57, and shall consult with Settling Defendant prior to settling such claim.

58. Settling Defendant covenants not to sue and agrees not to assert any claims or causes of action against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between Settling Defendant and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, Settling Defendant shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between Settling Defendant and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

59. No later than 15 days before commencing any on-site Work, Settling Defendant shall secure, and shall maintain until the Remedial Action has been performed in accordance with this Consent Decree and the Performance Standards have been achieved, commercial general liability insurance with limits of Three Million Dollars, for any one occurrence, and automobile liability insurance with limits of One Million Dollars, combined single limit, naming the United States as additional insured with respect to all liability arising out of the activities performed by or on behalf of Settling Defendant pursuant to this Consent Decree. In addition, for the duration of this Consent Decree, Settling Defendant shall satisfy, or shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Settling Defendant in furtherance of this Consent Decree. Prior to commencement of the Work under this Consent Decree, Settling Defendant shall provide to EPA certificates of such insurance and a copy of each insurance policy. Settling Defendant shall resubmit such certificates and copies of policies each year on the anniversary of the Effective Date. If Settling Defendant demonstrates by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then, with respect to that contractor or subcontractor, Settling Defendant needs to provide only that portion of the insurance described above that is not maintained by the contractor or subcontractor.

#### XVIII. FORCE MAJEURE

60. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of Settling Defendant, of any entity controlled by Settling Defendant, or of Settling Defendant's contractors that delays or prevents the performance of any obligation under this Consent Decree despite Settling Defendant's best efforts to fulfill the obligation. The requirement that Settling Defendant exercises "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure and best efforts

to address the effects of any potential force majeure (a) as it is occurring and (b) following the potential force majeure such that the delay and any adverse effects of the delay are minimized to the greatest extent possible. "Force majeure" does not include financial inability to complete the Work or a failure to achieve the Performance Standards.

61. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree for which Settling Defendant intends or may intend to assert a claim of force majeure, Settling Defendant shall notify EPA's Project Coordinator orally or, in his or her absence, EPA's Alternate Project Coordinator or, in the event both of EPA's designated representatives are unavailable, the Director of the Superfund Division, EPA Region 5, within 48 hours of when Settling Defendant first knew that the event might cause a delay. Within 7 days thereafter, Settling Defendant shall provide in writing to EPA an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Settling Defendant's rationale for attributing such delay to a force majeure; and a statement as to whether, in the opinion of Settling Defendant, such event may cause or contribute to an endangerment to public health or welfare, or the environment. Settling Defendant shall include with any notice all available documentation supporting its claim that the delay was attributable to a force majeure. Settling Defendant shall be deemed to know of any circumstance of which Settling Defendant, any entity controlled by Settling Defendant, or Settling Defendant's contractors knew or should have known. Failure to comply with the above requirements regarding an event shall preclude Settling Defendant from asserting any claim of force majeure regarding that event, provided, however, that if EPA, despite the late notice, is able to assess to its satisfaction whether the event is a force majeure under Paragraph 60 and whether Settling Defendant has exercised its best efforts under Paragraph 60, EPA may, in its unreviewable discretion, excuse in writing Settling Defendant's failure to submit timely notices under this Paragraph.

62. If EPA agrees that the delay or anticipated delay is attributable to a force majeure, the time for performance of the obligations under this Consent Decree that are affected by the force majeure will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure, EPA will notify Settling Defendant in writing of its decision. If EPA agrees that the delay is attributable to a force majeure, EPA will notify Settling Defendant in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure.

63. If Settling Defendant elects to invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution), it shall do so no later than 15 days after receipt of EPA's notice. In any such proceeding, Settling Defendant shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Settling Defendant complied with the requirements of Paragraphs 60 and 61. If Settling Defendant carries this burden, the delay at issue shall be deemed not to be a violation by Settling Defendant of the affected obligation of this Consent Decree identified to EPA and the Court.



## XIX. DISPUTE RESOLUTION

64. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes regarding this Consent Decree. However, the procedures set forth in this Section shall not apply to actions by the United States to enforce obligations of Settling Defendant that have not been disputed in accordance with this Section.

65. Any dispute regarding this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed 20 days from the time the dispute arises, unless it is modified by written agreement of the parties to the dispute. The dispute shall be considered to have arisen when one party sends the other parties a written Notice of Dispute.

66. Statements of Position.

a. In the event that the Parties cannot resolve a dispute by informal negotiations under the preceding Paragraph, then the position advanced by EPA shall be considered binding unless, within 30 days after the conclusion of the informal negotiation period, Settling Defendant invokes the formal dispute resolution procedures of this Section by serving on the United States a written Statement of Position on the matter in dispute, including, but not limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by Settling Defendant. The Statement of Position shall specify Settling Defendant's position as to whether formal dispute resolution should proceed under Paragraph 67 (Record Review) or 68.

b. Within 30 days after receipt of Settling Defendant's Statement of Position, EPA will serve on Settling Defendant its Statement of Position, including, but not limited to, any factual data, analysis, or opinion supporting that position and all supporting documentation relied upon by EPA. EPA's Statement of Position shall include a statement as to whether formal dispute resolution should proceed under Paragraph 67 (Record Review) or 68. Within 20 days after receipt of EPA's Statement of Position, Settling Defendant may submit a Reply.

c. If there is disagreement between EPA and Settling Defendant as to whether dispute resolution should proceed under Paragraph 67 (Record Review) or 68, the parties to the dispute shall follow the procedures set forth in the paragraph determined by EPA to be applicable. However, if Settling Defendant ultimately appeals to the Court to resolve the dispute, the Court shall determine which paragraph is applicable in accordance with the standards of applicability set forth in Paragraphs 67 and 68.

67. Record Review. Formal dispute resolution for disputes pertaining to the selection or adequacy of any response action and all other disputes that are accorded review on the administrative record under applicable principles of administrative law shall be conducted pursuant to the procedures set forth in this Paragraph. For purposes of this Paragraph, the adequacy of any response action includes, without limitation, the adequacy or appropriateness of plans, procedures to implement plans, or any other items requiring approval by EPA under this Consent Decree, and the adequacy of the performance of response actions taken pursuant to this Consent Decree. Nothing in this Consent Decree shall be construed to allow any dispute by Settling Defendant regarding the validity of the ROD's provisions.

a. An administrative record of the dispute shall be maintained by EPA and shall contain all statements of position, including supporting documentation, submitted pursuant to this Section. Where appropriate, EPA may allow submission of supplemental statements of position by the parties to the dispute.

b. The Director of the Superfund Division, EPA Region 5, will issue a final administrative decision resolving the dispute based on the administrative record described in Paragraph 67.a. This decision shall be binding upon Settling Defendant, subject only to the right to seek judicial review pursuant to Paragraphs 67.c and 67.d.

c. Any administrative decision made by EPA pursuant to Paragraph 67.b shall be reviewable by this Court, provided that a motion for judicial review of the decision is filed by Settling Defendant with the Court and served on all Parties within ten days after receipt of EPA's decision. The motion shall include a description of the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. The United States may file a response to Settling Defendant's motion.

d. In proceedings on any dispute governed by this Paragraph, Settling Defendant shall have the burden of demonstrating that the decision of the Superfund Division Director is arbitrary and capricious or otherwise not in accordance with law. Judicial review of EPA's decision shall be on the administrative record compiled pursuant to Paragraph 67.a.

68. Formal dispute resolution for disputes that neither pertain to the selection or adequacy of any response action nor are otherwise accorded review on the administrative record under applicable principles of administrative law shall be governed by this Paragraph.

a. Following receipt of Settling Defendant's Statement of Position submitted pursuant to Paragraph 66, the Director of the Superfund Division, EPA Region 5, will issue a final decision resolving the dispute. The Superfund Division Director's decision shall be binding on Settling Defendant unless, within ten days after receipt of the decision, Settling Defendant files with the Court and serves on the parties a motion for judicial review of the decision setting forth the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of the Consent Decree. The United States may file a response to Settling Defendant's motion.

b. Notwithstanding Paragraph K (CERCLA Section 113(j) Record Review of ROD and Work) of Section I (Background), judicial review of any dispute governed by this Paragraph shall be governed by applicable principles of law.

69. The invocation of formal dispute resolution procedures under this Section shall not extend, postpone, or affect in any way any obligation of Settling Defendant under this Consent Decree, not directly in dispute, unless EPA or the Court agrees otherwise. Stipulated penalties with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute as provided in Paragraph 77. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Consent Decree. In the event that Settling Defendant does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XX (Stipulated Penalties).

## XX. STIPULATED PENALTIES

70. Settling Defendant shall be liable for stipulated penalties in the amounts set forth in Paragraphs 71 and 72 to the United States for failure to comply with the requirements of this Consent Decree specified below, unless excused under Section XVIII (Force Majeure). “Compliance” by Settling Defendant shall include completion of all payments and activities required under this Consent Decree, or any plan, report, or other deliverable approved under this Consent Decree, in accordance with all applicable requirements of law, this Consent Decree, the SOW, and any plans, reports, or other deliverables approved under this Consent Decree and within the specified time schedules established by and approved under this Consent Decree.

71. Stipulated Penalty Amounts - Work (Including Payments and Excluding Plans, Reports, and Other Deliverables).

a. The following stipulated penalties shall accrue per violation per day for any noncompliance identified in Paragraph 71.b:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$500	1st through 14th day
\$750	15th through 30th day
\$1,000	31st day and beyond

b. Compliance Milestones.

- (1) Submission of Approvable Remedial Action Work Plan;
- (2) Initiation of Work as specified in the approved Remedial Action Work Plan;
- (3) Completion of Work as specified in the Remedial Action Work Plan;
- (4) Failure to provide access; and
- (5) Failure to pay costs as specified in Paragraphs 52 to 53.

72. Stipulated Penalty Amounts - Plans, Reports, and other Deliverables. The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate reports or other plans or deliverables pursuant to the Consent Decree:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$250	1st through 14th day
\$500	15th through 30th day
\$750	31st day and beyond

73. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 84 (Work Takeover), Settling Defendant shall be liable for a stipulated penalty in the amount of \$100,000. Stipulated penalties under this Paragraph are in addition to the remedies available under Paragraphs 47 (Funding for Work Takeover) and 84 (Work Takeover).

74. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: (a) with respect to a deficient submission under Section XI (EPA Approval of Plans, Reports, and Other Deliverables), during the period, if any, beginning on the 31st day after EPA's receipt of such submission until the date that EPA notifies Settling Defendant of any deficiency; (b) with respect to a decision by the Director of the Superfund Division, EPA Region 5, under Paragraph 67.b or 68.a of Section XIX (Dispute Resolution), during the period, if any, beginning on the 21st day after the date that Settling Defendant's reply to EPA's Statement of Position is received until the date that the Director issues a final decision regarding such dispute; or (c) with respect to judicial review by this Court of any dispute under Section XIX (Dispute Resolution), during the period, if any, beginning on the 31st day after the Court's receipt of the final submission regarding the dispute until the date that the Court issues a final decision regarding such dispute. Nothing in this Consent Decree shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

75. Following EPA's determination that Settling Defendant has failed to comply with a requirement of this Consent Decree, EPA may give Settling Defendant written notification of the same and describe the noncompliance. EPA may send Settling Defendant a written demand for the payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified Settling Defendant of a violation.

76. All penalties accruing under this Section shall be due and payable to the United States within 30 days after Settling Defendant's receipt from EPA of a demand for payment of the penalties, unless Settling Defendant invokes the Dispute Resolution procedures under Section XIX (Dispute Resolution) within the 30-day period. All payments to the United States under this Section shall indicate that the payment is for stipulated penalties, and shall be made in accordance with Paragraphs 54.b (Instructions for Future Response Cost Payments and Stipulated Penalties).

77. Penalties shall continue to accrue as provided in Paragraph 74 during any dispute resolution period, but need not be paid until the following:

a. If the dispute is resolved by agreement of the Parties or by a decision of EPA that is not appealed to this Court, accrued penalties determined to be owed shall be paid to EPA within 15 days after the agreement or the receipt of EPA's decision or order;

b. If the dispute is appealed to this Court and the United States prevails in whole or in part, Settling Defendant shall pay all accrued penalties determined by the Court to be owed to EPA within 60 days after receipt of the Court's decision or order, except as provided in Paragraph 77.c;

c. If the District Court's decision is appealed by any Party, Settling Defendant shall pay all accrued penalties determined by the District Court to be owed to the United States into an interest-bearing escrow account, established at a duly chartered bank or trust company that is insured by the FDIC, within 60 days after receipt of the Court's decision or order. Penalties shall be paid into this account as they continue to accrue, at least every 60 days. Within 15 days after receipt of the final appellate court decision, the escrow agent shall pay the balance of the account to EPA or to Settling Defendant to the extent that it prevails.

78. If Settling Defendant fails to pay stipulated penalties when due, Settling Defendant shall pay Interest on the unpaid stipulated penalties as follows: (a) if Settling Defendant has timely invoked dispute resolution such that the obligation to pay stipulated penalties has been stayed pending the outcome of dispute resolution, Interest shall accrue from the date stipulated penalties are due pursuant to Paragraph 77 until the date of payment; and (b) if Settling Defendant fails to timely invoke dispute resolution, Interest shall accrue from the date of demand under Paragraph 76 until the date of payment. If Settling Defendant fails to pay stipulated penalties and Interest when due, the United States may institute proceedings to collect the penalties and Interest.

79. The payment of penalties and Interest, if any, shall not alter in any way Settling Defendant's obligation to complete the performance of the Work required under this Consent Decree.

80. Nothing in this Consent Decree shall be construed as prohibiting, altering, or in any way limiting the ability of the United States to seek any other remedies or sanctions available by virtue of Settling Defendant's violation of this Consent Decree or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. § 9622(l), provided, however, that the United States shall not seek civil penalties pursuant to Section 122(l) of CERCLA for any violation for which a stipulated penalty is provided in this Consent Decree, except in the case of a willful violation of this Consent Decree.

81. Notwithstanding any other provision of this Section, the United States may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Consent Decree.

## XXI. COVENANTS BY PLAINTIFF

82. Covenants for Settling Defendant by United States. In consideration of the actions that will be performed and the payments that will be made by Settling Defendant under this Consent Decree, and except as specifically provided in Paragraph 83 (General Reservations of Rights) of this Section, the United States covenants not to sue or to take administrative action against Settling Defendant pursuant to Sections 106 and 107(a) of CERCLA for the Work, Past Response Costs, and Future Response Costs. These covenants shall take effect upon the receipt by EPA of the payments required by Paragraph 52.a (Payment for Past Response Costs). These covenants are conditioned upon the satisfactory performance by Settling Defendant of its obligations under this Consent Decree. These covenants extend only to Settling Defendant and do not extend to any other person.

83. General Reservations of Rights. The United States reserves, and this Consent Decree is without prejudice to, all rights against Settling Defendant with respect to all matters not expressly included within Plaintiff's covenant. Notwithstanding any other provision of this Consent Decree, the United States reserves all rights against Settling Defendant with respect to:

- a. liability for failure by Settling Defendant to meet a requirement of this Consent Decree;
- b. liability arising from the past, present, or future disposal, release, or threat of release of Waste Material outside of the Site;

- c. liability based on the ownership of the Site by Settling Defendant when such ownership commences after signature of this Consent Decree by Settling Defendant;
- d. liability based on the operation of the Site by Settling Defendant when such operation commences after signature of this Consent Decree by Settling Defendant and does not arise solely from Settling Defendant's performance of the Work;
- e. liability based on Settling Defendant's transportation, treatment, storage, or disposal, or arrangement for transportation, treatment, storage, or disposal of Waste Material at or in connection with the Site, other than as provided in the ROD, the Work, or otherwise ordered by EPA, after signature of this Consent Decree by Settling Defendant;
- f. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;
- g. criminal liability;
- h. liability for violations of federal or state law that occur during or after implementation of the Work;
- i. liability, prior to achievement of Performance Standards in accordance with Paragraph 12, for additional response actions that EPA determines are necessary to achieve and maintain Performance Standards or to carry out and maintain the effectiveness of the remedy set forth in the ROD, but that cannot be required pursuant to Paragraph 13 (Modification of SOW or Related Work Plans);
- j. liability for additional operable units at the Site, specifically including Operable Unit 2, or the final response action; and
- k. liability for costs that the United States will incur regarding the Site but that are not within the definition of Future Response Costs.

84. Work Takeover.

- a. In the event EPA determines that Settling Defendant (1) has ceased implementation of any portion of the Work, or (2) is seriously or repeatedly deficient or late in its performance of the Work, or (3) is implementing the Work in a manner that may cause an endangerment to human health or the environment, EPA may issue a written notice ("Work Takeover Notice") to Settling Defendant. Any Work Takeover Notice issued by EPA will specify the grounds upon which such notice was issued and will provide Settling Defendant a period of ten days within which to remedy the circumstances giving rise to EPA's issuance of such notice.
- b. If, after expiration of the ten-day notice period specified in Paragraph 84.a, Settling Defendant has not remedied to EPA's satisfaction the circumstances giving rise to EPA's issuance of the relevant Work Takeover Notice, EPA may at any time thereafter assume the performance of all or any portion(s) of the Work as EPA deems necessary ("Work Takeover"). EPA will notify Settling Defendant in writing (which writing may be electronic) if EPA determines that implementation of a Work Takeover is warranted under this Paragraph 84.b. Funding of Work Takeover costs is addressed under Paragraph 47.
- c. Settling Defendant may invoke the procedures set forth in Paragraph 67 (Record Review), to dispute EPA's implementation of a Work Takeover under Paragraph 84.b.



However, notwithstanding Settling Defendant's invocation of such dispute resolution procedures, and during the pendency of any such dispute, EPA may in its sole discretion commence and continue a Work Takeover under Paragraph 84.b until the earlier of (1) the date that Settling Defendant remedies, to EPA's satisfaction, the circumstances giving rise to EPA's issuance of the relevant Work Takeover Notice, or (2) the date that a final decision is rendered in accordance with Paragraph 67 (Record Review) requiring EPA to terminate such Work Takeover.

d. Notwithstanding any other provision of this Consent Decree, the United States and the State retain all authority and reserve all rights to take any and all response actions authorized by law.

## XXII. COVENANTS BY SETTLING DEFENDANT

85. Covenants by Settling Defendant. Subject to the reservations in Paragraph 87, Settling Defendant covenants not to sue and agrees not to assert any claims or causes of action against the United States with respect to: the Work, past response actions regarding the Site, Past Response Costs, Future Response Costs, and this Consent Decree, including, but not limited to:

- a. any direct or indirect claim for reimbursement from the EPA Hazardous Substance Superfund through CERCLA Sections 106(b)(2), 107, 111, 112 or 113, or any other provision of law;
- b. any claims under CERCLA Sections 107 or 113, RCRA Section 7002(a), 42 U.S.C. § 6972(a), or state law regarding the Work, past response actions regarding the Site, Past Response Costs, Future Response Costs, and this Consent Decree; or
- c. any claims arising out of response actions at or in connection with the Site, including any claim under the United States Constitution, the Wisconsin Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common law.

86. Except as provided in Paragraph 89 (Claims Against De Micromis Parties), and Paragraph 96 (Res Judicata and Other Defenses), the covenants in this Section shall not apply if the United States brings a cause of action or issues an order pursuant to any of the reservations in Section XXI (Covenants by Plaintiff), other than in Paragraphs 83.a (claims for failure to meet a requirement of the Consent Decree), 83.g (criminal liability), and 83.h (violations of federal/state law during or after implementation of the Work), but only to the extent that Settling Defendant's claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

87. Settling Defendant reserves, and this Consent Decree is without prejudice to, claims against the United States, subject to the provisions of Chapter 171 of Title 28 of the United States Code, and brought pursuant to any statute other than CERCLA or RCRA and for which the waiver of sovereign immunity is found in a statute other than CERCLA or RCRA, for money damages for injury or loss of property or personal injury or death caused by the negligent or wrongful act or omission of any employee of the United States, as that term is defined in 28 U.S.C. § 2671, while acting within the scope of his or her office or employment under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred. However, the

foregoing shall not include any claim based on EPA's selection of response actions, or the oversight or approval of Settling Defendant's plans, reports, other deliverables or activities.

88. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

89. Claims Against De Micromis Parties. Settling Defendant agrees not to assert any claims and to waive all claims or causes of action (including but not limited to claims or causes of action under Sections 107(a) and 113 of CERCLA) that it may have for all matters relating to the Site against any person where the person's liability to Settling Defendant with respect to the Site is based solely on having arranged for disposal or treatment, or for transport for disposal or treatment, of hazardous substances at the Site, or having accepted for transport for disposal or treatment of hazardous substances at the Site, if all or part of the disposal, treatment, or transport occurred before April 1, 2001, and the total amount of material containing hazardous substances contributed by such person to the Site was less than 110 gallons of liquid materials or 200 pounds of solid materials.

90. The waiver in Paragraph 89 (Claims Against De Micromis Parties) shall not apply with respect to any defense, claim, or cause of action that Settling Defendant may have against any person meeting the criteria in Paragraph 89 if such person asserts a claim or cause of action relating to the Site against Settling Defendant. This waiver also shall not apply to any claim or cause of action against any person meeting the criteria in Paragraph 89 if EPA determines:

a. that such person has failed to comply with any EPA requests for information or administrative subpoenas issued pursuant to Section 104(e) or 122(e) of CERCLA, 42 U.S.C. § 9604(e) or 9622(e), or Section 3007 of RCRA, 42 U.S.C. § 6927, or has impeded or is impeding, through action or inaction, the performance of a response action or natural resource restoration with respect to the Site, or has been convicted of a criminal violation for the conduct to which this waiver would apply and that conviction has not been vitiated on appeal or otherwise; or

b. that the materials containing hazardous substances contributed to the Site by such person have contributed significantly, or could contribute significantly, either individually or in the aggregate, to the cost of response action or natural resource restoration at the Site.

91. Settling Defendant agrees not to seek judicial review of the final rule listing the Site on the NPL based on a claim that changed site conditions that resulted from the performance of the Work in any way affected the basis for listing the Site.

### XXIII. EFFECT OF SETTLEMENT; CONTRIBUTION

92. Except as provided in Paragraph 89 (Claims Against De Micromis Parties), nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Consent Decree. Except as provided in Paragraph 89 (Claims Against De Micromis Parties), each of the Parties expressly reserves any and all rights (including, but not limited to, pursuant to Section 113 of CERCLA, 42 U.S.C. § 9613), defenses, claims, demands, and causes of action that each Party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a Party hereto. Nothing in this Consent Decree diminishes the right of the United States, pursuant to

Section 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3), to pursue any such persons to obtain additional response costs or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

93. The Parties agree, and by entering this Consent Decree this Court finds, that this Consent Decree constitutes a judicially approved settlement for purposes of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), and that Settling Defendant is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Section 113(f)(2) of CERCLA, or as may be otherwise provided by law, for “matters addressed” in this Consent Decree. The “matters addressed” in this Consent Decree are the Work, Past Response Costs, and Future Response Costs.

94. Settling Defendant shall, with respect to any suit or claim brought by it for matters related to this Consent Decree, notify the United States in writing no later than 60 days prior to the initiation of such suit or claim.

95. Settling Defendant shall, with respect to any suit or claim brought against it for matters related to this Consent Decree, notify in writing the United States within ten days after service of the complaint on Settling Defendant. In addition, Settling Defendant shall notify the United States within ten days after service or receipt of any Motion for Summary Judgment and within ten days after receipt of any order from a court setting a case for trial.

96. Res Judicata and Other Defenses. In any subsequent administrative or judicial proceeding initiated by the United States for injunctive relief, recovery of response costs, or other appropriate relief relating to the Site, Settling Defendant shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenants not to sue set forth in Section XXI (Covenants by Plaintiff).

#### XXIV. ACCESS TO INFORMATION

97. Settling Defendant shall provide to EPA and the State, upon request, copies of all records, reports, documents, and other information (including records, reports, documents, and other information in electronic form) (hereinafter referred to as “Records”) within its possession or control or that of its contractors or agents relating to activities at the Site or to the implementation of this Consent Decree, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information regarding the Work. Settling Defendant shall also make available to EPA and the State, for purposes of investigation, information gathering, or testimony, its employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

98. Business Confidential and Privileged Documents.

a. Settling Defendant may assert business confidentiality claims covering part or all of the Records submitted to Plaintiff under this Consent Decree to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. §9604(e)(7), and 40 C.F.R. § 2.203(b). Records determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies Records

when they are submitted to EPA and the State, or if EPA has notified Settling Defendant that the Records are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such Records without further notice to Settling Defendant.

b. Settling Defendant may assert that certain Records are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Settling Defendant asserts such a privilege in lieu of providing Records, it shall provide Plaintiff with the following: (1) the title of the Record; (2) the date of the Record; (3) the name, title, affiliation (e.g., company or firm), and address of the author of the Record; (4) the name and title of each addressee and recipient; (5) a description of the contents of the Record; and (6) the privilege asserted by Settling Defendant. If a claim of privilege applies only to a portion of a Record, the Record shall be provided to the United States in redacted form to mask the privileged portion only. Settling Defendant shall retain all Records that it claims to be privileged until the United States has had a reasonable opportunity to dispute the privilege claim and any such dispute has been resolved in the Settling Defendant's favor.

c. No Records created or generated pursuant to the requirements of this Consent Decree shall be withheld from the United States or the State on the grounds that they are privileged or confidential.

99. No claim of confidentiality or privilege shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

## XXV. RETENTION OF RECORDS

100. Until ten years after Settling Defendant's receipt of EPA's notification pursuant to Paragraph 49.b (Completion of the Work), Settling Defendant shall preserve and retain all non-identical copies of Records (including Records in electronic form) now in its possession or control or that come into its possession or control that relate in any manner to its liability under CERCLA with respect to the Site, provided, however, that Settling Defendant must retain, in addition, all Records that relate to the liability of any other person under CERCLA with respect to the Site. Settling Defendant must also retain, and instruct its contractors and agents to preserve, for the same period of time specified above all non-identical copies of the last draft or final version of any Records (including Records in electronic form) now in its possession or control or that come into its possession or control that relate in any manner to the performance of the Work, provided, however, that Settling Defendant (and its contractors and agents) must retain, in addition, copies of all data generated during the performance of the Work and not contained in the aforementioned Records required to be retained. Each of the above record retention requirements shall apply regardless of any corporate retention policy to the contrary.

101. At the conclusion of this record retention period, Settling Defendant shall notify the United States and the State at least 90 days prior to the destruction of any such Records, and, upon request by the United States or the State, Settling Defendant shall deliver any such Records to EPA or the State. Settling Defendant may assert that certain Records are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Settling Defendant asserts such a privilege, it shall provide Plaintiffs with the following: (a) the title of the Record; (b) the date of the Record; (c) the name, title, affiliation (e.g., company or firm), and address of

the author of the Record; (d) the name and title of each addressee and recipient; (e) a description of the subject of the Record; and (f) the privilege asserted by Settling Defendant. If a claim of privilege applies only to a portion of a Record, the Record shall be provided to the United States in redacted form to mask the privileged portion only. Settling Defendant shall retain all Records that it claims to be privileged until the United States has had a reasonable opportunity to dispute the privilege claim and any such dispute has been resolved in the Settling Defendant's favor. However, no Records created or generated pursuant to the requirements of this Consent Decree shall be withheld on the grounds that they are privileged or confidential.

102. Settling Defendant certifies that, to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed, or otherwise disposed of any Records (other than identical copies) relating to its potential liability regarding the Site since the earlier of notification of potential liability by the United States or the State or the filing of suit against it regarding the Site and that it has fully complied with any and all EPA requests for information regarding the Site pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

#### XXVI. NOTICES AND SUBMISSIONS

103. Whenever, under the terms of this Consent Decree, written notice is required to be given or a report or other document is required to be sent by one Party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a change to the other Parties in writing. All notices and submissions shall be considered effective upon receipt, unless otherwise provided. Written notice as specified in this Section shall constitute complete satisfaction of any written notice requirement of the Consent Decree with respect to the United States, EPA, the State, and the Settling Defendant, respectively. Notices required to be sent to EPA, and not to the United States, under the terms of this Consent Decree should not be sent to the U.S. Department of Justice.

As to the United States:

Chief, Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, DC 20044-7611  
Re: DJ # 90-11-3-10575

As to EPA:

Richard C. Karl  
Director, Superfund Division  
United States Environmental Protection Agency  
Region 5, MC: S-6J  
77 West Jackson Boulevard  
Chicago, IL 60604

and: Scott Hansen  
EPA Project Coordinator  
United States Environmental Protection Agency  
Region 5, MC: SR-6J  
77 West Jackson Boulevard  
Chicago, IL, 60604

As to the Regional Financial Management Officer: Darius Taylor  
United States Environmental Protection Agency  
Region 5, MC: MF-10J  
77 West Jackson Boulevard  
Chicago, IL, 60304

As to Settling Defendant: Tom Baumgartner  
W6250 Pioneer Road  
Post Office Box 1939  
Fond du Lac, WI 54936-1939

As to the State: Margaret Brunette  
Wisconsin Department of Natural Resources  
Southeast Region  
2300 North Dr. Martin Luther King Jr. Drive  
Milwaukee, WI 53212

#### XXVII. RETENTION OF JURISDICTION

104. This Court retains jurisdiction over both the subject matter of this Consent Decree and Settling Defendant for the duration of the performance of the terms and provisions of this Consent Decree for the purpose of enabling any of the Parties to apply to the Court at any time for such further order, direction, and relief as may be necessary or appropriate for the construction or modification of this Consent Decree, or to effectuate or enforce compliance with its terms, or to resolve disputes in accordance with Section XIX (Dispute Resolution).

#### XXVIII. APPENDICES

105. The following appendices are attached to and incorporated into this Consent Decree:

“Appendix A” is the ROD.

“Appendix B” is the SOW.

“Appendix C” is the description and/or map of the Site.

“Appendix D” is the performance guarantee.

#### XXIX. COMMUNITY INVOLVEMENT

106. If requested by EPA, Settling Defendant shall participate in community involvement activities pursuant to the community involvement plan to be developed by EPA. EPA will determine the appropriate role for Settling Defendant under the Plan. Settling



Defendant shall also cooperate with EPA in providing information regarding the Work to the public. As requested by EPA, Settling Defendant shall participate in the preparation of such information for dissemination to the public and in public meetings that may be held or sponsored by EPA to explain activities at or relating to the Site.

107. Within 30 days after a request by EPA, Settling Defendant also shall provide EPA with a Technical Assistance Plan (“TAP”) for arranging (at Settling Defendant’s own expense, up to \$50,000) for a qualified community group (a) to receive services from (an) independent technical advisor(s) who can help group members understand Site cleanup issues and (b) to share this information with others in the community during the Work conducted pursuant to this Consent Decree. The TAP shall state that Settling Defendant will provide and arrange for any additional assistance needed if the selected community group demonstrates such a need as provided in the SOW. Upon its approval by EPA, the TAP shall be incorporated into and enforceable under this Consent Decree. Costs incurred by the United States under this Section, including the costs of any technical assistance grant under Section 117(e) of CERCLA, 42 U.S.C. § 9617(e), shall be considered Future Response Costs that Settling Defendant shall pay pursuant to Section XVI (Payments for Response Costs).

### XXX. MODIFICATION

108. Except as provided in Paragraph 13 (Modification of SOW or Related Work Plans), material modifications to this Consent Decree, including the SOW, shall be in writing, signed by the United States and Settling Defendant, and shall be effective upon approval by the Court. Except as provided in Paragraph 13, non-material modifications to this Consent Decree, including the SOW, shall be in writing and shall be effective when signed by duly authorized representatives of the United States and Settling Defendant. A modification to the SOW shall be considered material if it fundamentally alters the basic features of the selected remedy within the meaning of 40 C.F.R. § 300.435(c)(2)(ii). Before providing its approval to any modification to the SOW, the United States will provide the State with a reasonable opportunity to review and comment on the proposed modification.

109. Nothing in this Consent Decree shall be deemed to alter the Court’s power to enforce, supervise, or approve modifications to this Consent Decree.

### XXXI. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

110. This Consent Decree shall be lodged with the Court for a period of not less than 30 days for public notice and comment in accordance with Section 122(d)(2) of CERCLA, 42 U.S.C. § 9622(d)(2), and 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations that indicate that the Consent Decree is inappropriate, improper, or inadequate. Settling Defendant consents to the entry of this Consent Decree without further notice.

111. If for any reason the Court should decline to approve this Consent Decree in the form presented, this agreement is voidable at the sole discretion of any Party and the terms of the agreement may not be used as evidence in any litigation between the Parties.

### XXXII. SIGNATORIES/SERVICE

112. Each undersigned representative of Settling Defendant to this Consent Decree and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice or her designee certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind such Party to this document.

113. Settling Defendant agrees not to oppose entry of this Consent Decree by this Court or to challenge any provision of this Consent Decree unless the United States has notified Settling Defendant in writing that it no longer supports entry of the Consent Decree.

114. Settling Defendant shall identify, on the attached signature page, the name, address, and telephone number of an agent who is authorized to accept service of process by mail on its behalf with respect to all matters arising under or relating to this Consent Decree. Settling Defendant agrees to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable local rules of this Court, including, but not limited to, service of a summons. Settling Defendant need not file an answer to the complaint in this action unless or until the Court expressly declines to enter this Consent Decree.

### XXXIII. FINAL JUDGMENT

115. This Consent Decree and its appendices constitute the final, complete, and exclusive agreement and understanding among the Parties regarding the settlement embodied in the Consent Decree. The Parties acknowledge that there are no representations, agreements, or understandings relating to the settlement other than those expressly contained in this Consent Decree.

116. Upon entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment between and among the United States and Settling Defendant. The Court enters this judgment as a final judgment under Fed. R. Civ. P. 54 and 58.

Dated this 27th day of November, 2012.

JON W. SANFILIPPO  
Clerk of Court

s/ Linda M. Zik  
(By) Deputy Clerk

APPROVED:

  
HON. RUDOLPH T. RANDA  
United States District Judge

Signature Page for Consent Decree regarding the Cedarville Dams (a/k/a Cedar Creek)  
Superfund Alternative Approach Site

**FOR THE UNITED STATES OF AMERICA:**

10/5/2012  
Date

s/ Robert E. Maher  
Robert E. Maher, Jr.  
Acting Deputy Chief  
Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, DC 20044-7611

10/5/2012  
Date

s/ Jason T. Barbeau  
Jason T. Barbeau  
Trial Attorney  
Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, DC 20044-7611

\_\_\_\_\_  
Date

\_\_\_\_\_  
James L. Santelle  
United States Attorney  
  
Susan M. Knepel  
Assistant United States Attorney  
United States Attorney's Office  
Eastern District of Wisconsin  
530 Federal Courthouse  
517 East Wisconsin Avenue  
Milwaukee, WI 53202

Signature Page for Consent Decree regarding the Cedarville Dams (a/k/a Cedar Creek)  
Superfund Alternative Approach Site

**FOR THE UNITED STATES OF AMERICA:**

\_\_\_\_\_  
Date

\_\_\_\_\_  
Robert E. Maher, Jr.  
Acting Deputy Chief  
Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, DC 20044-7611

\_\_\_\_\_  
Date

\_\_\_\_\_  
Jason T. Barbeau  
Trial Attorney  
Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, DC 20044-7611

10/5/2012  
Date

s/ James L. Santelle  
James L. Santelle  
United States Attorney  
  
Susan M. Knepel  
Assistant United States Attorney  
United States Attorney's Office  
Eastern District of Wisconsin  
530 Federal Courthouse  
517 East Wisconsin Avenue  
Milwaukee, WI 53202

Signature Page for Consent Decree regarding the Cedarville Dams (a/k/a Cedar Creek)  
Superfund Alternative Approach Site

9/24/2012  
Date

s/ Richard C. Karl  
Richard C. Karl  
Director, Superfund Division  
U.S. Environmental Protection Agency  
Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604

9/17/2012  
Date

s/ Richard L. Nagle  
Richard L. Nagle  
Assistant Regional Counsel  
U.S. Environmental Protection Agency  
Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604

Signature Page for Consent Decree regarding the Cedarville Dams (a/k/a Cedar Creek)  
Superfund Alternative Approach Site

**FOR MERCURY MARINE, A DIVISION OF  
BRUNSWICK CORPORATION:**

9/11/2012  
Date

s/ Tom Baumgartner  
Name: Tom Baumgartner  
Title: Director, Safety & Environmental Compliance  
Address: W6250 Pioneer Road  
Post Office Box 1939  
Fond du Lac, WI 54936-1939

Agent Authorized to Accept Service  
on Behalf of Above-signed Party:

Name (print): Todd Lemke  
Title: Vice President, General Counsel  
Address: Mercury Marine, a Division of Brunswick  
Corporation  
Post Office Box 1939  
Fond du Lac, WI 54936-1939  
Phone: (920) 929-5041  
email: Todd\_Lemke@mercmarine.com



## **Cedar Creek OU1 – Plant 2 Site**

Cedarburg, Wisconsin  
Ozaukee County

### **Record of Decision**



**United States  
Environmental Protection Agency**

**Region 5**

March 2008

## TABLE OF CONTENTS

---

List of Acronyms and Abbreviations.....	v
<b>PART I</b>	
<b>DECLARATION.....</b>	<b>vii</b>
<b>PART II</b>	
<b>DECISION SUMMARY.....</b>	<b>1</b>
1.0 Site Name, Location, and Brief Description.....	1
2.0 Site History and Enforcement Activities.....	1
2.1 Source of Contamination.....	1
2.2 Previous Investigations.....	2
2.2.1 Soil.....	2
2.2.2 Groundwater.....	2
2.2.3 Building Floor Slab.....	3
2.3 Previous Response Actions.....	3
2.3.1 Storm Sewer Cleaning, Rerouting/Repairing Roof Leaders, and Sealing...3	
2.3.2 Plant Demolition and Capping.....	3
2.4 Enforcement Activities.....	4
3.0 Community Participation.....	4
4.0 Scope and Role of Response Action.....	4
5.0 Site Characteristics.....	5
5.1 Conceptual Site Model.....	5
5.2 Site Overview.....	6
5.3 Sampling Strategy.....	8
5.4 Source of Contamination.....	8
5.5 Types of Contamination and Affected Media.....	9
5.6 Extent of Contamination.....	9
5.6.1 Soil .....	9
5.6.2 Groundwater.....	12
5.6.3 Building Floor Slab.....	15
6.0 Current and Potential Future Land and Resource Uses.....	16

## TABLE OF CONTENTS (continued)

7.0	Summary of Site Risks.....	16
7.1	Summary of Human Health Evaluation.....	16
7.2	Identification of Contaminants of Concern.....	17
7.2.1	COPC Screening Results – Soil.....	18
7.2.2	COPC Screening Results – Groundwater.....	19
7.2.3	Exposure Assessment.....	19
7.2.4	Toxicity Assessment.....	20
7.2.5	Risk Characterization.....	21
7.3	Risk Assessment Conclusions.....	29
8.0	Remedial Action Objectives and ARARs.....	30
8.1	Remedial Action Objectives (RAOs).....	30
8.2	Applicable or Relevant and Appropriate Requirements (ARARs).....	31
9.0	Description of Alternatives.....	32
9.1	Description of Remedy Components.....	32
9.2	Common Elements and Distinguishing Features of Each Alternative.....	34
9.3	Expected Outcomes of Each Alternative.....	34
9.4	Preferred Alternative.....	35
10.0	Summary of Comparative Analysis of Alternatives.....	35
10.1	Overall Protection of Human Health and the Environment.....	38
10.2	Compliance with ARARs.....	38
10.3	Long-Term Effectiveness and Permanence.....	39
10.4	Reduction of Toxicity, Mobility, or Volume through Treatment.....	39
10.5	Short-Term Effectiveness.....	39
10.6	Implementability.....	39
10.7	Cost.....	39
10.8	State Agency Acceptance.....	40
10.9	Community Acceptance.....	40
11.0	Principle Threat Wastes.....	40
12.0	Selected Remedy.....	40
12.1	Identification of the Selected Remedy and Summary of the Rationale for its Selection.....	41
12.2	Description of the Selected Remedy.....	41
12.3	Summary of the Estimated Remedy Costs and Time Required for Implementation.....	42
12.4	Expected Outcomes of the Selected Remedy.....	43

## TABLE OF CONTENTS (continued)

13.0	Statutory Determinations.....	43
13.1	Protection of Human Health and the Environment.....	43
13.2	Compliance with ARARs.....	43
13.3	Cost Effectiveness.....	44
13.4	Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to the Maximum Extent Practicable.....	44
13.5	Preference for Treatment as a Principle Element.....	44
13.6	Five-Year Review Requirements.....	44
14.0	Documentation of Significant Changes.....	45

## **TABLES**

Table 1	Comparison of Offsite VOC Concentrations in Groundwater to EPA Groundwater Screening Values.....	27
Table 2	Comparison of Onsite VOC Concentrations in Groundwater to EPA Groundwater Screening Values .....	28

## **FIGURES**

Figure 1-1	Site Location Map
Figure 2-1	Plant 2 Site Map
Figure 3-8	Municipal Well Locations
Figure 3-10A	Soil Sample Locations and Summary of PCB Detections
Figure 3-10B	Soil Sample Locations and Summary of VOC Detections
Figure 3-10C	Soil Sample Locations and Summary of SVOC Detections
Figure 3-10D	Soil Sample Locations and Summary of Inorganic Detections
Figure 3-10E	Soil Sample Locations and Summary of Other Detections
Figure 3-13A	Groundwater Contour Map and Summary of Groundwater Detections
Figure 3-13B	Bedrock Groundwater Contour Map and Summary of Groundwater Detections
Figure 3-15	Concrete Floor Core Sample Locations
Figure 3-16	Soil and Groundwater Locations and Summary of Chlorinated VOC Detections
Figure 3-17	Soil and Groundwater Locations and Summary of PCE Detections
Figure 4-2	Estimated Removal Areas for Selected Remedy

## **APPENDICES**

Appendix A	Responsiveness Summary
Appendix B	State Letter of Concurrence
Appendix C	ARARs and TBCs
Appendix D	Comparison to Standards (Tables 4-3 to 4-4)
Appendix E	Detailed Cost Analysis of Selected Remedy
Appendix F	Exposure Factors and Risk Characterization Summary (Tables 4-5 – 4-15)
Appendix G	Administrative Record Index

## **LIST OF ACRONYMS AND ABBREVIATIONS**

ARAR	Applicable or relevant and appropriate requirements
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CFR	Code of Federal Regulations
CIP	Community Involvement Plan
COC	Chemical of concern
COPC	Chemical of potential concern
CSM	Conceptual Site Model
CTE	Central tendency exposure
DCL	Default closure level
DQO	Data quality objectives
DRO	Diesel range organics
ELCR	Excess lifetime cancer risk
EPA	United States Environmental Protection Agency
EPC	Exposure point concentration
ERA	Ecological risk assessment
ES	Enforcement standard
ESD	Explanation of Significant Differences
FFS	Focused Feasibility Study
GPS	Global Positioning System
GRO	Gasoline range organics
HHRA	Human health risk assessment
HI	Hazard Index
HQ	Hazard quotient
HRS	Hazard Ranking System
LOQ	Limit of quantitation
MCL	Maximum contaminant levels
mg/kg	Milligrams per kilogram
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable unit
OU1	Operable Unit 1
OU2	Operable Unit 2
PAH	Polynuclear aromatic hydrocarbon
PAL	Preventative Action Level
PCB	Polychlorinated Biphenyl
ppm	Parts per million
PRG	Preliminary remediation goals
PRP	Potentially Responsible Party
RAGS	Risk Assessment Guidance for Superfund
RAO	Remedial action objective

### **TABLE OF CONTENTS**



RBSL	Risk based screening level
RCL	Residual Contaminant Level
RCRA	Resource Conservation and Recovery Act
RfD	Reference Dose
RI	Remedial investigation
RI/FS	Remedial investigation/feasibility study
RME	Reasonable maximum exposure
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SF	Slope Factor
SVOC	Semivolatile organic compound
TAL	Target analyte list
TBC	To be considered
TCL	Target compound list
TCLP	Toxicity characteristic leaching procedure
TSCA	Toxic Substances Control Act
UCL	Upper confidence limit
UST	Underground storage tank
VOC	Volatile organic compound
WDNR	Wisconsin Department of Natural Resources

## **Record of Decision – Cedar Creek OU1 - Plant 2 Site**

---

### **Cedarburg, Wisconsin**

This Record of Decision (ROD) documents the remedy selected for the Cedar Creek OU1 - Plant 2 Site in the City of Cedarburg, Ozaukee County, Wisconsin. The ROD is organized in two sections: Part I contains the *Declaration* for the ROD and Part II contains the *Decision Summary*. The *Responsiveness Summary* is included as Appendix A.

#### **PART I: DECLARATION**

This section summarizes the information presented in the ROD and includes the authorizing signature of the United States Environmental Protection Agency (EPA) Region 5 Superfund Division Director.

#### Site Name and Location

The Cedar Creek Site (CERCLIS # WID988590261) is located in Cedarburg, Ozaukee County Wisconsin. The Site is divided into two operable units. The first operable unit (OU1) is Mercury Marine's Plant 2 located at W66 N598 Madison Avenue in the City of Cedarburg, Wisconsin (See Figure 1-1). The building was approximately 66,000 square feet in size and is addressed in this ROD. The Cedar Creek operable unit (OU2) consists of Cedar Creek, its impoundments, raceways, free flowing reaches and floodplain soils starting after the Ruck Pond dam, then downstream 4.6 miles to its confluence with the Milwaukee River.

#### Statement of Basis and Purpose.

This decision document presents the selected remedy for the Cedar Creek OU1 - Plant 2 Site. The remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and, to the extent practicable, the National Contingency Plan (NCP). Information used to select the remedy is contained in the Administrative Record file for the Site. The Administrative Record file is available for review at the EPA Region 5 Records Center, 77 West Jackson Boulevard, Chicago, Illinois, the Cedarburg City Hall, W63 N645 Washington Avenue and the Cedarburg Public Library, W63 N583 Hanover Avenue, Cedarburg, Wisconsin.

#### Assessment of the Site

The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of pollutants or contaminants from this Site which may present an imminent and substantial endangerment to public health or welfare.

### Description of the Selected Remedy

The Cedar Creek Site is being addressed as two operable units under the framework set forth in CERCLA. The selected remedy specified in this ROD will serve as the final action for soil contamination for Operable Unit 1 (OU1) at the Site. The selected remedy specifies response actions through removal of contaminated soil, backfill with clean soil, capping and groundwater monitoring. In addition, the selected remedy would include institutional controls (restrictive covenants) to restrict future site use and prohibit the use of site groundwater for potable purposes. EPA believes the response actions outlined in this ROD, if properly implemented, will protect human health and the environment.

The selected remedy consists of excavating soil material from the Plant 2 property that has concentrations in the soil that exceed the site-specific clean up levels for polychlorinated biphenyls (PCBs). In addition, shallow soils (up to 4 feet in depth) where the highest volatile organic compound (VOC) concentrations were detected will be excavated. This remedy would include removal of affected soils around the perimeter and beneath the existing concrete building slab to prevent potential future exposure or releases. In addition, the remedy would include periodic groundwater monitoring, installation of new groundwater monitoring wells and institutional controls (restrictive covenants) to restrict future site use and prohibit the use of site groundwater for potable purposes. A final remedy for groundwater will be determined at a later date, based on the results of the periodic monitoring. Under this alternative, the following soils would be targeted for removal:

- Surface soils surrounding the concrete slab and up to the fence line to the north and south and up to the sidewalks adjacent to St. John and Madison Avenues to the east and west (respectively) would be excavated to a depth of approximately 2 feet below ground surface (bgs) to address the presence of PCB-affected surface and shallow subsurface soils. Removal would include shallow subsurface soils around the perimeter of the Site with PCB concentrations above 1 ppm.
- Soils beneath the concrete slab, to the extent necessary, to support installation of foundations and/or utilities associated with possible redevelopment of the Site.
- Soils with higher concentrations of PCBs would be removed to prevent potential future exposure or releases. These soils are in targeted areas where former operations evidenced elevated PCB impacts; more specifically, in areas limited to the footprint of some former sumps, pits, and/or trenches, where elevated PCB concentrations (> 50 ppm) were detected in subsurface soils. Excavation has been assumed to bedrock.
- Shallow soils (up to 4 feet in depth) beneath Sumps 3 and 5, as well as at sample location B2 (in the vicinity of a former drainage ditch, Figure 4-2), where the highest VOC concentrations were detected. (Elevated metals concentrations were also detected at location B2.)

There is one viable potentially responsible party (Mercury Marine) for OU1, which will be responsible for implementing the remedy.

### Statutory Determinations

The selected remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to this remedial action, is cost-effective, and utilizes permanent solutions and alternative treatment technologies (or resource recovery) to the maximum extent practicable. This remedy does not satisfy the preference for treatment as a principle element of the remedy for the following reasons: (1) the treatment of contaminated PCB soils in place has not been demonstrated for long term permanence and effectiveness, (2) treatment technologies are less-cost effective than this remedy, (3) the chosen remedy is a permanent remedy that is widely accepted by the community, and (4) source materials consisting of principle threat wastes will be addressed within the scope of this action. Because this remedy will result in hazardous substances, pollutants, or contaminants in groundwater and soil under the concrete slab remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory five-year review will be required for this remedial action.

### Data Certification Checklist

The following information is included in the Decision Summary section (Part II) of this ROD. Additional information can be found in the Administrative Record file for this Site.

- Contaminants of concern and their respective concentrations (Section 5);
- Baseline risk represented by the contaminants of concern (Section 7);
- Remedial action objectives established for the site (Section 8);
- Current and reasonably anticipated future land use assumptions used in the baseline risk assessment and ROD (Sections 6 and 7);
- Potential land use that will be available at the Site as a result of the selected remedy (Section 12);
- Estimated total present worth costs and the number of years over which the remedy cost estimates are projected (Sections 9,10 and 12); and
- Key factors that led to selecting the remedy (Sections 10 and 12).

### Support Agency Acceptance

The Wisconsin Department of Natural Resources (WDNR) concurs with the selection of Alternative 4 for the Cedar Creek OU1 - Plant 2 Site. The WDNR's concurrence letter is provided in Appendix B.

### Authorizing Signature

---

Richard C. Karl, Director  
Superfund Division  
United States Environmental Protection Agency, Region 5

---

Date

**PART II: DECISION SUMMARY**

**1.0 Site Name, Location, and Brief Description**

The Plant 2 Site is located in Cedarburg, Ozaukee County Wisconsin (See Figure 1-1). The Plant 2 Site consists of soils contaminated by PCBs and VOCs. The Cedar Creek site is divided into two operable units. The first operable unit (OU1), the Plant 2 Site, is located at W66 N598 Madison Avenue. The Plant 2 Site was occupied by an approximately 66,000 square foot building between St. John and Madison Avenues, and is shown in Figure 2-1. Demolition of the Plant 2 above-grade building components (roof, ceiling, and wall) was completed in May 2005 under EPA's Toxic Substances Control Act (TSCA) program, and a temporary cover was constructed over the remaining concrete floor slab. The surrounding area consists primarily of residential properties, with several industries located within a 2,000-foot radius of the Site. The Cedar Creek operable unit (OU2) consists of Cedar Creek, its impoundments, raceways, free flowing reaches and floodplain soils starting after the Ruck Pond dam, then downstream 4.6 miles to its confluence with the Milwaukee River. This ROD addresses the remediation of OU1, which will be the first OU addressed at the site. EPA is the lead agency for this site, and the Wisconsin Department of Natural Resources (WDNR) is the support agency. This site is not listed on the National Priorities List (NPL) but is instead being addressed under the Superfund Alternatives Site Program. The EPA CERCLIS Number is WID988590261. Site remediation will be financed by the Potentially Responsible Party (PRP).

**2.0 Site History and Enforcement Activities**

**2.1 Source of Contamination**

The original building was approximately 13,000 square feet and was constructed by the Milwaukee Northern Railway Company (Milwaukee Northern) between 1906 and 1907. This structure served as a car barn and rail car repair shop for Milwaukee Northern's interurban transport operations.

In 1928, the train car repair shop housed in the car barn was closed, except for light running repairs. The car barn and property were sold in 1942 to Herbert A. Nieman & Company, who reportedly used the original building as a canning factory.

In 1950, Herbert A. Nieman & Company sold the property to Kiekhaefer Corporation, which, as Cedarburg Manufacturing, started building outboard motors. The Kiekhaefer Corporation was the precursor to the current Mercury Marine of Fond du Lac, Wisconsin, which now is a Division of the Brunswick Corporation. The facility was renamed Kiekhaefer Plant 2 and was converted to an aluminum die casting and machining facility. In 1983, the building was sold to Madison Avenue (a joint venture) and reportedly used as a dry goods warehouse. In September 1993, the building was purchased by Brunswick, Mercury Marine's parent company.

Mercury Marine, which began operations in the 1950s, likely utilized products in their operations that contained PCBs and VOCs. Most recently, the deteriorating condition of the Plant 2 building necessitated that the building be demolished. Since PCBs were detected within the Plant 2 building, EPA requested that Mercury Marine proceed with an above-grade demolition under the EPA TSCA self-implementing rule. Under this rule, the party is allowed to cleanup PCBs at a moderately-sized site where there should be low residual impact from remedial activities. Demolition of the plant and installation of a temporary cover over the Site was completed in May 2005.

## **2.2 Previous Investigations**

Investigation activities were performed between 1987 and 2002 to characterize Plant 2 Site conditions and included collection and laboratory analysis of samples from materials within the plant, as well as soils and groundwater.

### **2.2.1 Soil**

Overall, over 100 soil samples were collected and analyzed from numerous locations at the Plant 2 Site. Soil borings were installed to depths of up to approximately 15 feet bgs. Samples collected from the borings were analyzed for Target Compound List/Target Analyte List (TCL/TAL) parameters, diesel range organics (DRO), and gasoline range organics (GRO). Total PCB concentrations reported for the soil samples ranged from non-detect to 7,854 milligrams per kilogram (mg/kg), with the highest PCB concentrations detected in samples collected up to depths of 11 feet from borings taken from three areas where former die casting operations were conducted in Plant 2. PCBs were detected in surface soils (top 1 foot of soil) surrounding the Plant 2 building, ranging in concentrations from non-detect to 146 mg/kg. The highest surface soil concentration (146 mg/kg) was detected in a soil sample collected from a location near the southeast corner of the plant. PCB concentrations in the remaining samples ranged from non-detect to 27.1 mg/kg. (See Figure 3-10A)

Other constituents were detected in the soil samples collected at the plant, including a few VOCs, semi volatile organic compounds (SVOCs) (primarily polynuclear aromatic hydrocarbons [PAHs]), pesticides (only a couple locations at low levels), and inorganics. A few chlorinated VOCs – primarily tetrachloroethene (PCE) and/or trichloroethene (TCE) – were detected in soil samples collected at the Site (all shallow). PAHs were primarily detected in the soil samples collected from the northern portion of the Plant 2 Site, mostly around the perimeter of the building, and the southeast corner of the Site. A few metals – primarily lead, copper, and arsenic – were detected at elevated concentrations at some locations.

### **2.2.2 Groundwater**

Since 1997, Mercury Marine installed and sampled 18 monitoring wells, including one replacement well installed to replace a damaged well, at 16 locations around the Plant 2 Site. Shallow groundwater flows beneath the property and surrounding areas from the north-northwest to the south-southeast toward Cedar Creek. Analytes included TCL/TAL parameters as well as GRO and DRO. PCB concentrations ranging from 0.00025 to 0.00090 mg/L were detected in groundwater sampled from two well locations



(in the northwest and southeast corners of the Site). PCBs were not detected in groundwater sampled from the other well locations, including the downgradient off-site wells.

One to six VOCs were detected at low concentrations in some of the wells and form a plume migrating offsite to the southeast. 1,1,1-Trichloroethane, 1,1-Dichloroethene, Tetrachloroethene (PCE) and Trichloroethene (TCE) were detected above Maximum Contaminant Levels (MCLs) and/or Wisconsin NR 140 Preventative Action Levels (PAL) (See Figures 3-16 – 3-17).

A number of inorganic constituents were also detected in the groundwater samples at low concentrations. SVOCs, herbicides, GRO, and DRO were not reported above the limit of quantitation (LOQ).

### **2.2.3 Building Floor Slab**

The plant's concrete floor slab was sampled to delineate the extent of PCBs within the facility. PCBs were reported at concentrations ranging from non-detect to 877 mg/kg.

## **2.3 Previous Response Actions**

Mercury Marine performed a number of cleaning and improvement activities, described in more detail below, at the Site since 1994, including cleaning the plant, demolition, and removal of two underground storage tanks (USTs) in 1998 (a third UST, which stored waste oil, was removed from outside the plant in 1987).

### **2.3.1– Storm Sewer Cleaning, Rerouting/Repairing Roof Leaders, and Sealing**

During the summer of 1994, various measures were undertaken at Plant 2 and on the storm sewer system servicing Plant 2. An investigation at the facility was initially undertaken by Mercury Marine. The recommendations that were implemented included:

- Cleaning of the storm sewer located between the Plant 2 Site and the storm sewer outfall discharging to Ruck Pond.
- Sealing of two laterals which connected the storm sewer to the plant.
- Rerouting and repairing internal roof leaders at the plant.
- Repairing and sealing the plant's roof and repairing masonry walls.

### **2.3.2 – Plant Demolition and Capping**

The Plant 2 was demolished to the concrete floor slab in May 2005. A temporary cover consists of the following components (from top to bottom):

- 4 to 6 inch layer of washed stone/gravel ballast
- 12-mil reinforced polyethylene flexible membrane liner
- 12-oz non-woven geotextile cushion layer
- Brick and masonry rubble
- Former building concrete floor slab (average approximately 6 to 8 inches thick)

In areas where the rubble was not placed, the non-woven geotextile cushion layer, the flexible membrane liner, and gravel were placed directly over the top of the floor slab.

## **2.4 Enforcement Activities**

The Site was a State (WDNR) lead for a number of years before EPA became the lead in 2002. Two PRPs were identified by the State. An Administrative Order of Consent (AOC) was signed between EPA and Mercury Marine to conduct a Remedial Investigation/Feasibility Study (RI/FS) for the Cedar Creek Site, which includes Plant 2, in 2002.

## **3.0 Community Participation**

The Proposed Plan for the Cedar Creek OU1 - Plant 2 Site was made available to the public for comment from October 8, to November 9, 2007. Copies of the Proposed Plan and the final RI and FS (as well as other supporting documents) were in the local Information Repository at the Cedarburg Public Library. Documents are also available at the EPA Region 5 Records Center in Chicago, Illinois. Copies of the Proposed Plan were sent to about 300 people on site mailing list. A note and link to the Proposed Plan on the site's web page was emailed to about 80 people.

A public notice announcing the comment period, public meeting and availability of the Proposed Plan was published in the Cedarburg News-Graphic on October 1<sup>st</sup>. A news release was also sent to Cedarburg and Milwaukee media on October 3, 2007. EPA held a public meeting on October 10<sup>th</sup> at the Cedarburg City Hall to present the Proposed Plan. About 30 people attended. Representatives from EPA, WDNR and Wisconsin Department of Health and Family Services gave a short presentation, answered questions and accepted comments on the Proposed Plan. Representatives from the City of Cedarburg, Cedarburg Public Library and Congressman Herb Kohl's office were in the audience in addition to a few residents. Responses to comments received during the public comment period (including those submitted at the public meeting) are included in the Responsiveness Summary attached to this ROD. These comments were considered prior to selection of the final cleanup plan for Plant 2.

In addition to the Proposed Plan mailing and public meeting, EPA held a kick off meeting for the RI in 2003 to explain the Cedar Creek site. A public notice was placed in the News-Graphic and a news release was sent to local media about a week prior to the meeting. EPA also spoke with many local residents during the community interviews when the Community Involvement Plan (CIP) was being developed in 2003. The CIP, Proposed Plan, news releases, technical and legal documents have been posted on the Region 5 Web page at <http://www.epa.gov/region5/sites/cedarcreek>.

## **4.0 Scope and Role of Response Action and Operable Units**

The EPA has organized the Cedar Creek Site into two operable units (OUs).

Operable Unit 1: The first operable unit (OU1) is Mercury Marine's Plant 2 located at W66 N598 Madison Avenue in the City of Cedarburg, Wisconsin. The building was approximately 66,000 square feet in size and is addressed in this ROD. OU1 consists of excavating soil material from the Plant 2 property that has concentrations in the soil that exceed the site-specific clean up levels for polychlorinated biphenyls (PCBs) and volatile organic

compounds (VOCs). In addition, OU1 would include groundwater monitoring and institutional controls (restrictive covenants) to restrict future site use and prohibit the use of site groundwater for potable purposes. OU1 will be the first operable unit addressed at the Site, and remediation activities at OU1 will be financed by the PRP.

**Operable Unit 2:** The second operable unit (OU2) is the creek portion of the Site. OU2 consists of Cedar Creek, its impoundments, raceways, free flowing reaches and floodplain soils starting after the Ruck Pond dam, then downstream 4.6 miles to its confluence with the Milwaukee River (See Figure 1). Remediation of OU2 will begin after a ROD for OU2 is completed, and will be the final response action for the Cedar Creek site. Remediation activities at OU2 will be financed by the PRP.

EPA addressed OU1 in the RI and Focused Feasibility Study (FFS) Report dated October 2007. The site was divided into operable units for two reasons: to address the soils with the highest levels of PCBs and VOCs in a timely manner and to address the need for two separate strategies for the OUs. The different strategies are necessary because of the large difference in sizes of the two operable units, which will affect the logistics, including time and money, of implementing the remedy at each OU. A ROD for OU2 is schedule to be completed in 2009, and will be the final response action for this Site. The implementation of a remedy at OU2 will likely take a considerable amount of time and resources as compared to OU1.

## **5.0 Site Characteristics**

### **5.1 Conceptual Site Model for Cedar Creek OU1 - Plant 2 Site**

The conceptual site model (CSM) provides an understanding of the site based on the sources of contaminants of concern (primarily PCBs), potential transport pathways, and environmental receptors. Based on the nature and extent of contamination and the fate and transport mechanisms described in the RI and FFS reports, the CSM includes the following components:

- Groundwater flows across the Plant 2 Site from the north-northwest toward the south-southeast.
- The highest concentrations of PCBs in soils were found within the footprint of Plant 2 beneath areas of the former die casting operations (within the Former Die Casting Room, Southeast Die Casting Room, and southern portion of the Furnace Area). PCBs in these areas likely were historically transported downward from trenches and/or sumps in the plant's floors, in areas where their integrity was compromised. The highest surface soil concentrations were detected in soil samples collected from a location near the southeast corner of the plant. Surface soil contamination is limited to locations close to the building foundation and has not been found off-site.
- PCBs were detected in groundwater in two areas of the Plant 2 Site. The PCB levels detected were at very low concentrations. PCBs exhibit hydrophobic behavior and the

available data indicate that PCBs are likely to remain within close proximity to the property.

- Off-site PCB transport could occur via storm water, but this is unlikely due to the presence of the former building floor slab and temporary cap.
- Other constituents detected at the Plant 2 Site include PAHs, VOCs, and inorganics:
  - PAHs were primarily detected in soil samples collected from the northern portion of the Plant 2 Site and the southeast corner of the Site (Southeast Die Cast Room/Shipping Room area) and are not migrating (not reported above reporting limits in groundwater).
  - Generally, low levels of chlorinated VOCs were detected in the groundwater beneath the eastern portion of the Plant 2 Site, however, 1,1,1-Trichloroethane, 1,1-Dichloroethene, Tetrachloroethene (PCE) and Trichloroethene (TCE) were detected above Maximum Contaminant Levels (MCLs) and/or Wisconsin NR 140 Preventative Action Levels (PAL). There were detections of chlorinated VOCs in site soils. Where chlorinated VOCs were detected in soils, detections were generally limited to the shallower depths.
  - While inorganics/metals are naturally occurring, lead, copper, and arsenic were detected in a limited number of soil samples at higher levels. However, these constituents were not reported above their respective laboratory reporting limits in groundwater. The highest soil lead and copper levels were generally in the southern portion of the Plant 2 Site, with some elevated concentrations also detected in the northern portion of the Plant 2 Site. While the reason for this is unknown, these higher levels may be associated with use of the original plant building as a canning factory, or prior use of the southern portion of the Plant 2 Site for parking/unloading. Elevated arsenic levels do not appear to be related to any portion of the Plant 2 Site.
- No ecological chemicals of concern are associated with the Plant 2 Site.

## **5.2 Site Overview**

The Cedar Creek OU1 - Plant 2 Site is located in Cedarburg, Wisconsin. The Plant 2 Site is roughly bounded by Madison Avenue to the west, St. John Avenue to the east, residential properties to the south and Norstar (industry) located north of the Plant 2 Site. OU1, the area addressed in this ROD, contains elevated levels of PCBs and VOCs in soils found at the Plant 2 Site. Surficial soils contaminated with PCBs present an exposure risk to children and adults within the Plant 2 Site boundary. Sampling found PCB concentrations above cleanup levels at depths of two feet or less. There is one surface water body near the Plant 2 Site, Cedar Creek, which is approximately 1/4 mile from OU1. The Plant 2 Site does not lie within a floodplain. The Plant 2 Site is located in the Wisconsin-Lake Michigan basin. Based on the visual characterization of subsurface soil and bedrock samples collected during the investigations, three primary geologic units have been identified beneath the property, as described below:

- Fill: Man-placed fill materials and various man-made structures, including those related to the former on-site facilities. The fill is composed of a mixture of silt, sand, gravel, and debris (including slag, coal, concrete, bricks, and glass).
- Glacial Deposits: Native unconsolidated sediments consisting of glacial deposits of sand, gravel, silt, and clay. The unconsolidated Quaternary deposits encountered on-site consist of glacially-originated materials derived from end moraines and pitted outwash/ice-contact deposits.
- Bedrock in the vicinity of the Plant 2 Site is described as Cayugan/Niagaran/Alexandrian series dolomite of Silurian Age (Mudrey et al., 1982). Bedrock was encountered during the RI and previous investigations at depths ranging from 1.2 feet (at soil boring PTSBA1 located in the northwestern portion of the site) to 16 feet (at soil boring PTSBG1 located near the central portion of the Site).

The three main water-bearing units in Ozaukee County consist of the unconsolidated sand and gravel aquifer, the Niagara aquifer found in the dolomite bedrock, and the Sandstone aquifer found below the Maquoketa Shale. The sand and gravel aquifer generally is absent in the Cedarburg area, where the thickness of the unconsolidated deposits typically is about 50 feet or less, and the water table is located below the top of the Niagara aquifer. The unconsolidated deposits are reported to have a low to medium permeability and allow precipitation to infiltrate and recharge the Niagara aquifer. The infiltration rate for soils in the Cedarburg area is estimated to be about 0.2 to 0.8 inch per hour. Groundwater movement in the Niagara aquifer under static conditions at the Plant 2 Site is to the southeast, toward Cedar Creek, based on the direction of groundwater flow determined for water table wells installed by the City of Cedarburg. The water supply for the City of Cedarburg is provided by six wells that draw groundwater from both the Niagara and Sandstone aquifers (See Figure 3-8).

Two of the Municipal Wells, Nos. 3 and 5, which are located approximately 1600 feet and 4000 feet, respectively from the Site, have documented detections of trichloroethene (TCE) and 1,2-dichloroethene (1,2-DCE). However, given that the groundwater flow direction for the deep bedrock zone underlying the Plant 2 Site is toward the east-northeast, and not to the south-southeast toward the location of Municipal Wells No. 3 and No. 5, there appears to be no connection between the Plant 2 Site and the municipal wells.

Ozaukee County has a continental climate characterized by a wide range of temperatures between summer and winter, and modified by the effects of Lake Michigan. The Great Lakes significantly influence the local climate. The effects of the lake are most pronounced in the spring and early summer due to the prevailing north-northeasterly wind off the lake.

Temperature extremes are modified by Lake Michigan and, to a lesser extent, the other Great Lakes. Average daily maximum temperatures range from 28.8 degrees Fahrenheit (°F) in January to 81.9°F in July, with average daily minimum temperatures of 11.3 and 58.5°F for the same respective months. Mean annual precipitation for the area is about 31 inches per year, typically with the months of May and June having the highest average monthly precipitation. Yearly average snowfall is about 37 inches, with January having the highest average monthly snowfall.

### 5.3 Sampling Strategy

Soil sampling has been performed as part of a number of investigations conducted at the Plant 2 Site since 1987. Overall, 180 samples were collected and analyzed from 72 locations. The primary soil sampling programs were undertaken by Mercury Marine and included the 1997 subsurface investigation boring program, surficial soil sampling from 1999 to 2002, the 2003 RI/FS soil sampling, and the 2006 and 2007 supplemental soil sampling. Soil borings were installed to depths of up to approximately 15 feet bgs and sampled to further assess the potential impact to soils from historical operations and potential source areas associated with the Plant 2 Site. Samples collected from the borings have been analyzed for TCL/TAL parameters, DRO, and GRO.

Sampling of monitoring well MW-1, installed at the Plant 2 Site in August 1989 as part of the city-wide study commissioned by the City of Cedarburg, indicated the presence of VOCs and PCBs. Since 1997, Mercury Marine installed and sampled 18 monitoring wells, including one replacement well installed to replace a damaged well, at 16 locations around the Plant 2 Site. Analytes have included TCL/TAL parameters as well as GRO and DRO.

In addition, the plant's concrete floor slab was extensively sampled from 1994 to 2006, to delineate the extent of PCBs within the facility.

These investigation activities were documented in several reports, including the following:

- *Subsurface Investigations Documentation Report* (BBL, 2000) provided a description of the Plant 2 Site's history, existing regional information, and then-available Plant 2 Site soil and groundwater data.
- *Building Investigations Documentation Report* (BBL, 2001), a companion volume to the above report, provided data collected from within the plant itself, a brief description of the analytical results (with a focus on PCBs), and a brief overview of cleaning and improvement activities performed at the plant. This document and the prior one were prepared at the request of the EPA to document data for facilitating discussions regarding potential options for addressing the presence of PCBs at the Plant 2 Site.
- *Cedar Creek Remedial Investigation/Feasibility Study Work Plan* (BBL, 2003) (RI/FS Work Plan) included a review of previous investigative activities and existing data for both Cedar Creek and Plant 2, and outlined planned RI/FS characterization efforts.
- *Cedar Creek Preliminary Site Characterization Summary* (BBL, 2005) documented the investigation activities and analytical results of sampling efforts performed at Plant 2 as part of the Cedar Creek Site RI/FS in accordance with the RI/FS Work Plan (BBL, 2003).

### 5.4 Source of Contamination

As discussed in Section 2.1 of this ROD, the PCBs and VOCs found at the Cedar Creek OU1 - Plant 2 Site most likely originated from Mercury Marine's plant operations. In 1994, various measures were undertaken to control the source of contamination (PCBs) to Cedar Creek. The storm sewer system that serviced Plant 2 was cleaned and/or sealed. However, the other former property owners also may have contributed to the contamination. In addition, the still operating industry (Norstar) located just north of the Plant 2 site may be contributing to the contamination.



## **5.5 Types of Contaminants and Affected Media**

At the Cedar Creek OU1 - Plant 2 Site, groundwater and soil were analyzed for TCL/TAL parameters, DRO, GRO. The results were evaluated in the Baseline Human Health Risk Assessment (HHRA) to determine the Contaminants of Potential Concern (COPCs), which revealed which of these chemicals and affected media were most important in driving potential risk at the Plant 2 Site. These findings are summarized in Section 7 of this ROD, but extensive evaluation is found in the RI Report. The HHRA was evaluated using the site data, and the main Contaminant of Concern (COC) at the site was determined to be PCBs in soils.

The Plant 2 site is currently a building slab and parking area with little or no unpaved surfaces. It has a liner and is fenced, and located in a residential/commercial/industrial area. The available habitat was not considered suitable for ecological receptors. Therefore, the potential for ecological exposure at the Plant 2 site is unlikely and was not further addressed in the baseline risk assessment.

## **5.6 Extent of Contamination**

### **5.6.1 Soil**

A total of seven borings were installed/sampled in October 2003, as part of the RI to collect subsurface soil samples for analysis from: 1) beneath and adjacent to the locations of former UST-1 and UST-2, as shown on Figure 3-10A; 2) beneath the floor of the Southeast Die Cast Room; and 3) beneath the floor of the Tool Room. Subsurface soil samples were collected and analyzed to generate data to assess the presence of PCBs in the soils in the vicinity of the former USTs and beneath the floor of the building. The data were also collected to assess whether soil below the Tool Room floor may be acting as a source of the VOCs previously detected in groundwater samples from MW-97-5. The boring locations and summarized analytical results are shown on Figure 3-10A.

The two borings installed in each former UST area were advanced in the approximate center of each former tank pit (SB-03-17 and SB-03-19) and at an adjacent location, downgradient of each former tank (SB-03-18 and SB-03-20). The borings in the Southeast Die Cast Room were advanced in the vicinity of former floor trenches (SB-03-22) and/or a sump (SB-03-21) associated with the room. The boring in the Tool Room (SB-03-23) was advanced in the vicinity of the sump associated with the room.

An eighth boring was planned to be installed off site, north of and upgradient of groundwater monitoring well MW-97-5, to assess whether upgradient soil may be acting as a source of the VOCs detected in that well. This boring was to be developed as a monitoring well. However, the current property owner, Norstar, requested and received permission from the EPA to install the boring/well approximately 25 feet north of the Norstar building's south wall, inside the plant, instead of in the area between Plant 2 and the Norstar plant (as specified in the RI/FS Work Plan [BBL, 2003]). The boring/well was installed on January 6, 2004. The boring was reportedly terminated at approximately 6 feet bgs, where bedrock was encountered. According to Norstar, soil

samples were not retained for analytical testing and groundwater was not encountered at that depth.

Recovered soil samples were visually characterized with respect to lithology, grain size, moisture content, staining, odors, and other observations. Representative samples from each 2-foot split-spoon were placed in resealable plastic bags for headspace screening with a PID and the remaining portion of the samples placed in jars for potential laboratory analysis. One sample was selected from each boring for laboratory analysis based on observed staining, high PID readings, and/or smell. The other samples were retained for subsequent analysis, if necessary. If there were no indications that constituents were present, then the soil sample collected from immediately below the floor slab was selected. If there were no indications that constituents of interest were present in the borings near the former USTs, the soil sample located immediately below the bottom elevation of the former tank was selected. Samples collected from borings SB-03-17 through SB-03-23 were submitted for PCB and chlorinated VOC analyses. Encore samplers were used for collection of soil samples to be analyzed for VOCs. Results are summarized as follows:

#### **PCBs**

- Total PCB concentrations reported for the soil samples ranged from non-detect (SB-03-19) to 5,300 mg/kg, detected in one of the samples collected from beneath the Southeast Die Cast Room at a depth of 8.6 to 10.1 feet bgs (SB-03-22).

#### **VOCs**

- The VOCs detected in soil collected at the 8.6- to 10.1-foot depth interval from boring SB-03-22 in the Southeast Die Cast Room were 1,2,4-trichlorobenzene, isopropylbenzene, and m- and p-xylenes with reported concentrations of 0.083, 0.97, and 0.98 mg/kg, respectively.
- SB-03-23 had non-PCB constituents (VOCs) detected at the 0- to 0.7-foot depth interval, where PCE was detected at a concentration of 0.43 mg/kg. VOC concentrations in the other five borings that were installed were non-detect.

#### **Site Perimeter Soil Sampling (2003)**

Soil sampling was performed in October 2003 as part of the RI along the western and eastern edges of the property to define the horizontal and vertical extent of constituents of interest. The selection of sample locations and sample-specific analytical parameters was based on the results of soil sampling performed at the Plant 2 Site since 1997. In 2003, a total of 10 locations (SS-13 through SS-22) were sampled in 6-inch increments to depths of up to 1 foot or refusal. Sample locations are shown on Figure 3-10A. Samples were submitted to the analytical laboratory for analysis of PCBs, polynuclear aromatic hydrocarbons (PAHs), lead, and/or chromium, based on prior adjacent sampling results. Samples were analyzed using a phased approach. Surficial soil samples (0- to 6-inch bgs) collected at each location

were analyzed. Subsurface soil samples (6- to 12-inch bgs, or to less than 12 inches if refusal was encountered) were then analyzed as appropriate based on the analytical results of the associated surficial samples. PCB concentrations ranged from 0.064 to 13 mg/kg. Several PAH constituents were detected at the five locations sampled at concentrations ranging from 0.00065 mg/kg (estimated) for acenaphthylene to 49 mg/kg for fluoranthene. Total PAH concentrations ranged from 0.31 to 259.7 mg/kg. Lead was detected at the seven locations sampled at concentrations ranging from 7.7 to 49 mg/kg, and chromium was detected in the 0- to 6-inch depth interval at two locations at concentrations of 19 and 20 mg/kg.

### **Installation/Sampling of Soil Borings (2006)**

A total of twenty borings were installed/sampled in October 2006, as a supplement to the previous RI sampling events to collect surface and subsurface soil samples. Those borings were located based upon a detailed review of historical figures and site features. Figures 3-10A through 3-10D shows soil boring locations and summarized analytical results. Results are summarized as follows:

#### **PCBs**

- Total PCB concentrations reported for the soil samples ranged from non-detect to 1,800 mg/kg, detected in one of the samples collected from beneath the Southeast Die Cast Room, near Sump 1, at a depth of 8 to 10 feet bgs (PTSBH3).
- The next highest PCB concentrations detected were 860 mg/kg, reported in the sample collected from beneath the Southeast Die Cast Room (PTSBH1), and 780 mg/kg in a sample collected from beneath the Furnace Area (PTSBC3), in an area of former die casting.

#### **VOCs**

- Trace VOCs, primarily methyl acetate, were detected in samples collected from 13 of the borings at the Plant 2 Site.
- A few chlorinated VOCs were detected in some of the soil samples. PCE was detected at five locations, while other compounds were only detected at one location each: TCE, 1,1,1-TCA, *cis*- and *trans*-1,2-DCE, and 1,2- and 1,3-dichlorobenzene. PCE was detected at concentrations ranging from 0.042 mg/kg to 0.65. TCE was detected at 0.2 mg/kg and 0.42 mg/kg in samples collected from the 0- to 2-foot and 2- to 4-foot depth intervals, respectively, at location PTSBC2. Chlorinated VOC detections were generally limited to the shallower depths.

#### **PAHs**

- Total PAH concentrations ranged from non-detect to 108.1 mg/kg (PTSBH3, 2 to 4 feet).
- The higher concentrations of total PAHs were generally reported for soil samples collected from the northern portion of the Site and the southeast corner of the Site (Southeast Die Cast Room/Shipping Room area).

### **Inorganics**

- A few metals - primarily lead, copper, and arsenic - were detected at elevated concentrations at some locations.
- Lead and copper were detected at elevated levels (up to 5,600 mg/kg, lead, 24,000 mg/kg, copper) in the northern portion of the Site and in the southeast corner of the Site. Arsenic was detected at elevated levels (58 and 59 mg/kg) at two locations in the eastern portion of the Site.

### **Installation/Sampling of Soil Borings (2007)**

Three borings were installed on March 8, 2007, to supplement the previous RI sampling. Those borings were located based upon a detailed review of sample results from the 2006 soil sampling. Figures 3-10A through 3-10D shows soil boring locations and summarized analytical results. Results are summarized as follows:

#### **Room C**

- Total PCB concentrations reported for boring location PTSBC6 ranged from 0.50 mg/kg (12 to 14 feet bgs) to 680 mg/kg (4 to 6 feet bgs). Total PCB concentrations at boring location PTSBC7 ranged from non-detect to 0.13 mg/kg (4 to 6 feet bgs).

#### **Room H**

- Total PCB concentrations reported for boring location PTSBH5 ranged from non-detect to 1.1 mg/kg (2 to 4 feet bgs).
- Total PAH concentrations at boring location PTSBH5 ranged from non-detect to 12.4 mg/kg (2 to 4 feet bgs).
- The four metals analyzed for (arsenic, chromium, copper, and lead) in the samples collected from location PTSBH5 were detected. Arsenic was detected at up to 8.60 mg/kg (4 to 6 feet bgs), chromium up to 19.0 mg/kg (4 to 6 feet bgs), copper up to 58.0 mg/kg (4 to 6 feet bgs), and lead up to 120 mg/kg (4 to 6 feet bgs).

## **5.6.2 Groundwater**

### **Installation/Sampling of Monitoring Wells (2003-2004)**

Four additional monitoring wells were installed at the Plant 2 Site during 2003 and 2004 (MW-03-4R, MW-04-1, MW-04-2, and MW-04-3), the locations of which are shown on Figure 3-13A. Monitoring well MW-03-4R was installed in 2003, on the east side of the building, to replace the damaged and abandoned monitoring well MW-97-4. In 2004, double-cased monitoring wells MW-04-1 and MW-04-2 were installed upgradient and downgradient, respectively, of the Site to further assess PCBs in groundwater. Monitoring well MW-04-3 was installed as a double-cased well adjacent to MW-97-3 to investigate the potential for drag-down of PCBs during well installation that may have lead to PCB detection in groundwater previously sampled from MW-97-3. To allow for

fluctuation of the water table during wet and dry seasons, 5 feet of well screen was installed in or straddling the bedrock/weathered bedrock.

A boring was to be installed off site, north of and upgradient of groundwater monitoring well MW-97-5 and converted to a monitoring well for collection of groundwater samples. However, as previously noted, the current property owner, Norstar, instead requested and received permission to install the well inside its plant, further upgradient than planned. The well was installed on January 6, 2004. The boring was reportedly terminated at approximately 6 feet bgs, where bedrock was encountered. According to Norstar, groundwater was not encountered at that depth. At the time of well installation, Norstar indicated that it would check the monitoring well installed on its property at an unspecified date sometime in the spring of 2004 to see if groundwater was present for testing. To date, Mercury Marine has not been contacted by Norstar regarding the well. Mercury Marine also has received no notice from Norstar that a new well was installed.

### **Groundwater-Level Measurement**

Prior to sampling groundwater at Plant 2, water-level measurements were taken in the monitoring wells to characterize the direction of groundwater flow at the Plant 2 Site. Based on the groundwater water-level measurements, shallow groundwater flows from the north-northwest to the south-southeast across the Site.

### **Groundwater Sampling**

Groundwater sampling was performed to document the groundwater quality at the Site. Four groundwater sampling events were performed during 2003 and 2004, as follows:

- In October 2003, monitoring wells MW-97-1, MW-97-2, MW-97-3, MW-97-5, MW-99-6, and MW-03-04R were sampled for PCBs and VOCs using low-flow sampling techniques. PCB concentrations ranged from non-detect to 0.00053 mg/L, with PCBs being detected in samples from MW-97-1 and MW-97-3. Select (two to six) VOCs were detected at low concentrations in some wells sampled, including one of the upgradient wells (MW-97-5). VOCs detected included TCE (0.00077 mg/L), PCE (0.110 mg/L), 1,1-dichloroethene (1,1-DCE) (0.012 mg/L), 1,1-DCA (0.0031 mg/L), and 1,1,1-TCA (0.2 mg/L).
- In February 2004, ultra low-flow sampling was performed at MW-97-1 and MW-97-3 to collect and analyze samples for PCBs to assess whether PCBs detected in October 2003 were associated with particulates in the well. PCB concentrations ranged from 0.00025 mg/L at MW-97-1 to 0.00067 mg/L at MW-97-3.
- In April 2004, MW-03-4R and MW-97-5 were sampled for VOCs to evaluate for the presence of these compounds in the groundwater. PCE was detected at 0.015 mg/L (MW-03-04R) and 0.0077 mg/L (MW-97-5). Other compounds,

including 1,1-DCE (0.0043 mg/L), 1,1-DCA (0.0011 mg/L), and 1,1,1-TCA (0.090 mg/L), were detected in the sample collected from MW-03-4R.

- In July 2004, MW-04-1, MW-04-2, and MW-04-3 were sampled for PCBs using ultra low-flow techniques to assess off-site groundwater (MW-04-1 and MW-04-2) and to verify PCB levels detected in groundwater near the southeast corner of the Plant Site (MW-04-3). PCB concentrations were non-detect at MW-04-1 and MW-04-2 and 0.00090 mg/L at MW-04-3.

The results of the groundwater sampling are summarized on Figure 3-13A.

#### **Installation/Sampling of Monitoring Wells (2006)**

Eight additional double-cased PVC monitoring wells were installed at the Plant 2 Site during 2006 (MW-06-1, MW-06-2, MW-06-3, MW-06-4, MW-06-5, MW-06-6, MW-06-7, and MW-06-8), the locations of which are shown on Figures 3-13A and 3-13B. Monitoring wells MW-06-2 and MW-06-3 were installed at an upgradient location near the property boundary and at a downgradient location, respectively, along the eastern side of the Site to further assess VOCs in groundwater. Monitoring well MW-06-4 was installed off site across St. John Avenue to assess the extent of VOCs in groundwater. Monitoring wells MW-06-5, MW-06-6, MW-06-7, and MW-06-8 were installed as deep bedrock groundwater monitoring wells in the northwestern, northeastern, southeastern, and southwestern corners of the Site, respectively, to assess the potential migration of constituents to the deep groundwater below the Site. To allow for fluctuation of the water table during wet and dry seasons, 5 feet of well screen was installed in or straddling the water table for the shallow wells.

#### **Groundwater-Level Measurement**

Prior to sampling groundwater at Plant 2, water-level measurements were taken in the monitoring wells to characterize the direction of groundwater flow at the Site. Based on the groundwater water-level measurements, shallow groundwater flows from the northwest to the southeast across the Site and that deep (bedrock) groundwater flows from the west-southwest to the east-northeast across the Site.

#### **Groundwater Sampling**

One round of groundwater sampling was performed during 2006 to document the groundwater quality at the Site. In October 2006, the 16 existing monitoring wells at the Site were sampled for PCBs and VOCs using ultra low-flow sampling techniques to minimize sample turbidity. Monitoring wells MW-03-4R, MW-04-1, and MW-06-1 were additionally analyzed for PAHs and inorganics. PCB concentrations ranged from non-detect to 0.00069 mg/L, with PCBs being detected in samples from MW-97-3 and MW-04-3. Select (one to six) VOCs were detected at low concentrations in some wells sampled, including both of the wells located upgradient near the property boundary (MW-97-5 and MW-06-2). VOCs detected included TCE (0.00065 mg/L), PCE (0.087 mg/L), 1,1-



dichloroethene (1,1-DCE) (0.0046 mg/L), 1,1-DCA (0.0016 mg/L), 1,1,1-TCA (0.078 mg/L), *cis*-1,2-dichloroethene (*cis*-1,2-DCE) (0.0016 mg/L), and acetone (0.0053 mg/L). Only one PAH (i.e., phenanthrene at 0.000015 mg/kg) was detected in one groundwater sample at the Site. All other PAH analyses were reported as non-detect. Select (three to seven) inorganics were detected at low levels in the wells sampled, though neither the Wisconsin Enforcement Standards (ESs) nor Preventive Action Limits (PALs) were exceeded in any of the wells.

The results of the groundwater sampling are summarized on Figures 3-13A and 3-13B.

#### **Sampling of Monitoring Wells (2007)**

Two rounds of quarterly groundwater sampling were performed during 2007 – one during March and the second during June, as described below.

#### **Groundwater-Level Measurement**

Prior to sampling groundwater at Plant 2, water-level measurements were taken in the monitoring wells to characterize the direction of groundwater flow at the Site. Based on the groundwater water-level measurements, shallow groundwater flows from the northwest to the southeast across the Site and that deep (bedrock) groundwater flows from the west-southwest to the east-northeast across the Site.

#### **Groundwater Sampling**

In March and June of 2007, the 16 existing monitoring wells at the Site were sampled for VOCs using low-flow sampling techniques to minimize sample turbidity. Select VOCs were detected at low concentrations in some wells sampled, including both of the wells located near the northern property boundary (MW-97-5 and MW-06-2). VOCs detected included TCE (0.00082 mg/L, J-flagged as estimated), PCE (0.098 mg/L), 1,1-DCE (0.0049 mg/L), 1,1-DCA (0.0013 mg/L), 1,1,1-TCA (0.063 mg/L), *cis*-1,2-DCE (0.0011 mg/L), and acetone (0.0067 mg/L).

The results of the groundwater sampling are summarized on Figures 3-13A and 3-13B.

#### **5.6.3 Building Floor Slab**

To better characterize the concrete plant floors at depth, concrete floor samples were collected that consisted of concrete cores from either the interval between 1 cm and the bottom of the concrete pad or the interval between 7.5 cm and the bottom of the concrete pad (depending on prior sampling results). Samples were analyzed for PCBs by Aroclor using EPA Method SW-846 8082.

A total of four 1 cm-to-bottom composite floor samples were taken concurrent with sample locations PTSBA1, PTSBE4, PTSBG2, and PTSBH3. Two 7.5 cm-to-bottom

composite floor samples were taken concurrent with PTSBC1 and PTSBD1. Sample locations are shown on Figure 3-15.

Analytical results for the concrete floor samples collected indicate that PCBs were detected in all rooms except the Die Repair Room (Room A). PCB concentrations ranged from 0.042 to 11 mg/kg in the samples collected below 1 cm. For the concrete floor sampling below 7.5 cm, total PCB detections ranged from 0.036 to 13 mg/kg.

## **6.0 Current and Potential Future Land and Resource Uses**

The human health risk assessment (HHRA) for this Plant 2 Site considered exposure scenarios associated with assumed future land uses. Future land use at the Plant 2 Site is assumed to be commercial, but as a conservative approach, residential land use is also evaluated (both scenarios are non-industrial use). The HHRA also considered potential exposure of future workers involved in site construction activities. It is assumed that the future land use at the Plant 2 Site addressed in this ROD will be non-industrial use.

## **7.0 Summary of Site Risks**

Mercury Marine prepared a HHRA for the Cedar Creek OU1 - Plant 2 Site, in order to evaluate potential risks to human health if no action is taken. This process characterizes current and future threats or risks to human health and the environment posed by contaminants at the Plant 2 Site. The risk assessments provide the basis for taking action and identify the contaminants and exposure pathways that need to be addressed by the remedial action. This section of the ROD summarizes the results of the baseline HHRA. The HHRA determined that the COCs for the Plant 2 Site are PCBs and VOCs in soils and that cleanup to levels within EPA's risk range will be protective of human health and the environment at the Plant 2 Site for current and future use.

In accordance with EPA guidance on preparing RODs, the information presented here focuses on the information that is driving the need for the response action at the Cedar Creek OU1 - Plant 2 Site and does not necessarily summarize the entire HHRA. Further information is contained in the risk assessments within the RI report, included in the Administrative Record for the Plant 2 Site.

## **7.1 Summary of Human Health Evaluation**

The HHRA was prepared in accordance with EPA's Risk Assessment Guidance for Superfund (EPA, 1989; 2002; 2004a). Current plans for this Plant 2 Site are to redevelop the property, and as such future land use is assumed to be commercial. However, because there is currently no deed or other restrictions to preclude residential land use in the future, hypothetical future residential land use is also conservatively evaluated. It should be noted that this HHRA includes both reasonable- and worst-case exposure scenarios that assume either no removal or removal of the entire slab, respectively.

Media of potential concern for Plant 2 are soils and groundwater. Future commercial or residential receptors may be exposed to constituents in surface soil at the Plant 2 Site (i.e.,

generally a relatively small area of soil around the perimeter of the Plant 2 Site). Should the slab be removed for redevelopment purposes, these receptors may also be exposed to soils immediately beneath the slab. Receptors engaged in intrusive soil activities (e.g., construction workers) may also be exposed to constituents in perimeter surface and subsurface soils, as well as sub-slab soils if the slab is removed. Shallow groundwater at the Plant 2 Site is not used as a source of potable water, and as such, potential exposure to chemical constituents via potable use of groundwater is not quantitatively evaluated in the HHRA. Shallow site groundwater is not used, and is not likely to be used in the future, as a potable source largely because of the low yield of the shallow aquifer (i.e., five of nine site wells purged dry during low-flow sampling events). In addition, municipal drinking water is supplied to the Plant 2 Site and surrounding area by the Cedarburg Light & Water Utility (the Utility), and City Ordinance No. 2005-12 (City of Cedarburg, 2005) requires that all private supply wells be permitted for operation. City Ordinance No. 2005-12 also restricts the drilling of new private supply wells in the City; the Utility will only approve a new private well if the homeowner can justify its need in addition to water provided by the public water system. However, potential exposure via dermal contact with groundwater during intrusive activities is evaluated. While site-related constituents have been detected in the building's concrete floor slab, these constituents would be expected to be relatively immobile because of the nature of the concrete matrix. Thus, the constituents would not be readily available for exposure, and the concrete slab is not considered a medium of potential concern.

Constituents of Potential Concern (COPC) for soil are conservatively selected using WDNR Residual Contaminant Levels (RCLs) as outlined in WDNR Chapter NR 720 and WDNR (2002) Guidance. Groundwater COPCs are selected by comparing data to Enforcement Standards (ES) and Preventative Action Level (PAL) presented in WDNR Chapter NR 140. In instances where RCLs, ESs, or PALs are not available for certain detected constituents in soil or groundwater, alternative screening criteria such as the EPA (2004b) Region 9 Preliminary Remediation Goals (PRGs) for residential soil or drinking water are used to identify COPCs.

The HHRA process consists of the following four steps: 1) data evaluation, to identify site-related constituents of interest; 2) exposure assessment, to determine potential exposure pathways and quantify the magnitude of potential exposure; 3) toxicity assessment, to determine the types of effects associated with exposures; and 4) risk characterization, to quantify cancer risks and non-cancer hazards associated with specific exposures at the Plant 2 Site.

## **7.2 Identification of Contaminants of Concern**

The COPC screening process was used to identify constituents for further evaluation in the HHRA. The process involves comparison of site data to conservative criteria which, if not exceeded, show that risks/hazards are insignificant.

Constituents in soil are compared to screening values derived according to WDNR Chapter NR 720 and WDNR (2002) guidance for developing generic RCLs. These screening values are based on the EPA (1996) soil screening levels (SSLs) for residential exposure but are further adjusted to account for a target cancer risk level of  $1 \times 10^{-7}$  and a hazard quotient of 0.2. These screening values are conservative and are used to satisfy requirements of the WDNR Voluntary

Party Liability Exemption (VPLE) program. When RCLs are not available, EPA (2004b) Region 9 PRGs for residential soil are used. Constituents in soil whose maximum concentrations exceed these screening values are considered COPC and are quantitatively evaluated in the HHRA. RCLs and PRGs are presented in Table 4-3 of Appendix D.

For groundwater, concentrations of chemical constituents are compared to WDNR Chapter NR 140 ES and PALs. ESs are generally the same as federal drinking water standards (i.e., maximum contaminant levels – MCLs), and the PALs are either 10% or 20% of the ES, depending on chemical classification (e.g., carcinogen, mutagen, teratogen). When ESs or PALs are not available, EPA (2004b) Region 9 PRGs for drinking water are used. Constituents in groundwater that exceed these drinking water standards and/or screening criteria are quantitatively evaluated in the HHRA using a construction worker dermal contact exposure scenario. Because site groundwater is not used as a potable water source, use of drinking water-based screening criteria provides a conservative evaluation. ESs, PALs, and PRGs are presented in Table 4-4 of Appendix D.

### **7.2.1 COPC Screening Results – Soil**

Constituents in soil that exceeded the residential soil RCLs or PRGs are shown in Figures 3-10A – 3-10E. A comparison of maximum detected concentrations to residential RCLs and PRGs is shown in Table 4-3 of Appendix D. Several PAHs reported in surface soils around the perimeter of the Plant 2 building slab (benzo(a)anthracene, benzo(b)fluoranthene, benzo(k) fluoranthene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene) exceeded their respective residential RCLs. Maximum concentrations of these constituents ranged from 2.8 mg/kg (dibenz(a,h)anthracene) to 21 mg/kg (chrysene) and were reported in sample SS-21 (collected from the 0- to 0.5-foot and 0.5- to 1.0-foot depth intervals near the northwest corner of the building). Total PCB concentrations in most of the perimeter surface soil samples were above the residential RCL of 0.032 mg/kg. The highest total PCB concentration was 146 mg/kg (reported in SS-7, southeast corner of Plant 2, outside and adjacent to the Former Die Cast Room). A few inorganics also exceeded their respective RCLs, including lead and arsenic. The highest concentrations of arsenic and lead in surface soils are reported in sample SB-97-4 (69.1 mg/kg at 0 to 2 feet) and SS-9 (510 mg/kg at 0 to 1 foot), respectively.

TCE was detected in sub-slab soils in 3 of 57 samples (0.077 mg/kg at location SB-97-15 [0 to 2 feet below the slab floor]; 0.2 mg/kg at PTSBC2 [0 to 2 feet below the slab floor]; and 0.42 mg/kg at PTSBC2 [2 to 4 feet below the slab floor]), and was the only VOC detected above its respective residential RCL (of 0.0094 mg/kg). PCB concentrations reported in soils beneath the Plant 2 building slab are also above the residential RCL. Highest concentrations of TCE are reported below the Former Die Casting Room floor. There were also a few subsurface samples collected from the perimeter of the Plant 2 Site (about 3 to 5 feet bgs) that exceeded the residential PCB RCL. However, PCB concentrations reported in these outdoor subsurface samples are less than the concentrations reported in subsurface soils beneath the Plant 2 building slab (e.g., below the Former Die Casting Room floor). A few inorganics (i.e., antimony, arsenic, chromium, copper, lead, and thallium) also exceeded their respective residential RCLs. The highest concentration of arsenic (307 mg/kg) was reported outside of the former

building foundation between the former Furnace Area and the sidewalk (SB-97-4 2- to 4-foot sample). The highest concentration of lead (5,600 mg/kg) was reported in sample PTSBB2 (2 to 4 feet) located beneath the floor slab of the Tool Room.

Based on this screening evaluation, TCE, PAHs, PCBs, and a few inorganic constituents (including arsenic and lead) have been identified as soil COPCs for further consideration in the HHRA.

### **7.2.2 COPC Screening Results – Groundwater**

VOCs, pesticides, PCBs, and inorganics have been reported in groundwater associated with the Plant 2 Site; however, a few constituents have been detected above their respective ES, PAL, or PRG. No pesticides were present at concentrations above the ES, PAL, or PRG. Only two VOCs (PCE and 1,1-DCE) and total PCBs were reported at or above both the ES and PAL. Detected total PCB concentrations reported above the ES (0.00003 mg/L) and/or PAL (0.000003 mg/L) ranged from 0.00025 mg/L (MW-97-1) to 0.0009 mg/kg (MW-04-03). The only other monitoring well with detectable PCB concentrations was MW-97-3 (maximum detected concentration of 0.00069 mg/L in 2006). Arsenic was the only inorganic to exceed its respective PAL of 0.001 mg/L, but did not exceed the ES of 0.010 mg/L.

Based on this screening evaluation, a few VOCs, PCBs, and arsenic have been identified as groundwater COPCs for further consideration in the HHRA (Table 4-4).

### **7.2.3 Exposure Assessment**

The exposure assessment identifies potential pathways by which receptors may be exposed to chemical constituents. This process involves consideration of constituent concentrations in site-related media (e.g., soils, groundwater) and potentially exposed receptor populations and their activity patterns.

Plant 2 was demolished to the concrete slab in May 2005. Although most of the data used in this assessment were collected prior to demolition of the building, the data are still considered representative of current conditions as the perimeter soils and subsurface soils beneath the slab were not disturbed. Additional data were collected from below the slab floor in 2006 and 2007 and are also used in the HHRA. The former plant's concrete slab floor is covered with a temporary cover and stone, and the Plant 2 Site is fenced. Residential properties are nearby, and there are also other industries located within a 2,000-foot radius of the Plant 2 Site. Under current conditions, there is little or no potential for exposure to constituents in soils or groundwater. As such, this HHRA considers exposure scenarios associated with assumed future land uses.

Future land use at the Plant 2 Site is assumed to be commercial, but as a conservative approach, residential land use is also evaluated. For purposes of this discussion, the following terms are used: surface soil, defined as the top 1 foot of soil; subsurface soil, defined as soils deeper than 1 foot.

Direct contact with soils (i.e., incidental ingestion and dermal contact) is likely to be the predominant exposure pathway for the Plant 2 Site. Inhalation of soil particulates is also

considered as a potential exposure route. As requested by EPA (2007), the vapor intrusion to indoor air pathway is also evaluated due to the presence of VOCs in groundwater. Potential future receptors (commercial or residential) may be exposed to constituents in surface soils during routine activities (e.g., gardening, children playing). Exposure of commercial or residential receptors to subsurface soils is not likely under typical conditions, particularly to the extent that the slab can remain in place with additional development over it. If the slab is removed in the future, future commercial or residential receptors will still probably not be exposed to sub-slab soils as long as the slab is replaced by a new building foundation and/or backfill to bring the area back up to grade, thereby providing a barrier between the current sub-slab constituents and potential receptors. However, as a conservative approach, and consistent with EPA (2006) comments, should the slab be removed, future residential and commercial receptors are assumed to be exposed to sub-slab surface soils (i.e., top 1 foot of soil beneath the slab). There is also the potential for construction workers involved in intrusive activities to be exposed to perimeter surface and subsurface soils in addition to sub-slab soils should the slab be removed.

In summary, each receptor is evaluated using two different data sets; one that assumes that the slab will remain in place and the other that assumes the slab will be removed. For the commercial worker and resident, the first data set considers only surface soil samples collected from the perimeter area outside the slab and the latter data set considers exposure to these perimeter surface soil samples as well as sub-slab surface soils (i.e., soils immediately beneath the slab). Construction workers are also evaluated using two different data sets; one data set considers perimeter surface and subsurface soils, and the other considers all these perimeter soils plus all sub-slab soils.

As previously discussed, shallow groundwater at the Plant 2 Site is not used as a potable source and is not likely to be used as a potable source in the future. Potential exposure associated with dermal contact with groundwater by construction workers is, however, evaluated in this HHRA, because groundwater below the Plant 2 Site is somewhat shallow (approximately 10 feet bgs) and may be encountered during intrusive construction activities.

As previously mentioned, because the Plant 2 Site itself is a building slab and parking area with little or no unpaved surfaces, and because it is located in a residential/commercial/industrial area, available habitat is not considered suitable for ecological receptors. As such, the potential for ecological exposure is unlikely and is not further addressed in this baseline risk assessment.

#### **7.2.4 Toxicity Assessment**

The toxicity assessment identifies the potential effects that are generally associated with exposure to a given chemical. To quantify carcinogenic effects, EPA has derived slope factors (SFs) for those chemicals found to cause a dose-related, statistically significant increase in tumor incidence in an exposed population relative to the incidence of tumors observed in unexposed populations. SFs are typically developed based on oral toxicity



studies and are reported as risk per unit dose in units of inverse milligrams per kilogram body weight per day  $[(\text{mg/kg-day})^{-1}]$ . The SFs are used to quantify the potential risk of cancer associated with a given exposure (EPA, 1989).

To quantify non-carcinogenic hazards, EPA has derived reference doses (RfDs) that represent a threshold of toxicity in units of mg/kg-day. RfDs are intended to represent an exposure that the human population could be exposed to daily for an entire lifetime without appreciable risk of harmful effects (EPA, 1989).

Because most oral SFs and RfDs are based on an administered dose, the toxicity values are sometimes adjusted (expressed as an absorbed dose) when evaluating the dermal exposure scenarios. In accordance with EPA (2004b) Dermal Risk Assessment Guidance, the oral SF is adjusted only when the gastrointestinal absorption of the compound is less than 50%.

DROs and GROs are present in soil at the Plant 2 Site, but risks/hazards are not quantified due to the lack of toxicity data. Toxicity data are also not available for lead. However, potential effects of lead exposure are assessed using EPA-recommended models [Adult Lead Model (ALM) and Integrated Exposure Uptake Biokinetic (IEUBK) Model]. These models are briefly discussed below.

The EPA (2003) ALM is used to assess risks/hazards associated with non-residential adult exposures to lead in soil. It is intended to predict hypothetical blood lead concentrations in fetuses carried by women exposed to lead in soils (EPA, 2003). EPA (2003) guidance established a threshold of concern (fetal blood lead level of 10  $\mu\text{g/dL}$ ), and associated cleanup goals which limit the risk of exceeding the blood lead level of concern (10  $\mu\text{g/dL}$ ) to 5%.

The IEUBK model (Windows version 1, Build 263) is used to assess risks to hypothetical future child residents. The IEUBK model estimates the distribution of blood lead levels in children exposed to lead-containing media, which in turn is used to estimate the risk that a child will exceed the target level of concern (10  $\mu\text{g/dL}$ ). According to the model, the soil concentration that corresponds to the target blood lead level of concern of 10  $\mu\text{g/dL}$  is 340 mg/kg.

#### **7.2.5 Risk Characterization**

The Risk Characterization integrates the results of the data evaluation, toxicity assessment, and exposure assessment to evaluate potential risks/hazards. Consistent with EPA guidance, carcinogenic risks and non-carcinogenic hazards are evaluated separately.

#### **Carcinogenic Risk**

Carcinogenic risk is expressed as a probability of developing cancer over the course of a lifetime as a result of a given level of exposure. For a given chemical and route of exposure, carcinogenic risk is calculated as follows:

$$\text{Risk} = E \times SF$$

where:

$$\begin{aligned} E &= \text{Exposure Intake (mg/kg-day)} \\ SF &= \text{Slope Factor (mg/kg-day)}^{-1} \end{aligned}$$

The equations used to quantify risk for each exposure scenario are presented in Tables 4-5 and 4-6 in Appendix F.

Regulatory agencies have policies and guidelines to determine the significance of these calculated risk levels. EPA uses  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$  as a “target range within which the Agency strives to manage risks as part of a Superfund cleanup” (EPA, 1991).

## **Soil**

Future residents, commercial workers, and construction workers were each evaluated using two different exposure scenarios that assumed: 1) the current slab remains in place, and 2) the current slab is removed prior to redevelopment. Currently, the slab prevents direct contact and inhalation exposures to constituents beneath it. Cancer risk estimates for each receptor group and scenario are presented below.

### **Future Commercial**

The total cancer risk associated with future commercial workers exposed to COPCs in perimeter surface soils (e.g., PAHs, total PCBs, and arsenic) is  $8 \times 10^{-5}$  (Table 4-9). This is based on the assumption that the slab remains in place and prevents exposure to constituents beneath it. COPCs with the highest individual cancer risks are arsenic ( $3 \times 10^{-5}$ ), followed by total PCBs ( $2 \times 10^{-5}$ ) and benzo(a)pyrene ( $2 \times 10^{-5}$ ). These risk levels are within the EPA target risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ . It should be noted that the cancer risk level for arsenic is driven by a single isolated elevated arsenic concentration of 69.1 mg/kg in sample SB-97-4, which is located just outside the furnace area. The maximum detected PCB concentration (146 mg/kg) was observed in sample SS-7, which was collected from the area of the Southeast Die Cast Room.

If the slab is removed, future commercial workers may be exposed to COPCs in soils immediately below the slab in addition to COPCs in the perimeter soils. For this commercial worker scenario, the total cancer risk is  $1 \times 10^{-4}$ , with the greatest risks being attributed to total PCBs ( $1 \times 10^{-4}$ ) (Table 4-10). The maximum detected PCB concentration (7,854 mg/kg) was observed in sample SB-97-7 from beneath the Former Die Casting Room area. Cancer risks attributed to arsenic are  $1 \times 10^{-5}$ , and are again attributed to a single isolated elevated arsenic concentration. The cancer risks for all other carcinogenic COPCs are on the order of  $10^{-6}$  to  $10^{-9}$ .

### **Future Residential**

The total cancer risk associated with potential exposure of future residents (children and adults) to PAHs, total PCBs, and arsenic in perimeter surface soils is  $4 \times 10^{-4}$  (Table 4-11). This cancer risk level assumes that the slab remains in place and exposure occurs to COPCs in perimeter surface soil samples only. The highest individual COPC cancer risk (for combined child and adult) of  $2 \times 10^{-4}$  is attributed to arsenic, followed by benzo(a)pyrene ( $1 \times 10^{-4}$ ), and total PCBs ( $9 \times 10^{-5}$ ). The maximum detected arsenic concentration in surface soil (69.1 mg/kg) was observed in sample SB-97-4, which was collected adjacent to the furnace area. The maximum detected benzo(a)pyrene concentration (17 mg/kg) was observed in sample SS-21, which was collected from outside the Die Repair Room area. The cumulative cancer risk of  $4 \times 10^{-4}$  is greater than  $1 \times 10^{-4}$ .

Similar to the commercial worker scenario, if the slab is removed, future residents may also be exposed to soils immediately beneath the slab, in addition to perimeter soils. For this residential scenario, the total cancer risk is  $6 \times 10^{-4}$ , with the greatest risks being attributed to total PCBs ( $4 \times 10^{-4}$ ), followed by arsenic ( $7 \times 10^{-5}$ ) and benzo(a)pyrene ( $3 \times 10^{-5}$ ) (Table 4-12). Once again, the arsenic risk estimate is driven by a single isolated elevated arsenic concentration.

### **Future Construction Workers**

Assuming that the slab remains in place (which prevents exposure to constituents beneath it), the total cancer risk level for construction workers is  $1 \times 10^{-6}$  (Table 4-13). The highest individual COPC cancer risk is associated with arsenic ( $1 \times 10^{-6}$ ).

The total cancer risk for construction workers using a dataset that includes perimeter soils as well as all soils beneath the current slab (i.e., assumes that the slab has been removed) is  $5 \times 10^{-6}$  (Table 4-14). The highest individual COPC cancer risk of  $5 \times 10^{-6}$  is associated with total PCBs. All other cancer risk levels for individual COPCs (PAHs and arsenic) are on the order of  $10^{-8}$  to  $10^{-11}$ .

### **Summary of Carcinogenic Risk for Soil**

Total cancer risk estimates for the commercial and construction worker exposure scenarios are within the EPA target risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ . The total risk estimates for hypothetical future residential receptors of  $4 \times 10^{-4}$  (with slab) and  $6 \times 10^{-4}$  (slab removed) are greater than  $1 \times 10^{-4}$ .

## **Groundwater**

Four VOCs (1,1,1-TCA, 1,1-DCE, TCE, and PCE), total PCBs, and arsenic were detected in groundwater above the Wisconsin ES, PAL groundwater standards, and/or EPA (2004b) Region 9 PRGs for drinking water. Cancer risks associated with construction worker dermal contact exposure to constituents in groundwater are presented in Table 4-15. The cumulative cancer risk is  $1 \times 10^{-7}$  and is less than the EPA target risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ . The highest carcinogenic risk is associated with PCE ( $7 \times 10^{-8}$ ) and total PCBs ( $4 \times 10^{-8}$ ) (Table 4-15).

In addition, an evaluation of the vapor intrusion to indoor air pathway was conducted for both nearby offsite residences and hypothetical future onsite residences. PCE was the only constituent whose concentrations exceeded the EPA VI screening criteria. Using maximum detected groundwater COPC concentrations from onsite and offsite wells, potential risks were estimated for this pathway using the Johnson-Ettinger (JE) model. Results indicated that onsite risk ( $8 \times 10^{-5}$ ) and offsite risk ( $7 \times 10^{-5}$ ) are within the EPA target risk range.

## Non-Carcinogenic Health Hazards

The hazard index (HI) approach is used to characterize the overall potential for non-carcinogenic health hazards associated with exposure to multiple chemicals. This approach assumes that subthreshold chronic exposures to multiple chemicals are additive. The hazard index is calculated as follows:

$$HI = E1/RfD1 + E2/RfD2 + \dots + Ei/RfDi$$

where:

HI = Hazard Index (HI)  
E/RfD = Hazard Quotient (HQ)  
Ei = exposure intake for the  $i^{\text{th}}$  chemical (mg/kg-day)  
RfDi = RfD for the  $i^{\text{th}}$  chemical

Equations used to derive non-carcinogenic HQs for each exposure scenario are presented in Table 4-5 (soil) and Table 4-6 (groundwater). A HQ value greater than 1 indicates that a calculated exposure is greater than the RfD for a given constituent, and that there may be some potential for health concerns. Similarly, a HI greater than 1 indicates that overall exposure to all chemicals of interest may present concern for potential human health effects (USEPA, 1989).

## Soil

### Future Commercial

The non-cancer HI associated with future commercial workers exposed to COPCs in perimeter surface soils is 1 (Table 4-9), which is equal to the EPA target. This is based on the assumption that the slab remains in place and prevents exposure to constituents beneath it. This HI of 1 is attributed to total PCBs (HQ = 1). HQs for other COPCs are less than 0.2.

If the slab is removed, future commercial workers may be exposed to COPCs in soils immediately below the slab in addition to COPCs in the perimeter soils. For this worker scenario, the total non-cancer HI is 7, which exceeds the EPA target of 1 (Table 4-10). Total PCBs contribute most to the HI (HQ = 7). The maximum detected PCB

concentration (7,854 mg/kg) was observed in sample SB-97-7 from beneath the Former Die Casting Room area. HQs for other non-carcinogenic COPCs are less than 0.1.

### **Future Residential**

Non-cancer HIs associated with future residential exposure to constituents in surface soil (total PCBs and inorganics) for children and adults are 21 and 2, respectively, with total PCBs contributing HQs of 16 (child) and 2 (adult). For children, arsenic and thallium also contributed to the HI of 21, with HQs of 3 and 2, respectively (Table 4-11). For adults, the HQs for all other COPCs are less than 1. The maximum detected PCB concentration in shallow surface soil (146 mg/kg) was observed in sample SS-7, which was collected near the Southeast Die Cast Room area.

Non-cancer HIs were also derived for future residents assumed to be exposed to both perimeter soils and soils immediately beneath the slab (under the assumption that the slab is removed). For this residential scenario, non-cancer HIs for children and adults are 93 and 11, respectively (Table 4-12). Total PCBs are the main contributor to the HIs, with HQs of 88 and 11 respectively. For children, other COPCs with HQs greater than 1 are arsenic (1) and thallium (3). For adults, the HQs for other COPCs are less than 1.

### **Future Construction Worker**

The non-cancer HIs associated with exposure of construction workers to combined surface and subsurface soils (but exclusive of soil beneath the slab) are less than 1 (0.6). The HQ for total PCBs is 0.4 and 0.1 for arsenic (Table 4-13). However, under the assumption that construction workers are exposed to constituents beneath the slab (assuming slab is removed for redevelopment purposes), the HI is greater than 1 (8) (Table 4-14). This HI is largely attributed to total PCBs (HQ of 8), and is greater than the EPA target of 1.

### **Summary of Non-Carcinogenic Hazards**

The non-cancer HIs associated with exposure to constituents in site soils are less than 1 for future construction workers (assuming the slab remains in place). The non-cancer HI for the future commercial worker exposed to site soils with the slab in-place is equal to 1. For all other scenarios evaluated, the HI is greater than 1 and is generally driven by total PCBs.

## **Groundwater**

For the construction worker dermal contact exposure scenario, the total non-cancer HI is less than 1 (HI of 0.3) (Table 4-15).

## **Lead**

Because there are no standard toxicity values for lead that would allow for a typical risk/hazard calculation, potential risks associated with exposure to lead in soils are evaluated using the EPA (2002b) IEUBK Model and the EPA (2003) ALM.

### **Hypothetical Future Child Resident**

Figure 4-2 shows the relationship between soil lead concentration and P10 statistic (probability of a blood lead level greater than or equal to 10 ug/dL) for child resident populations ages 1-84 months using EPA's IEUBK Model (EPA, 1994; Windows version 1, Build 263) with default input parameters. According to the model, the target risk of P10 equal to 5% is exceeded when the soil lead concentration is greater than 340 mg/kg. Consistent with EPA (2002b) guidance, arithmetic mean soil lead concentrations were used in the IEUBK model. The soil lead concentration for the slab-in-place scenario is 110 mg/kg which yields a P10 of 0%. The soil lead concentration for the slab-removed scenario is 103 mg/kg, which also yields a P10 of 0%. As such, the soil lead concentration, for both the slab-in-place and slab-removed scenarios yields a P10 value less than 5%, which indicates that soil lead levels will not pose a concern for hypothetical future child residents.

### **Future Construction Worker**

Figure 4-3 shows the relationship between soil lead concentration (PbS, mg/kg) and P10 statistic for construction workers using the EPA (2003) ALM Model. The target risk of P10 of 5% is exceeded when the soil lead concentration is greater than 632 mg/kg. Consistent with EPA (2003) guidance, arithmetic mean soil lead concentrations were used in the ALM model. Specifically, the soil lead concentration used for the slab-in-place scenario was 81 mg/kg, and the concentration used for the slab-removed scenario was 173 mg/kg. The soil lead concentrations for the two scenarios are less than 632 mg/kg, and therefore lead levels in soil are below a level of concern for the construction worker.

## **Vapor Intrusion**

An evaluation of the vapor intrusion to indoor air pathway was conducted for the Plant 2 Site. Specifically, the potential for VOCs to affect the indoor air quality of nearby offsite residences and hypothetical future onsite residences was evaluated. This evaluation relies on relevant guidance on vapor intrusion (VI) evaluations, specifically the Wisconsin Department of Health and Family Services (WDHFS) (2003) *Chemical Vapor Intrusion and Residential Indoor Air*, and EPA (2002c) *Draft Guidance for Evaluating Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils*. The Wisconsin guidance generally refers to the EPA (2002c) guidance which consists of the three-tiered approach: tier 1 primary screening to simply determine whether the potential for vapor intrusion exists; tier 2 comparison of observed VOC concentrations (groundwater and/or soil vapor) to generic screening values; and tier 3, a site-specific assessment that may involve modeling or collection of additional data.

### **Tier 2 Evaluation**

Based on VOCs detected onsite and in offsite well MW-06-4, EPA (2007b) determined that the potential for VI into offsite residences and hypothetical onsite residences exists. Consistent with the USEPA (2002c) tier 2 approach, VOC concentrations in onsite wells and offsite well MW-06-4 were compared to generic EPA (2002c) groundwater screening criteria. While EPA (2002c) provides three sets of screening values based on target



cancer risk levels of  $1 \times 10^{-4}$ ,  $1 \times 10^{-5}$  and  $1 \times 10^{-6}$ , the most conservative values ( $1 \times 10^{-6}$ ) were used consistent with Wisconsin guidance (see Tables below). Results show that all VOC concentrations in offsite well MW-06-4 were less than conservative screening criteria except PCE (100 ug/L in October 2006 and 51 ug/L in March 2007). Likewise, results show that all onsite VOC concentrations were less than screening criteria, except for PCE, which was detected above 5 ug/L in several wells (MW-97-4, MW-97-5, MW-03-4R, MW-06-1, MW-06-2, and MW-06-3). The maximum detected PCE concentration (110 ug/L) was observed in well MW-03-4R in 2003. Consistent with the EPA tier 2 approach, the maximum PCE concentrations were then compared to more site-specific screening criteria calculated using attenuation factors based on actual soil type. As shown in the tables below, the maximum PCE concentration was greater than the highest screening value listed (11 ug/L based on a  $1 \times 10^{-6}$  cancer risk level). As such, results of the Tier 2 screening indicate that additional site-specific evaluation is warranted. [Note that other available EPA (2002c) PCE screening criteria based on  $1 \times 10^{-5}$  and  $1 \times 10^{-4}$  target risk levels are 11 ug/L and 110 ug/L, respectively. The maximum detected PCE concentration in offsite well MW-06-4 (100 ug/L) is less than this latter value, and the maximum detected PCE concentration in onsite wells (110 ug/L) is equal to this value.]

**Table 1 - Comparison of Offsite VOC Concentrations in Groundwater to EPA Groundwater Screening Values**

<b>Volatile Constituent</b>	<b>Maximum Detected at Concentration at Offsite Well MW-06-4</b>	<b>EPA Generic GW Screening Values – Table 2C)</b>
	(ug/L)	(ug/L)
1,1,1-Trichloroethane	70	3100
1,1-Dichloroethane	1.1	2200
1,1-Dichloroethene	4.6	190
1,2,3-Trichlorobenzene	NA	3400
2-Butanone	ND(5)	440,000
cis-1,2-Dichloroethene	1.3	210
sec-Butylbenzene	NA	250
Tetrachloroethene (PCE)	<b>100</b>	5 [ 5 to 11]
Trichloroethene	0.57 J	5

Notes:

NA = Not analyzed.

ND = Non-detect. Value in parentheses is associated laboratory detection limit.

Values in square brackets present the range of attenuation factor-specific screening values listed in EPA Table 3c.

**Table 2 - Comparison of Onsite VOC Concentrations in Groundwater to EPA Groundwater Screening Values**

<b>Volatile Constituent</b>	<b>Maximum Detected Onsite Concentration</b>	<b>EPA Generic GW Screening Values – Table 2C)</b>
	(ug/L)	(ug/L)
1,1,1-Trichloroethane	200	3100
1,1-Dichloroethane	3.1	2200
1,1-Dichloroethene	12	190
1,2,3-Trichlorobenzene	4	3400
2-Butanone	1.6	440,000
cis-1,2-Dichloroethene	5.2	210
sec-Butylbenzene	1.55	250
Tetrachloroethene (PCE)	<b>110</b>	5 [ 5 to 11]
Trichloroethene	2	5

Notes:

Values in square brackets present the range of attenuation factor-specific screening values listed in EPA Table 3c.

Tier 3 Evaluation

The Johnson-Ettinger (JE) model (EPA, 2004c) was used to estimate the extent of PCE volatilization from groundwater to indoor air of offsite residences and hypothetical onsite residences. Potential cancer risks associated with exposure to PCE via inhalation of indoor air were also estimated using the JE model. The JE model is intended as a screening tool only and should not be the sole basis for remedial action. For this evaluation, the EPA (2004c) recommended default values for all model input parameters were used except: 1) groundwater temperature, 2) soil type, and 3) groundwater depth. The site-specific information is based on boring logs for offsite well MW-06-4 and onsite well MW-03-4R, and soil survey information for Ozaukee County.

Average Groundwater Temperature

The JE model allows site-specific groundwater temperature inputs to account for reduced volatility under colder temperatures. The groundwater temperature used in the model is 5.5°C, which is estimated based on the EPA (2004d) *User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings* (the model default value is 10°C).

Soil Type

The soil type and the associated water-filled porosity are used to estimate the soil vapor permeability of the soil in contact with the hypothetical basement floor. The boring log for offsite well MW-06-4 identifies a mix of soil types including sand, silt and clay; the

top 2 feet is generally sand, followed by clay from about 2.5 to 4 feet, followed by a mix of varying layers of sand, clay and silt to sand/gravel at 6 to 8 feet (which may simply be weathered bedrock encountered just above the water table). The boring log for onsite well MW-03-4R identifies a mix of soil types including sand, gravel, and silt; the top two feet is generally sand, followed by gravel/rock from 2 to 4 feet, followed by sand and silt from 5 to 6 feet and coarse material at deeper depths. Based on the soil types presented in the boring logs, as well as information presented in the USGS soil survey for Ozaukee county, silt loam was chosen as the vadose zone soil type for the JE model. Because coarse grade material (e.g., sand/gravel) is present at deeper depths in wells MW-06-4 and MW-03-4R, sand was conservatively chosen as the soil type immediately above the water table.

#### Depth to Groundwater

Groundwater depth at MW-06-4 was reported as 8.1 feet in October 2006 and 7.7 in March 2007. To be conservative, the shallower groundwater depth of 7.7 feet was used in the JE model. Groundwater depth at MW-03-4R ranged from 6.6 to 9.7 ft bgs from 2003 to 2007. The average of the 2007 groundwater depths (7.5 feet) was used in the JE model.

#### Results

Using conservative default assumptions and the site-specific parameters described above, JE model results show an estimated PCE inhalation cancer risk of  $7 \times 10^{-5}$  for potential offsite exposures and  $8 \times 10^{-5}$  for potential onsite exposures, both of which are within the EPA target risk range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ . These risks are based on the modeled indoor air concentration associated with the maximum detected PCE concentrations (100 ug/L for offsite well MW-06-4 and 110 ug/L for onsite well MW-03-4R).

### **7.3 Risk Assessment Conclusions**

Results of the HHRA show that total cancer risks for all soil scenarios are within the EPA target risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ , with the exception of the total residential risks of  $4 \times 10^{-4}$  for the slab-in-place scenario and  $6 \times 10^{-4}$  for the slab-removed scenario. The highest carcinogenic risks are associated with total PCBs, arsenic, and benzo(a)pyrene. The non-cancer HIs associated with exposure to constituents in Site soils are less than 1 for future construction workers (assuming the slab remains in place). The HI for the future commercial worker scenario (slab-in-place) is 1. For all other scenarios evaluated, the HI is greater than 1 and is driven by total PCBs.

While non-cancer HIs greater than 1 have been identified for construction workers potentially exposed to constituents beneath the slab (HI = 8), these soils are not likely to pose a risk as long as the slab floor remains in place (non-cancer HIs for intrusive workers exposed only to surface and subsurface soils from around the perimeter of the former plant are less than 1 [HI of 0.6]). In addition, the current slab should limit rainwater infiltration and potential migration of constituents from soil into groundwater.

Potential risks/hazards associated with exposure to lead-containing soils were determined for both the hypothetical future child resident and the future construction worker. Results indicated

that soil lead concentrations would not result in blood lead levels greater than the target level of 10 ug/dL for a hypothetical future child resident. Likewise, soil lead levels would not pose a concern to future construction workers. Arithmetic mean soil lead concentrations of 81 mg/kg (slab-in-place) and 173 mg/kg (slab-removed) are less than the model-predicted acceptable target concentration of 632 mg/kg.

PCB concentrations in groundwater are low and near the detection limit. Detected total PCB concentrations reported above the ES (0.00003 mg/L) and/or PAL (0.000003 mg/L) ranged from 0.00025 to 0.0009 mg/L in samples collected from three on-site monitoring wells at two locations. To put these concentrations into perspective, the reported PCB concentrations are less than or near the analytical detection limit of 0.00050 mg/L (detection limit used for previous groundwater data collected for the Site), and the PCB groundwater standards (ES and PAL) are actually less than this PCB detection limit. In addition, PCBs have not been detected in off-site monitoring wells. Arsenic was the only inorganic to exceed its respective PAL of 0.001 mg/L, but did not exceed the ES of 0.010 mg/L.

An evaluation of the vapor intrusion to indoor air pathway was conducted for both nearby offsite residences and hypothetical future onsite residences. PCE was the only constituent whose concentrations exceeded the EPA VI screening criteria. Using maximum detected groundwater COPC concentrations from onsite and offsite wells, potential risks were estimated for this pathway using the JE model. Results indicated that onsite risk ( $8 \times 10^{-5}$ ) and offsite risk ( $7 \times 10^{-5}$ ) are within the EPA target risk range.

In summary, certain constituents in Plant 2 Site soils may pose a concern to potential future residents, commercial workers, and/or construction workers. However, it is important to note that these estimates are based on reasonable maximum scenarios that consider: 1) maximum detected COPC concentrations (for some constituents, e.g., arsenic), 2) soil exposure frequencies that do not reflect seasonal factors (e.g., the lack of exposure to soils during the winter months), and 3) the fact that accessible surface soils are currently limited to a relatively small area around the perimeter of the Plant 2 Site.

As previously mentioned, because the Plant 2 Site itself is a building slab and parking area with little or no unpaved surfaces, and because it is located in a residential/commercial/industrial area, available habitat is not considered suitable for ecological receptors. Therefore, an ecological risk assessment was not conducted.

## **8.0 Remedial Action Objectives and ARARS**

### **8.1 Remedial Action Objectives (RAOs)**

RAOs are remedial goals for protecting human health and the environment. These objectives are used in the development of specific alternatives (i.e., alternatives are developed in consideration of site objectives), and later as a criterion in the evaluation of the various alternatives (i.e., evaluation of the extent to which each alternative would achieve the RAOs). The specific RAOs developed for the Plant 2 Site are:

- Protect human health by reducing or eliminating exposure of future site users to soils containing PCBs or other site-related COCs representing an excess cancer risk greater than  $10^{-6}$ , a hazard index (HI) greater than 1, and State of Wisconsin standards per NR 720.
- Protect human health by preventing exposure to site groundwater with COCs in excess of regulatory or risk-based standards.
- Monitor contaminant levels in groundwater in order to assess compliance with Maximum Contaminant Levels (MCLs), State of Wisconsin NR 140 groundwater standards, and the need for further actions.

Thus, the focus of the remedial effort will be to minimize exposure to site soils and groundwater potentially posing a risk to human health and to assess the groundwater for further action.

## 8.2 Applicable or Relevant and Appropriate Requirements (ARARs)

CERCLA, as amended by SARA, specifies that Superfund Remedial actions must comply with the substantive requirements of federal and state environmental laws. Such requirements may be ARARs. In addition to ARARs, federal and state advisories and guidance documents exist that, although not binding regulations, contain information “to be considered” (TBC). ARARs and TBCs are important in developing remedial objectives that comply with regulatory requirements or guidance (as appropriate). The identification of site-specific ARARs is based on specific constituents at a site, the various response actions proposed, and the general site characteristics. As such, ARARs are classified into three general categories:

**Chemical-specific ARARs** – specific to the type(s) of constituents, pollutants, or hazardous substances at a site; include state and federal requirements that regulate contaminant levels in various media;

**Action-specific ARARs** – specific to the cleanup activities being considered; usually technology- or activity-based; regulatory requirements that define acceptable excavation, treatment, and disposal procedures; and

**Location-specific ARARs** – specific to actions at the geographic location; requirements for contaminant concentrations or remedial activities resulting from a site’s physical location (e.g., wetlands or floodplains).

Potentially applicable federal, state and local ARARs and TBCs are summarized in Appendix C.

## **9.0 Description of Alternatives**

Following development of the RAOs, a screening and evaluation of potential remedial alternatives was conducted in accordance with CERCLA and the NCP in the FFS Report.

The technologies were assembled into remedial alternatives that meet RAOs and satisfy ARARs. The specific details of the remedial components discussed for each alternative are intended to serve as representative examples.

A number of potential remedial scenarios were developed to address soil and groundwater at the Site considering available and applicable remedial technologies. The alternatives were developed in cooperation with WDNR. When developing the alternatives, emphasis was placed on reducing the potential for human exposure to site-related constituents. The alternatives were developed considering overall effectiveness, implementability, and relative cost.

### **9.1 Description of Remedy Components**

Each of the alternatives is briefly described below. More detailed information about each of the alternatives can be found in the FFS report, which is included in the Administrative Record for the Site.

#### **Alternative 1 – No Action**

Under Alternative 1, no active remediation would occur at the Plant 2 Site. Required under the NCP, this alternative serves as a baseline against which the alternatives with active remedial components are compared. This alternative considers only ongoing natural recovery processes at the Plant 2 Site, and does not incorporate institutional controls or monitoring. The existing fencing and cap would remain at the Plant 2 Site; however, their condition would not be monitored or maintained, potentially allowing for exposure to COCs in Plant 2 Site soils in the future. In addition, no restrictive covenants would be implemented to control future use of the Plant 2 Site.

#### **Alternative 2 – Capping with Groundwater Monitoring**

Alternative 2 requires that the site fence, concrete slab, and cap currently covering the Plant 2 Site would continue to be monitored and maintained as a direct contact barrier and to prevent surface water infiltration. Periodic monitoring of site groundwater would be performed to help determine the extent of groundwater contamination at and adjacent to the Plant 2 Site. Additional groundwater monitoring wells would be installed and developed. Institutional controls (restrictive covenants) would be implemented to control groundwater use at the Plant 2 Site. In addition, restrictive covenants would be implemented to control future use of the Plant 2 Site. Municipal drinking water is supplied to the Site and surrounding area by the Cedarburg Light & Water Utility, and City Ordinance No. 2005-12 (City of Cedarburg, 2005) requires all private supply wells be permitted for operation. City Ordinance No. 2005-12 also restricts the drilling of new private supply wells in the City; the Utility will only approve a new private well if the homeowner can justify its need in addition to water provided by the public water system. In addition, use of groundwater at the Plant 2 Site, as well as offsite, would be restricted through continued implementation of this City ordinance.



### **Alternative 3 – Removal of Surface Soil with Groundwater Monitoring**

Alternative 3 assumes the Plant 2 Site will be redeveloped and a majority of the concrete slab will remain in place. In order to ensure continuity and adherence to institutional and engineering controls, deed restrictions, may be appropriate, and would be employed. All surface soils from approximately 0 to 2 feet depth around the perimeter of the existing concrete slab would be removed to reduce risk associated with potential direct contact. Removal would include shallow subsurface soils around the perimeter of the Site with PCB concentrations above 1 ppm. Removal areas would be backfilled with clean soil. Soils would be removed using readily available earthmoving equipment, such as backhoes, and properly disposed at an off-site disposal facility.

To reduce the risk to construction workers and others, the concrete slab would be removed only to the extent needed to accommodate the possible redevelopment of the Plant 2 Site and soils would be excavated only to the depth necessary for construction. Clean soil would be backfilled into the excavation areas to reduce the risk to future construction workers. The rest of the slab would remain across the Plant 2 Site to eliminate direct contact and minimize surface water infiltration, and would be incorporated into the design of any future site structure. Periodic monitoring of site groundwater would be performed to help determine the extent of groundwater contamination at and adjacent to the Plant 2 Site. Additional groundwater monitoring wells would be installed and developed.

In addition, institutional controls (restrictive covenants) would be implemented to control future use of the Plant 2 Site, limiting the use and providing for appropriate cap maintenance. Use of groundwater at the Plant 2 Site, as well as offsite, would also be restricted using restrictive covenants and/or through continued implementation of City Ordinance No. 2005-12.

### **Alternative 4 - Removal of Surface Soils and Subsurface Soils, with Groundwater Monitoring**

Alternative 4 assumes the Plant 2 Site will be redeveloped and removal of the concrete slab will be required in order to excavate higher contaminated areas. All surface soils from approximately 0 to 2 feet around the perimeter of the existing concrete slab would be removed as necessary to reduce risk associated with potential direct contact. Removal would include shallow subsurface soils around the perimeter of the Site with PCB concentrations above 1 ppm. Removal areas would be backfilled with clean soil. Soils would be removed using readily available earthmoving equipment, such as backhoes, and properly disposed at an off-site disposal facility.

Excavation would be conducted (i) where needed to accommodate the possible redevelopment of the Plant 2 Site and (ii) in targeted areas where former operations evidenced elevated constituent impacts. More specifically, the targeted areas were defined based on the detection of elevated PCB (> 50 ppm) or VOC concentrations in soils and the locations of the likely sources within the former building (e.g., sumps, pits, trenches). Additional sampling would be performed in areas slated for removal as a result of PCB detections prior to remediation to further verify the limits of the excavation. A plan would be developed and approved by EPA describing the sampling approach, and would show proposed sample locations. The excavation of subsurface soil with elevated concentrations reduces potential future risk.

The concrete slab would be removed to the extent necessary for targeted excavations or as needed to accommodate the possible redevelopment. Excavations for possible footings would be conducted at such limited locations as necessary across the Plant 2 Site and soils would be excavated to the depth necessary for construction. Clean soil would be backfilled around the concrete footings. In the areas of elevated concentrations, targeted excavations would be conducted. The rest of the slab would remain across the Plant 2 Site to eliminate direct contact and minimize surface water infiltration. Periodic monitoring of site groundwater would be performed to help determine the extent of groundwater contamination at and adjacent to the Plant 2 Site. Additional groundwater monitoring wells would be installed and developed.

In addition, institutional controls (restrictive covenants) would be implemented to control future use of the Site, limiting the use and providing for appropriate cap maintenance. Use of groundwater at the Site, as well as offsite, would also be restricted using restrictive covenants and/or through continued implementation of City Ordinance No. 2005-12.

## **9.2 Common Elements and Distinguishing Features of Each Alternative**

With the exception of Alternative 1 – No Action, each of the remedial alternatives address the primary exposure route of direct contact with affected site media. Alternatives 2 through 4 each meet the RAOs of reducing or eliminating exposure of future site users to soils (RAO No. 1) and groundwater (RAO No. 2). The potential exposure to site soils is generally related to anticipated future use of the Plant 2 Site. Alternative 2 assumes that the Plant 2 Site would not be developed in the future and the existing liner and stone cap would remain and be maintained. Alternatives 3 and 4 assume a future use of the Plant 2 Site (non-industrial) and incorporate additional measures (i.e., soil removal beneath the existing building slab) to reduce potential exposure to affected soil during potential onsite excavation. The alternatives incorporate more aggressive removal of materials relative to the future-use scenario.

Alternatives 2 through 4 each incorporate groundwater monitoring as a means of helping to determine the extent of groundwater contamination at and adjacent to the Plant 2 Site. Alternatives 2 through 4 would include installing new groundwater monitoring wells.

The estimated time for completion of remedial action for Alternatives 3 and 4 is 6 to 9 months. The implementation of Alternative 2 would require 2 to 3 months and Alternative 1 would not require any time. The estimated total costs for Alternative 1 are \$0, for Alternative 2 are \$370,000, for Alternative 3 are \$840,000, and for Alternative 4 are \$2.7 million.

## **9.3 Expected Outcomes of Each Alternative**

If Alternative 1 is implemented, the COCs in environmental media at the Plant 2 Site would continue to pose unacceptable risk to adults and children. If Alternatives 2 or 3 are implemented, the risks will be within acceptable levels, however, it will likely be more difficult to redevelop the property. If Alternative 4 is implemented, the risks will be within acceptable risk levels and the reuse of the property will be more feasible.

Groundwater usage, which does not occur in OU1, will not change regardless of the alternative that is implemented.

If Alternative 1 or 2 is implemented, the area in and around OU1 will likely not change from its current condition and will continue to have a negative association of PCB contamination. If Alternative 3 is implemented, there may be a negative association attached to the area because the higher contamination will remain in the subsurface soils. If Alternative 4 is implemented, the contaminated areas in excess of the cleanup levels will be remediated and this may facilitate the area being redeveloped and revitalized. Currently, the City of Cedarburg is interested in neighborhood revitalization, with the remediation of OU1 being a step in that process.

#### **9.4 Preferred Alternative**

The preferred alternative described in the Proposed Plan for the Cedar Creek OU1 - Plant 2 Site is Alternative 4. The estimated cost of the preferred alternative is \$2.7 million.

#### **10.0 Summary of Comparative Analysis of Alternatives**

This section explains the EPA's rationale for selecting the preferred alternative. The EPA has developed nine criteria to evaluate remedial alternatives to ensure that important considerations are factored into remedy selection decisions. These criteria are derived from the statutory requirements of Section 121 of CERCLA, the NCP, as well as other technical and policy considerations that have proven to be important when selecting remedial alternatives. When selecting a remedy for a site, EPA conducts a detailed analysis of the remedial alternatives consisting of an assessment of the individual alternatives against each of the nine evaluation criteria and a comparative analysis focusing upon the relative performance of each alternative against those criteria.

The nine evaluation criteria are described in more detail below.

##### **Threshold Criteria**

Threshold criteria are standards that all alternatives must meet in order to be selected as a remedy for the site. There is little flexibility in meeting the threshold criteria. If ARARs cannot be met, a waiver may be obtained where one or more site exceptions occur as defined in the NCP.

**Overall Protection of Human Health and the Environment.** Protectiveness is the main requirement that remedial actions must meet under CERCLA. It is an assessment of whether each alternative achieves and maintains adequate protection of human health and the environment. A remedy is protective if it eliminates, reduces, or controls all current and potential risks posed by the site through each exposure pathway. Adequate engineering controls, land use controls, or some combination of the two can be implemented to control exposure and thereby ensure reliable protection of human health and the environment over time. In addition, implementation of a remedy cannot result in unacceptable short-term risks or cross-media impacts on human health and the environment.

**Compliance with ARARs.** Compliance with ARARs is a statutory requirement of remedy selection. This criterion is used to determine whether the selected alternative would meet the federal, state, and local ARARs identified in Appendix C. A discussion of the compliance of each alternative with chemical-, location-, and action-specific ARARs is included.

### **Primary Balancing Criteria**

Balancing criteria are used to weigh tradeoffs between alternatives. These represent the standards upon which the detailed evaluation and comparative analysis of alternatives are based. A high rating for one criterion can generally compensate for a low rating on another of the balancing criteria.

**Long-Term Reliability and Effectiveness.** Long-term reliability and effectiveness reflects CERCLA's emphasis on implementing remedies that will protect human health and the environment in the long term. Under this criterion, results of a remedial alternative are evaluated in terms of the risk remaining at the site after response objectives are met. The primary focus of the evaluation is the extent and effectiveness of the actions or controls that may be required to manage the risk posed by treatment residuals or untreated wastes.

Factors to be considered and addressed are magnitude of residual risk, adequacy of controls, and reliability of controls. Magnitude of residual risk is the assessment of the risk remaining from untreated waste or treatment residuals after remediation. Adequacy and reliability of controls is the evaluation of the controls that can be used to manage treatment residuals or untreated wastes that remain onsite.

**Reduction of Toxicity, Mobility, or Volume through Treatment.** This criterion addresses the statutory preference for remedies that employ treatment to significantly reduce the toxicity, mobility, or volume of the hazardous substances. That preference is satisfied when treatment is used to reduce the principal threats at a site by destroying toxic chemicals or reducing the total mass or total volume of affected media. This criterion is specific to evaluating only how the treatment reduces toxicity, mobility, and volume. Specifically, the analysis will examine the magnitude, significance and irreversibility of reductions. It does not address containment actions, such as capping.

**Short-Term Effectiveness.** This criterion examines the short-term impacts associated with implementing the alternative. Implementation may affect workers, the neighboring community, or the surrounding environment. Short-term effectiveness also includes potential threats to human health and environment associated with excavation, treatment and transportation of hazardous substances; potential cross-media impacts of the remedy; and the time required to achieve protection of human health and the environment.

**Implementability.** Implementability considerations include technical and administrative feasibility of the alternatives, as well as the availability of goods and services (including treatment, storage or disposal capacity) associated with the alternative. Implementability considerations often affect the timing of remedial actions (for example, limitations on the season in which the remedy can be implemented, the number and complexity of material handling steps, and the need to secure technical services). Onsite activities must comply with the substantive parts of applicable permitting regulations.

**Cost.** The detailed cost analysis of alternatives includes capital and annual O&M costs incurred over a period of 50 years in accordance with EPA guidance *Guide to Developing and Documenting Cost Estimates During the Feasibility Study*. The focus during the detailed analysis is on the net present worth of these costs. Costs are used to select the most cost-effective alternative that will achieve the remedial action objectives.

The cost estimates are prepared to have accuracy in the range of -30 to +50 percent. The exact accuracy of each cost estimate depends upon the assumptions made and the availability of costing information. Present worth will be calculated assuming the current discount rate established by the Office of Management and Budget.

### **Modifying Criteria**

Modifying criteria are evaluated by addressing comments received after the regulatory agencies and the public have reviewed the FFS and Proposed Plan. This evaluation is presented in the Responsiveness Summary, found in Appendix A.

**State Acceptance.** This criterion evaluates the technical and administrative issues and concerns the state may have regarding the alternatives. This is addressed by receiving comments on the RI/FS Report and the Proposed Plan.

**Community Acceptance.** This criterion evaluates the issues and concerns the public may have regarding the alternatives. This is addressed by receiving comments documented during the public comment period.

The full text of the detailed analysis of the four remedial alternatives against the nine evaluation criteria (including both the individual analysis and the comparative analysis) is contained in the FFS Report for the Cedar Creek OU1 - Plant 2 Site, which is part of the Administrative Record for the Plant 2 Site. Because the two Modifying Criteria cannot be fully evaluated until the public comment is closed, they were not evaluated in the FFS. The Responsiveness Summary of this ROD contains a more detailed discussion of public comments received.

This section of the ROD presents a comparative analysis of the remedial alternatives presented for the Plant 2 Site. The purpose of the comparative analysis is to identify the relative advantages and/or disadvantages of each remedial action alternative. The NCP is the basis for the detailed comparative analysis.

## 10.1 Overall Protection of Human Health and the Environment

With the exception of Alternative 1 – No Action, each of the remedial alternatives addresses the primary exposure route of direct contact with affected site media. Alternatives 2 through 4 each meet the RAOs of reducing or eliminating exposure of future site users to soils (RAO No. 1) and groundwater (RAO No. 2). The potential exposure to site soils is generally related to anticipated future use of the Plant 2 Site. Alternative 2 assumes that the Plant 2 Site would not be developed in the future and the existing liner and stone cap would remain and be maintained. Alternatives 3 and 4 assume a future use of the Plant 2 Site (non-industrial) and incorporate additional measures (i.e., soil removal beneath the existing building slab) to reduce potential exposure to affected soil during potential onsite excavation. The alternatives incorporate more aggressive removal of materials relative to the future-use scenario.

Alternatives 2 through 4 each incorporate groundwater monitoring as a means of helping to determine the extent of groundwater contamination surrounding the Plant 2 Site. Alternatives 2 through 4 would include installing new groundwater monitoring wells.

## 10.2 Compliance with ARARs

*Chemical Specific ARARs:* The primary chemical-specific ARARs for this OU1 include soil and groundwater quality standards. Alternatives 1 and 2 do not include any soil removal or treatment and do not effectively address the chemical-specific soil ARARs (e.g., PCBs - 50 ppm for TSCA). Alternatives 3 and 4 incorporate soil removal as part of the remedial activities. Alternative 4 incorporates removal of a larger soil volume and will remove soil containing higher PCB concentrations. Alternatives 2 through 4 each incorporate continued groundwater monitoring. Based on current information, Alternatives 2 through 4 have a comparable potential for meeting the chemical-specific groundwater ARARs.

*Action-Specific ARARs:* Action-specific ARARs that apply to this alternative include remedial activity requirements (e.g., Resource Conservation and Recovery Act [RCRA] and TSCA requirements) and health and safety requirements. Compliance with action-specific ARARs would be accomplished by following an EPA-approved RD/RA Work Plan and a site-specific Health and Safety Plan (HASP). Based on current information, Alternatives 2 through 4 have a comparable potential for meeting the action-specific ARARs.

*Location-Specific ARARs:* Each alternative possesses equal potential for meeting the location-specific ARARs. Potentially applicable location-specific ARARs include historic preservation-related requirements, although no issues are anticipated with this Site.

All the ARARs are presented in Tables 2-1 and 2-2 in Appendix C.



### **10.3 Long-Term Effectiveness and Permanence**

Long-term effectiveness for Alternative 2 is primarily dependant upon maintaining the integrity of the existing surface cover, institutional controls, and deed restrictions. Alternatives 3 and 4 provide potentially more permanence due to less emphasis on maintenance and an increase in removal of affected media. Alternative 4 involves the most removal, and includes removal of VOC-containing soils. All three of these alternatives would be effective at reducing the primary exposure route of direct contact with affected site media.

### **10.4 Reduction of Toxicity, Mobility, or Volume through Treatment**

None of the alternatives include treatment to reduce toxicity, mobility or volume of the COCs. The treatment of contaminated PCB soils in place has not been demonstrated for long term permanence and effectiveness.

### **10.5 Short-Term Effectiveness**

Alternatives 1 and 2 do not involve any invasive activities to implement the remedies. Therefore there are no short-term impacts. Alternatives 3 and 4 include soil removal which could potentially present a complete exposure pathway between onsite workers or trespassers to affected site media. Alternative 4 includes removal of soils containing higher concentrations of COCs and thus may pose additional risks in the short term. Under both of these alternatives, the potential exposure would be addressed by utilizing engineering controls to reduce the possibility of releases, using appropriate PPE, adhering to a site-specific HASP, and restricting access to the Plant 2 Site via security fencing.

### **10.6 Implementability**

Each of the remedial alternatives is implementable. The remedial technologies are well understood and present no unusual challenges for construction. Although readily implementable, Alternative 4 would be the more difficult to implement of the four alternatives, possibly requiring sheetpiling to prevent slope failure during removal, including the subslab, beneath the Former Die Casting Room. Common to Alternatives 3 and 4 is the need for coordination with the future redevelopment of the property. Alternatives 3 and 4 incorporate removal of subsurface material to facilitate installation of subsurface foundations and utilities associated with potential redevelopment of the property. These potential difficulties for both alternatives could be addressed by prior planning/coordination and frequent communication.

### **10.7 Cost**

There are no costs associated with Alternative 1. Costs increase from lowest to highest from Alternatives 2 through 4 due to effort and volume of material removed (in Alternatives 3 and 4). The table below summarizes the estimated costs associated with each of the remedial alternatives presented above.

Remedial Alternative	Estimated Capital Cost	Estimated Annual O&M Cost	Estimated Total Cost
Alternative 1 – No Action	\$0 M	\$0 M	\$0 M
Alternative 2 – Capping with Groundwater Monitoring	\$0.09 M	\$0.28 M	\$0.37 M
Alternative 3 – Removal of Surface Soils with Groundwater Monitoring	\$0.64 M	\$0.20 M	\$0.84 M
Alternative 4 – Removal of Surface Soils and Subsurface Soils, with Groundwater Monitoring	\$2.5 M	\$0.20 M	\$2.7 M

### 10.8 State Acceptance

The State Agency, WDNR, has been involved with the Site prior to EPA taking the lead, and has continued to be involved in all steps of the RI/FS for the Plant 2 Site. The WDNR concurs with the selection of Alternative 4. A letter of concurrence from the State can be found in Appendix B.

### 10.9 Community Acceptance

During the public comment period on the Proposed Plan, the community expressed very few concerns with the proposed remedy for the Cedar Creek OU1 - Plant 2 Site. This ROD includes a responsiveness summary that summarizes the public comments and EPA's response to those comments. The responsiveness summary is included as Appendix A.

### 11.0 Principal Threat Wastes

The NCP establishes an expectation that EPA will use treatment to address the principal threat posed by a site wherever practicable. In general, principal threat wastes are those source materials considered to be highly toxic or highly mobile which generally cannot be contained in a reliable manner or would present a significant risk to human health or the environment should exposure occur. The PCB contamination found in the soils at the Cedar Creek OU1 - Plant 2 Site is considered to be highly toxic. Therefore, the principal threat waste definition applies to the contamination at this Plant 2 Site.

### 12.0 Selected Remedy

This section describes the selected remedy and provides EPA's reasoning behind its selection. Alternatives can change or be modified if new information is made available to EPA through further investigation or research. An appropriate range of alternatives was developed, based upon initial screening of technologies, potential for contaminants to impact the environment, and site-specific RAOs and goals.

## **12.1 Identification of the Selected Remedy and Summary of the Rationale for its Selection**

Based on the analysis of the nine criteria as summarized in Section 10 of this ROD, the selected remedy for the Cedar Creek OU1 - Plant 2 Site is Alternative 4. This alternative represents the best balance of overall protectiveness, compliance with ARARs, long-term effectiveness and permanence, cost, and other criteria. It is also the alternative favored by the WDNR and the community.

## **12.2 Description of the Selected Remedy**

Alternative 4 would include removal of affected soils around the perimeter and beneath the existing concrete building slab to prevent potential future exposure or releases. Under this alternative, the following soils would be targeted for removal:

- Surface soils surrounding the concrete slab and up to the fence line to the north and south and up to the sidewalks adjacent to St. John and Madison Avenues to the east and west (respectively) would be excavated to a depth of approximately 2 feet bgs to address the presence of PCB-affected surface and shallow subsurface soils. Removal would include shallow subsurface soils around the perimeter of the Plant 2 Site with concentrations above 1 ppm.
- Soils beneath the concrete slab, to the extent necessary, to support installation of foundations and/or utilities associated with possible redevelopment of the Plant 2 Site.
- Soils with higher concentrations of PCBs would be removed to prevent potential future exposure or releases. These soils are in targeted areas where former operations evidenced elevated PCB impacts; more specifically, in areas limited to the footprint of some former sumps, pits, and/or trenches, where PCB concentrations (> 50 ppm) in excess of TSCA were detected in subsurface soils. Excavation has been assumed to bedrock.
- Shallow soils (up to 4 feet in depth) beneath Sumps 3 and 5, as well as at sample location B2 (in the vicinity of a former drainage ditch, Figure 4-2), where the highest VOC concentrations were detected. (Elevated metals concentrations were also detected at location B2.)

This alternative would also include the removal, management, and disposal of any sections of the concrete building slab necessary to support sub-slab soil removal. The anticipated maximum limits of the soil (and the concrete slab) to be removed under this alternative are shown on Figure 4-2. The areas of removal, or removal zones, were purposely expanded around the sample locations containing elevated PCBs to provide a buffer coincident with and/or beyond the limits of the historic sumps/trenches, which based on the RI sampling results, represent the source of the underlying COCs in the soil. Excavation activities would be conducted using a backhoe, excavator and/or other appropriate earthmoving equipment. Sheetpiling may be necessary to allow for excavation of the higher concentration PCB soils at depth below the building slab.

Additional soil removal beneath the existing concrete building slab is included under this alternative due to the increased potential for intrusive activities (utility installation, general construction, installation of foundation).

Approximately 4,700 CY of soil and concrete would be removed and managed under this alternative to meet the above objectives. The excavated soil would be stockpiled onsite to facilitate characterization of the material prior to transportation and offsite disposal. Soil stabilization/dewatering are not part of this alternative as excavation activities would primarily take place above the water table. Based on results obtained for soil samples collected during the investigation activities conducted at the Plant 2 Site, approximately 3,000 CY of the soil/concrete waste contains PCBs at concentrations greater than 50 ppm. Excavated material containing PCBs at concentrations less than 50 ppm would be transported for off-site disposal at a non-hazardous waste disposal facility. Excavated material containing PCBs at concentrations greater than 50 ppm would be transported for disposal as TSCA-regulated material at a TSCA approved landfill. Following soil removal, the excavation would be backfilled with imported clean fill material.

As part of this alternative, the existing liner and stone layer would be removed from the concrete slab to prepare the Plant 2 Site for possible redevelopment. As part of any future construction at the Plant 2 Site, a vapor barrier and collection system would be installed beneath any building constructed as a precautionary measure against potential volatilization of VOCs.

This alternative also includes institutional controls (restrictive covenants) to restrict future site use and prohibit the use of site groundwater for potable purposes. In addition, use of groundwater at the Plant 2 Site, as well as offsite, would be restricted through continued implementation of City Ordinance No. 2005-12.

Periodic groundwater monitoring would also be conducted to document concentrations of remaining chemical constituents in groundwater. Additional monitoring wells at and adjacent to the Plant 2 Site would be installed and developed. The entire site well network would be sampled for VOC and PCB analysis on a regular basis. A final remedy for groundwater will be determined at a later date, based on the results of the periodic monitoring.

### **12.3 Summary of the Estimated Remedy Costs and Time Required for Implementation**

The estimated cost of the selected remedy for the Cedar Creek OU1 - Plant 2 Site is \$2,700,000. The remedial design is expected to take three months to complete, and the remedial action is expected to take at least three months to complete. Appendix E contains the cost breakdown for Alternative 4.

The information in the cost estimate summary table is based on the best available information regarding the scope of the remedy. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedy. Changes may be documented in the form of a memorandum in the Administrative Record file, an Explanation of Significant Difference (ESD), or a ROD amendment. The cost estimate is expected to be within +50 to -30 percent of the actual project cost.

## **12.4 Expected Outcomes of the Selected Remedy**

The selected remedy for the Cedar Creek OU1 - Plant 2 Site, Alternative 4, will achieve the RAOs for the Plant 2 Site. The selected remedy will be protective of human health and the environment and will comply with all ARARs. The following are expected to occur by implementing Alternative 4 for OU1:

- Possible non-industrial reuse at the remediated property.
- Soil at the Plant 2 Site will have PCB and VOC concentrations below the cleanup levels, which will reduce the potential human health risk at OU1 to acceptable levels.
- Groundwater use at the site will not be affected, as there are no private groundwater wells within OU1 and all drinking water in OU1 is provided by the City of Cedarburg.
- There are anticipated beneficial socio-economic and community impacts resulting from the remediation of OU1. The City of Cedarburg is currently interested in revitalization of the area. Any planned projects will not move forward until the Plant 2 area is remediated.

## **13.0 Statutory Determinations**

Under CERCLA Section 121 and the NCP, remedies selected for Superfund Alternative Sites are required to be protective of human health and the environment, comply with applicable or relevant and appropriate requirements (unless a waiver is justified) and be cost effective. The following sections discuss how the selected remedy for the Cedar Creek OU1 - Plant 2 Site meets these statutory requirements.

### **13.1 Protection of Human Health and the Environment**

The current and potential future risks at the Cedar Creek OU1 – Plant 2 Site are due to the presence of elevated concentrations of PCBs and VOCs in soils. Implementation of the selected remedy will be protective of human health and the environment, as described in the NCP, through the removal of subsurface soils with PCB concentrations above 50 ppm and surface and shallow subsurface soils around the perimeter of the Plant 2 Site with concentrations above 1 ppm. In addition, the shallow soils (up to 4 feet in depth) where the highest VOC concentrations were detected will be removed. The site specific RAOs were developed to protect current and future receptors that are potentially at risk from contaminants at the Plant 2 Site. The selected remedy will meet the RAOs. OU1 will be available for reuse at the completion of the remedial action and institutional controls will be required to ensure that the remedy remains protective.

### **13.2 Compliance with ARARs**

Section 121(d) of CERCLA requires that Superfund remedial actions meet ARARs. Appendix C provides all ARARs identified for this site which will be met under this ROD. In addition to

ARARs, non-enforceable guidelines, criteria, and standards may be useful in designing the selected remedy. As described previously in Section 8.2 of this ROD, these guidelines, criteria, and standards are known as TBCs. The selected remedy will comply with the ARARs for the Plant 2 Site.

### **13.3 Cost Effectiveness**

EPA has determined that the selected remedy for the Cedar Creek OU1 - Plant 2 Site is cost effective and represents value for the money to be spent. A cost effective remedy in the Superfund program is one whose costs are proportional to its overall effectiveness. The overall effectiveness of the potential remedial alternatives for the Plant 2 Site was evaluated in the FFS by considering the following three criteria: long-term effectiveness and permanence, reduction in toxicity, mobility and volume through treatment, and short-term effectiveness. The overall effectiveness was then compared to cost to determine whether an alternative is cost effective. Of the remedial alternatives evaluated for the Plant 2 Site, Alternative 4 provided the highest degree of cost effectiveness.

### **13.4 Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to the Maximum Extent Practicable (MEP)**

The selected remedy represents the maximum extent to which permanent solutions and treatment are practicable at the Plant 2 Site. Although treatment technologies will not be utilized in this remedy, the selected remedy is the only remedy with proven long-term permanence, and is more cost-effective than treatment technologies available. The selected remedy also permanently removes the contamination from the Plant 2 Site, allowing for reuse of the property. The selected remedy is also favored by the state and local community.

### **13.5 Preference for Treatment as a Principle Element**

This remedy does not satisfy the preference for treatment as a principle element of the remedy for the following reasons: (1) the treatment of contaminated PCB soils in place has not been demonstrated for long term permanence and effectiveness, (2) treatment technologies are less-cost effective than this remedy, (3) the chosen remedy is a permanent remedy that is widely accepted by the community, and (4) source materials consisting of principle threat wastes will be addressed within the scope of this action.

### **13.6 Five-Year Review Requirements**

The NCP requires that the remedial action be reviewed no less often than every five years if the remedial action results in hazardous substances, pollutants, or contaminants remaining at the Plant 2 Site above levels that allow for unlimited use and unrestricted exposure. Because this remedy will result in hazardous substances, pollutants, or contaminants in groundwater and soil under the concrete slab remaining on-site above levels that allow for unlimited use and unrestricted exposure, including Wisconsin Preventative Action Limits (PAL), a five-year review will be required for this remedial action.



#### **14.0 Documentation of Significant Changes**

The Proposed Plan for Cedar Creek OU1 - Plant 2 Site was released for public comment on October 8, 2007, and the public comment period ran from October 8 through November 9, 2007. The Proposed Plan identified Alternative 4 (Removal of Surface Soils and Subsurface Soils, with Groundwater Monitoring) as the preferred alternative for the Plant 2 Site. EPA reviewed all written and verbal comments submitted during the comment period and determined that no significant changes to the remedy, as originally identified in the Proposed Plan, were necessary or appropriate.

**APPENDIX A**  
**Responsiveness Summary**

## **RESPONSIVENESS SUMMARY for the Cedar Creek OU1 - Plant 2 Site**

This Responsiveness Summary provides both a summary of the public comments U.S. EPA received regarding the Proposed Plan for the Cedar Creek Plant 2 Site and U.S. EPA's responses to those comments. The Proposed Plan was released to the public in early October 2007, and the public comment period ran from October 8 2007, through November 9, 2007. Wisconsin Department of Natural Resources (WDNR) provided support on the Proposed Plan. U.S. EPA held a public meeting regarding the Proposed Plan on October 10, 2007, at the Cedarburg City Hall in Cedarburg, Wisconsin. WDNR participated in the public meeting, assisted in responding to questions, and provided support at the meeting.

U.S. EPA received written comments (via regular and electronic mail) and verbal comments (at the public meeting) during the public comment period. In total, U.S. EPA received comments from approximately 9 different people. Copies of all the comments received during the public meeting (including the verbal comments reflected in the transcript of the public meeting) are included in the Administrative Record for the Site. U.S. EPA carefully considered all comments prior to selecting the final Site remedy documented in the ROD.

This Responsiveness Summary does not repeat verbatim each individual comment. Rather, the comments are summarized and grouped by the type of issue raised. The comments fell within several different categories: support for the proposed remedy, future use of the Site, concerns during the Site cleanup and requests for a different alternative.

The Responsiveness Summary contains a summary of the comments U.S. EPA received and U.S. EPA's responses to those comments, grouped by category.

### **I. SUPPORT FOR THE PROPOSED REMEDY**

A majority of the comments expressed support of the cleanup of the Cedar Creek Plant 2 Site and indicated that the need for protection to human health and the environment from any contaminants existing on the Site is a high priority.

### **II. FUTURE USE OF THE SITE**

Reuse of the property continues to be part of the City of Cedarburg's plan for the neighborhood. The City is considering the possibility of using the Site for a new library. Most of the comments agreed with the library as a possible development option.

### III. CONCERNS DURING SITE CLEANUP

A couple comments expressed concern with leaving portions of the concrete slab as a cap, indicating that we should be sure you clean it up so it can have multiple uses generations into the future. Another comment suggested that we don't want to cover something up that might come back to haunt us down the road. They would like the cleanup done right.

In addition, there was a concern that capping it at the height it is now could cause water runoff onto neighboring properties. They would like to see it brought down to the natural level of the ground.

### IV. PREFERENCE FOR DIFFERENT ALTERNATIVE

One comment indicated their preference for removing the entire concrete slab and any contamination under the slab in order to protect future generations. Based upon U.S. EPA's evaluation of all of the cleanup options, Alternative 4 provided the best level of protection to humans and the environment. As the risk assessment and evaluations in this document have shown, there are no additional risks associated with the using the concrete slab as a possible cap. Therefore, a cleanup option that would remove the entire concrete slab was not included as a possible option.

### V. COMMENTS

#### Comment 1

*Comment: "The only thing I am concerned about with the options is the reliance upon leaving the portions of the concrete slab as a cap."*

**Response: Based upon U.S. EPA's evaluation of all of the cleanup options, Alternative 4 provided the best level of protection to humans and the environment. As the risk assessment and evaluations in this document have shown, there are no additional risks associated with the using the concrete slab as a possible cap.**

#### Comment 2

*Comment: "I am concerned that we're capping it at the height it is now, so I am worried about runoff. I would like to see something done to bring it down to the natural level of the ground."*

**Response: Whatever development is completed at the Site, it will have to include certain measures to control runoff during storm events, so that it will not cause flooding problems on nearby properties.**

Comment 3

*Comment: "Do an adequate job in the cleanup. Let's do things the right way."*

**Response:** U.S. EPA's goal is to make sure we protect people's health by reducing or eliminating exposure to soil with high levels of PCBs, preventing exposure to contaminated groundwater, and ensuring that contamination levels in groundwater are reduced. U.S. EPA believes that Alternative 4 will provide the best level of protection by addressing the highest levels of contamination on the Site. The groundwater will be monitored on a regular basis to make sure that contaminant levels are decreasing or remain stable.

**APPENDIX B**  
**Concurrence Letter from WDNR**





**State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES**

Jim Doyle, Governor  
Matthew J. Frank, Secretary

101 S. Webster St.  
Box 7921  
Madison, Wisconsin 53707-7921  
Telephone 608-266-2621  
FAX 608-267-3579  
TTY Access via relay - 711

Mr. Richard C. Karl, Director  
Superfund Division  
USEPA Region 5  
77 West Jackson Blvd.  
**Mail Code:** SR-6J  
Chicago, IL 60604-3507

RE: Concurrence with the Record of Decision for Operable Unit 1 (OU1)  
(Soil Contamination only) of the Cedar Creek Site, Cedarburg, WI

  
Dear Mr. Karl,

I am sending you this letter to document that the Wisconsin Department of Natural Resources has reviewed the Record of Decision for the Cedar Creek Site, Operable Unit 1 (OU1) (aka Mercury Marine Plant 2) for the final action for soil contamination. We have concluded that we can concur with the selected remedy for soil remediation at the site with continued groundwater monitoring for a future final remedy for the groundwater pathway.


The selected remedy consists of excavating soil material from the Plant 2 property that has concentrations in the soil that exceed the site-specific clean up levels for polychlorinated biphenyls (PCBs) and volatile organic compounds (VOCs). This remedy would include removal of affected soils around the perimeter and beneath the existing concrete building slab to prevent potential future exposure or releases. In addition, the remedy would include periodic groundwater monitoring, installation of new groundwater monitoring wells and institutional controls (restrictive covenants) to restrict future site use and prohibit the use of site groundwater for potable purposes. A final remedy for groundwater will be determined at a later date, based on the results of the periodic monitoring. Under this alternative, the following soils would be targeted for removal:

- Surface soils surrounding the concrete slab and up to the fence line to the north and south and sidewalks adjacent to St. John and Madison Avenues to the east and west (respectively) would be excavated to a depth of approximately 2 feet below ground surface (bgs) to address the presence of PCB-affected surface and shallow subsurface soils. Removal would include shallow subsurface soils around the perimeter of the Site with PCB concentrations above 1 ppm
- Soils beneath the concrete slab, to the extent necessary, to support installation of foundations and/or utilities associated with possible redevelopment of the Site
- Soils with higher concentrations of PCBs would be removed to prevent potential future exposure or releases. These soils are in targeted areas where former operations evidenced elevated PCB impacts; more specifically, in areas limited to the footprint of some former sumps, pits, and/or trenches, where elevated PCB concentrations (> 50 ppm) were detected in subsurface soils. Excavation has been assumed to bedrock

- Shallow soils (up to 4 feet in depth) beneath Sumps 3 and 5, as well as at sample location B2 (in the vicinity of a former drainage ditch, Figure 4-2), where the highest VOC concentrations were detected. (Elevated metals concentrations were also detected at location B2 )

We are hopeful that your staff will continue to work in close consultation with our staff during the implementation of the Record of Decision. We appreciate your efforts thus far and look forward to working with you and your staff until the site is remediated. If you have any questions regarding this letter please contact Jim Schmidt at (414)263-8561.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark F. Giesfeldt". The signature is fluid and cursive, with the first name "Mark" being the most prominent.

Mark F. Giesfeldt, P.E., Director  
Bureau for Remediation and Redevelopment

**APPENDIX C**  
**ARARs and TBCs**

Table 2-1

**Mercury Marine Plant 2  
Cedarburg, WI  
Focused Feasibility Study**

**Federal ARARs/TBCs**

<b>Regulation</b>	<b>Citation</b>	<b>Description</b>	<b>Applicability/ Appropriateness</b>	<b>Rationale</b>
<b>FEDERAL CHEMICAL-SPECIFIC ARARS</b>				
Clean Water Act [Federal Water Pollution Control Act, as amended]	40 CFR 122, 125, 129, 131; Section 301, 303, 306, 307, 401, 404; 33 USC 1251; 33 USC 1314	Provides federal, state and local discharge requirements to control pollutants to navigable waters (also includes NPDES).	ARAR	Establishes relevant and appropriate water quality criteria to protect against adverse effects, if dewatering is necessary.
Safe Drinking Water Act (SDWA)	40 CFR 141	Provides Maximum Contaminant Levels (MCLs) for groundwater pollutants.	ARAR	Establishes relevant and appropriate groundwater quality criteria to protect against adverse effects.
Resource Conservation and Recovery Act (RCRA)	40 CFR 261, 262, 264, 268; 42 U.S.C. 6901 et seq.	Identifies and lists certain materials as hazardous wastes and sets management standards for such wastes.	ARAR	Potentially applicable in consideration of management of materials removed from a site if they contain any listed hazardous waste or exhibit a characteristic of a hazard.
<b>FEDERAL ACTION-SPECIFIC ARARS</b>				
NPDES Program Requirements	40 CFR 122, Subpart B; 40 CFR 125; 40 CFR 301, 303, and 307	NPDES Program Permit Requirements. Establishes permitting requirements for point source discharges; regulates discharge of water into navigable waters including the quantity and quality of discharge.	TBC	These requirements will be considered if dewatering is necessary and treated water is discharged from the site.
	33 USC 1342; 40 CFR 122.26 (c)(1)(ii)(C); 40 CFR 122.44(k); 40 CFR 125.1-.3, .100-.104	Best management practices to control pollutants in stormwater discharges during construction activities. Best Available Technology (BAT) effluent limits for toxic and non-conventional pollutants; Best Conventional Technology (BCT) limits for conventional pollutants; water-quality based effluent limitations. Best management practices to prevent release of toxics to surface water from ancillary areas or spills.	ARAR	Best management practices for erosion and sedimentation control will be adopted to minimize the potential for rainfall or flood-induced migration of soils from disturbed areas.
Federal Criteria, Advisories, and Guidance	American Conference of Governmental Industrial Hygienists (ACGIH)	Threshold Limit Value (TLV). These standards were issued as consensus standards for controlling air quality in workplace environments.	TBC	TLVs could be used for assessing the potential for site inhalation risks during remediation.

Table 2-1

**Mercury Marine Plant 2  
Cedarburg, WI  
Focused Feasibility Study**

**Federal ARARs/TBCs**

Regulation	Citation	Description	Applicability/ Appropriateness	Rationale
<b>FEDERAL ACTION-SPECIFIC ARARS (Cont'd)</b>				
Clean Air Act	40 CFR 52	Air emission rates for chemical constituents. Establishes filing requirements and standards for constituent emission rates in accordance with National Ambient Air Quality Standards (NAAQS).	TBC	To be considered for remedial alternatives that include removal of soil or treatment within the site.
RCRA	40 CFR 260 - 282	Pertains to management of hazardous wastes.	ARAR	The substantive requirements of these regulations may apply to actions within the site.
	40 CFR 264/265, Subpart D	Contingency Plan and emergency procedures. Outlines requirements for contingency plan and emergency procedures.	TBC	May be considered for on-site activities related to development of contingency plans and emergency procedures to be implemented during site work.
	40 CFR 264/265, Subpart I	Use and management of containers. Requires all hazardous waste to be stored and managed in appropriate containers.	TBC	May be considered for on-site activities requiring hazardous waste storage.
	40 CFR 264/265, Subpart N	Landfills. Details the design, operation, monitoring, inspection, recordkeeping, closure, and permit requirements for a RCRA landfill.	TBC	May be considered for on-site consolidation of soil following removal.
	40 CFR 268	Land Disposal Restrictions. Identifies treatment standards and prohibitions of hazardous waste in a land disposal unit.	ARAR	May apply to disposition of removed soil.
	40 CFR 261.24	Identifies concentrations of contamination which, if present, make a waste hazardous due to toxicity. The analytical test set forth in Appendix II of 40 CFR part 261 is referred to as the Toxicity Characteristic Leaching Procedure (TCLP).	ARAR	TCLP will be used to determine whether soils and sediments are characteristic hazardous waste.

Table 2-1

Mercury Marine Plant 2  
Cedarburg, WI  
Focused Feasibility Study

Federal ARARs/TBCs

Regulation	Citation	Description	Applicability/ Appropriateness	Rationale
<b>FEDERAL ACTION-SPECIFIC ARARS (Cont'd)</b>				
Toxic Substances Control Act (TSCA)	40 CFR 761.50(a)(3)	Prohibits discharge of water containing PCBs to navigable waters unless PCB concentration is less than approximately 3 ppb or in accordance with discharge limits of NPDES permit.	ARAR	Criteria will be considered in establishing discharge criteria for water treatment effluent.
	40 CFR 761.61(c) 40 CFR 761.65	Establishes cleanup options and storage options for PCB remediation waste, including PCB-contaminated soils. Options include risk-based approval by USEPA. Risk-based approval option must demonstrate that cleanup or storage plan will not pose an unreasonable risk of injury to health or the environment.	ARAR	Applicable to remedial actions that involve PCB-contaminated wastes.
	40 CFR 761.79	Establishes decontamination standards and procedures for removing PCBs from non-porous surfaces.	ARAR	Applicable to decontamination of equipment used in excavation and restoration activities.
	40 CFR 761.40	Requirements regarding the marking of PCB containers and PCB storage areas.	ARAR	Applicable to remedial actions that involve PCB-contaminated wastes.
	40 CFR 761, Subpart G	Policy used to determine adequacy of cleanup of spills resulting from the release of materials containing PCBs at concentration of 50 ppm or greater.	TBC	Will be considered in the event of PCB spills occurring during the work.
Hazardous Materials Transportation Act, as amended	49 CFR 107, 171, 179	General information, regulations and definitions. Department of Transportation rules for transportation of hazardous materials, including procedures for the packaging, labeling, manifesting, and transporting of hazardous materials.	ARAR	Applicable for material shipment off-site.
USEPA Guidance - Office of Solid Waste and Emergency Response (OSWER)	EPA/540/R-95/052, OSWER Directive No. 9355.7-04, May 1995	<i>Land Use in the CERCLA Remedy Selection Process</i> . Presents information for considering land use in making remedy selection decisions at NPL sites.	TBC	Guidance will be considered during evaluation of remedial alternatives.



Table 2-1

Mercury Marine Plant 2  
Cedarburg, WI  
Focused Feasibility Study

## Federal ARARs/TBCs

Regulation	Citation	Description	Applicability/ Appropriateness	Rationale
<b>FEDERAL ACTION-SPECIFIC ARARS (Cont'd)</b>				
Comprehensive Environmental Recovery, Compensation and Liability Act (CERCLA)	42 USC 103 Section 9621(d)(4)(C)	Technical impracticability waiver.	ARAR	Applicable if attainment of cleanup goals cannot be achieved due to technical impracticability from an engineering perspective.
	42 USC 9601 Section 121(e)	Waives the requirement to obtain federal, state, and local permits for on-site CERCLA actions.	ARAR	Applicable to CERCLA actions.
USEPA Guidance - OSWER	OSWER Directive 9200.4-14	<i>Consistent Implementation of the FY1993 Guidance on Technical Impracticability of Ground-Water Restoration at Superfund Sites</i>	TBC	Clarifies how to determine when ARAR-based cleanup levels may be waived for reasons of technical impracticability.
	OSWER Directive 9234.2-25, September 1993	<i>Guidance for Evaluating the Technical Impracticability of Groundwater Restoration</i> . Establishes USEPA's policy and procedures for demonstrating technical impracticability of groundwater remediation.	TBC	This guidance may be considered for potential actions at the site.
	OSWER Directive 9200.4-17P, 1997	<i>Use of Monitored Natural Attenuation (MNA) at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites</i> . Provides guidance regarding the use of MNA for the cleanup of soil and groundwater.	TBC	This guidance may be considered for potential actions at the site.
	OSWER 9355.7-03B-P, June 2001	<i>Comprehensive Five-Year Review Guidance</i> . Provides guidance on conducting five-year reviews for sites at which hazardous substances, pollutants, or contaminants remain on-site above levels that allow for unrestricted use and unlimited exposure.	TBC	Guidance will be considered during preparation of any post remediation monitoring plans.

Table 2-1

**Mercury Marine Plant 2  
Cedarburg, WI  
Focused Feasibility Study**

**Federal ARARs/TBCs**

Regulation	Citation	Description	Applicability/ Appropriateness	Rationale
<b>FEDERAL ACTION-SPECIFIC ARARS (Cont'd)</b>				
OSHA	29 CFR 1910	General Industry Standards. These regulations specify the 8-hour time-weighted average concentration for exposure of site workers to various organic compounds. Training requirements for workers at hazardous waste operations are specified in 29 CFR 1910.120.	ARAR	Applicable for on-site remedial actions.
	29 CFR 1926	Safety and Health Standards. This regulation specifies the type of safety equipment to be used on-site and procedures to be followed during site remediation.	ARAR	These requirements apply to all site contractors and subcontractors and must be followed during all site work.
	29 CFR 1904	Recordkeeping, Reporting, and Related Regulations. This regulation outlines the recordkeeping and reporting requirements for an employer under OSHA.	ARAR	Applicable for on-site remedial actions performed.
<b>FEDERAL LOCATION-SPECIFIC ARARS</b>				
USEPA Guidance - OSWER	OSWER Directive 9355.7-04, May 1995	<i>Land Use in CERCLA Remedy Selection Process.</i> Identifies considerations for incorporating anticipated future land use in the remedy selection process.	TBC	Provides guidance for consideration of future site land use in selection of a site remedy.
National Historic Preservation Act, 16 USC 470 et seq.	36 CFR 800, 36 CFR 65, and 40 CFR 6.301	Proposed remedial actions must take into account effect on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed undertaking.	ARAR	Relevant and appropriate if activities will affect historic properties or landmarks at/near the site.
Historic Sites, Buildings and Antiquities Act, 16 USC 461 et seq.	36 CFR 62.6	National Landmarks. Proposed remedial actions shall consider the existence of national landmarks and avoid undesirable impacts upon such landmarks.	TBC	May be considered if activities will affect historical areas.

Table 2-2

**Mercury Marine Plant 2  
Cedarburg, WI  
Focused Feasibility Study**

**State ARARs/TBCs**

<b>Regulation</b>	<b>Citation</b>	<b>Description</b>	<b>Applicability/ Appropriateness</b>	<b>Rationale</b>
<b>STATE CHEMICAL-SPECIFIC ARARS</b>				
Soil Cleanup Standards	WAC NR 720	Allows for the calculation of site-specific risk- based cleanup standards based on the intended reuse of the property. Generally applied to unsaturated material or soils.	ARAR	Applicable.
Standards for Selecting Remedial Actions	WAC NR 722	Establishes standards for selection of remedial actions. Generally applied to soil cleanup programs.	ARAR	Applicable.
Groundwater Quality Standards	WAC NR 140	Establishes groundwater quality standards and evaluation and response procedures.	ARAR	Applicable.
<b>STATE ACTION-SPECIFIC ARARS</b>				
Management of PCBs and Products Containing PCBs	WAC NR 157	Establishes procedures for the storage, collection, transportation, processing, and final disposal of PCBs and materials containing PCBs at any level. It refers to NR 500 and 600 series.	ARAR	Applicable for removal, transport, and disposal of contaminated soils.
Wisconsin Pollutant Discharge Elimination System	WAC NR 200	Technology-based effluent limits (NR 220–297). Requires compliance with permit limitations for discharge to navigable waters, including water quality effluent limits, water quality standards, national performance standards, and toxic and pretreatment effluent standards.	ARAR	Applicable for remedial alternatives involving discharges.
Water Quality Antidegradation	WAC NR 207	Establishes implementation procedures for the antidegradation policy in s. NR 102.05(1)(a).	ARAR	Applicable to proposed new or increased discharges.
Water Quality Antidegradation: Waste Load Allocated, Water Quality-related Effluent Standards and Limitations	WAC NR 212–220	Establishes permit limitations for effluent discharges.	ARAR	Applicable for remedial alternatives involving effluent discharges.
Wisconsin's General Permit Program for Certain Water Regulatory Permits	WAC NR 322	Establishes minimum design standards and specifications for projects permitted under a general permit.	ARAR	Potentially applicable for implementation of a given remedial alternative.

Table 2-2

Mercury Marine Plant 2  
Cedarburg, WI  
Focused Feasibility Study

State ARARs/TBCs

Regulation	Citation	Description	Applicability/ Appropriateness	Rationale
<b>STATE ACTION-SPECIFIC ARARS (Cont'd)</b>				
Wisconsin State Air Pollutant Control Regulations	WAC NR 400-499	Establishes concentration levels, by chemical, for new sources. Manages construction and operation permits.	ARAR	Applicable for removal and disposal of soils.
Solid Waste Management	WAC NR 500-520	Provides definitions, submittal requirements, exemptions and other general information relating to solid waste facilities which are subject to regulations under s. 2789.01(35) Stats. Applicable for off-site siting processes. Applicable to new and existing facilities.	ARAR	Applicable for implementation of a given remedial alternative.
Hazardous Waste Management	WAC NR 600-685	Provides definitions, general permit application information, incorporation by reference citations and general information concerning the hazardous waste management program. Establishes procedures for handling, storage, and disposal of hazardous wastes.	ARAR	Applicable for removal, transport, and disposal of contaminated soils. Applicable to treatment units.
Identification and Listing of Hazardous Waste	WAC NR 605	Establishes criteria for identifying the characteristics of hazardous waste to determine if the waste is subject to regulation.	ARAR	Applicable for removal, transport, and disposal of contaminated soils.
Investigation and Remediation of Environmental Contamination	WAC NR 700	Establishes standards and procedures that allow for site-specific flexibility, pertaining to the identification, investigation, and remediation of sites and facilities which are subject to regulation under s. 144.442, 144.76, or 144.77, Stats.	ARAR	Applicable for implementation of a given remedial alternative.
Notification of the Discharge of Hazardous Substances	WAC NR 706	Notification procedures and responsibilities by discharger of hazardous substances including containment, cleanup, disposal, and restoration.	ARAR	Applicable for removal, transport, and disposal of contaminated soils.
Low-hazard Solid Waste Exemption	Wis. Stats. Ch. 289.43	Solid waste law that allows issuance of exemption from siting requirements in NR 500-520. Excavated soils may be considered "exempt" after treatment if "new" product is created.	ARAR	Potentially applicable if ex-situ treatment option is selected.

Table 2-2

Mercury Marine Plant 2  
Cedarburg, WI  
Focused Feasibility Study

State ARARs/TBCs

Regulation	Citation	Description	Applicability/ Appropriateness	Rationale
<b>STATE ACTION-SPECIFIC ARARS (Cont'd)</b>				
EPA TSCA Coordinated Approval	The State of Wisconsin Approval Process for Dredging of Commercial Ports, WDNR 2004	USEPA Region 5 works with WDNR on review of application to waive disposal requirements in NR 500 landfills and allow disposal of TSCA-level sediments (>50 ppm) in a Wisconsin licensed solid waste landfill.	TBC	Applicable in evaluating disposal options of soils.
<b>STATE LOCATION-SPECIFIC ARARS</b>				
Beneficial Reuse Solid Waste Exemption	WAC NR 500.08	Establishes criteria for possible beneficial use of solid wastes after treatment. Applies for on-site reuse options only.	ARAR	Applicable for disposal of treated soils meeting disposal criteria.
Landfill Siting and Approval Process	Wis. Stats. Ch. 289	State statute for solid waste facilities. Addresses the upland disposal of solid waste. Landfill facilities are prohibited from shoreland and floodplain zone areas except by permits issued from WDNR.	ARAR	Applicable for implementation of any given remedial alternative disposal option.

**APPENDIX D**  
**Comparison to Standards (Tables 4-3 – 4-4)**



Table 4-3

Mercury Marine Plant 2  
Cedarburg, WI  
Remedial Investigation Report

Comparison of Maximum Detected Concentrations in Soil to Residential RCLs

Constituents	RCL	Detection Frequency	Detected Maximum Concentration	Maximum Detected Location	COPC
<b>VOLATILE ORGANIC COMPOUNDS (Concentrations in mg/kg)</b>					
1,1,1-Trichloroethane	1.20E+03	2/42	0.041	PTSB2	No
1,2,4-Trichlorobenzene	1.50E+02	2/50	0.083	SB-03-22	No
(1,2,4 & 1,3,5) Trimethylbenzene	3.30E+01	2/2	0.8	S-4	No
1,2-Dichlorobenzene	6.00E+02	1/42	0.11	PTSBH4	No
1,3-Dichlorobenzene	5.30E+02 (e)	1/42	0.03	PTSBH4	No
Acetone	1.41E+04	4/71	0.18	SB-07-7, SB-07-14, PTSB2	No
Bromomethane	2.50E+00	1/88	0.076	SB-07-14	No
Carbon Disulfide	2.30E+02	1/71	0.032	SB-07-6	No
Chloromethane	2.80E+01	4/71	0.095	SB-07-1	No
cis-1,2-Dichloroethene	1.50E+02	1/42	0.54	PTSBH1	No
Ethylbenzene	4.00E+02	1/42	0.079	PTSBH1	No
Isopropyl Benzene (Cumene)	1.50E+03	2/50	0.97	SB-03-22	No
Methyl Acetate	1.50E+04	16/42	40	PTSB2	No
Methylcyclohexane	4.80E+02	2/42	0.044	PTSB2	No
sec-Butylbenzene	6.20E+02	1/5	0.44	SB-09-6	No
Tetrachloroethene	1.23E+00	10/71	0.84	PTSB2	No
Toluene	4.30E+02	14/73	1.4	SB-07-7	No
trans-1,2-Dichloroethene	3.13E+02	1/42	0.14	PTSBH1	No
Trichloroethene	9.40E+03	3/71	0.42	PTSB2	Yes
Xylene, o	3.13E+04	3/71	0.46	PTSBH1	No
Xylenes, m + p	1.70E+02	3/71	0.98	SB-03-22	No
Xylenes, total	1.90E+02				No
<b>SEMI-VOLATILE ORGANIC COMPOUNDS (Concentrations in mg/kg)</b>					
Acenaphthene	9.39E+02	49/100	8	SS-21	No
Acenaphthylene	NA	44/100	0.73	PTSB2	No
Anthracene	4.69E+03	52/100	8.2	SS-21	No
Benzo(a)anthracene	8.70E+02	59/100	20	SS-21	Yes
Benzo(b)fluoranthene	8.70E+02	62/100	16	SS-21	Yes
Benzo(k)fluoranthene	8.75E+01	60/100	15	SS-21	Yes
Benzo(g,h,i)perylene	NA	56/100	8.5	SS-21	No
Benzo(e)pyrene	9.00E+03	58/100	17	SS-21	Yes
Bis(2-ethylhexyl)phthalate	4.56E+00	1/24	0.039	S-1	No
Carbazole	3.19E+00	2/22	0.34	SB-07-4	No
Chrysene	8.75E+00	59/100	21	SS-21	Yes
Dibenz(a,h)anthracene	9.00E+03	50/100	2.9	SS-21	Yes
Dibenzofuran	6.20E+01	1/22	0.384	SB-07-4	No
D-n-butyl phthalate	1.50E+03	2/24	0.073	S-1	No
2,4-Dimethylphenol	3.13E+02	2/22	2.34	SB-07-11	No
Fluoranthene	8.26E+02	64/100	49	SS-21	No
Fluorene	6.26E+02	2/22	0.328	SB-07-4	No
Indeno(1,2,3-cd)pyrene	8.70E+02	55/100	8.9	SS-21	Yes
2-Methylnaphthalene	6.26E+01	1/22	0.613	SB-07-4	No
2-Methylphenol	7.82E+02	1/22	0.621	SB-07-7	No
4-Methylphenol	7.82E+01	1/22	13.1	SB-07-11	No
Naphthalene	4.60E+01	45/100	3.5	SS-21	No
Phenanthrene	NA	82/100	43	SS-21	No
Phenol	4.69E+03	1/22	1.94	SB-07-14	No
Pyrene	4.69E+02	63/100	41	SS-21	No
<b>PESTICIDES (Concentrations in mg/kg)</b>					
beta-BHC	3.55E+02	3/24	0.0119	SB-07-13	No
delta-BHC	NA	1/24	0.00084	SB-07-1	No
Heptachlor	1.42E+02	3/24	0.00552	SB-07-13	No
Aldrin	3.76E+03	2/24	0.00193	SB-07-13	No
Heptachlor epoxide	7.02E+03	1/24	0.00228	SB-07-1	No
Endosulfan I	9.39E+01	1/24	0.00106	SB-07-1	No
Dieldrin	3.99E+03	1/24	0.00384	SB-07-5	No
4,4'-DDE	1.88E+01	1/24	0.00707	SB-07-14	No
Endrin	4.69E+00	1/24	0.0027	SB-07-5	No
Endosulfan II	9.39E+01	1/24	0.000654	SB-07-13	No
4,4'-DDD	2.65E+01	3/24	0.00398	SB-07-14	No
Endosulfan sulfate	9.39E+01	1/24	0.00111	SB-07-5	No
4,4'-DDT	1.88E+01	3/24	0.0233	SB-07-14	No
Methoxychlor	7.82E+01	1/24	0.00308	SB-07-5	No
<b>PCB AROCLORS (Concentrations in mg/kg)</b>					
Total PCBs	3.20E+02	123/145	7480	SB-07-11	Yes
<b>INORGANICS (Concentrations in mg/kg)</b>					
Antimony	6.26E+00	5/22	78.7	SB-07-14	Yes
Arsenic	3.90E+02	76/87	307	SB-07-4	Yes
Barium	1.10E+03	60/60	220	PTSBH2	No
Beryllium	3.13E+01	10/22	0.74	SB-07-4	No
Cadmium	8.00E+00	48/60	2.6	SS-4, PTSB2	No
Chromium	1.40E+01	81/81	210	SB-07-1	Yes
Cobalt	6.21E+01	22/22	11.2	SB-07-4	No
Copper	6.26E+02	79/79	24000	PTSB2	Yes
Cyanide (total)	3.13E+02	1/22	1.2	SB-07-1	No
Lead	5.00E+01	102/102	5000	PTSB2	Yes
Mercury	2.70E+00	55/60	0.83	SS-4	No
Nickel	3.13E+02	60/60	26	PTSB2	No
Selenium	7.82E+01	9/60	59.7	SB-07-4	No
Silver	7.82E+01	13/60	2.6	PTSB2	No
Thallium	1.25E+00	18/22	14	SS-6	Yes
Vanadium	1.10E+02	22/22	62.2	SB-07-4	No
Zinc	4.69E+03	60/60	2000	PTSB2	No
<b>GASOLINE RANGE ORGANICS (Volatile Fraction) (mg/kg)</b>					
Gasoline Range Organics	1.00E+02	5/20	320	SB-07-7	Yes
<b>DIESEL RANGE ORGANICS (Semivolatile Fraction) (mg/kg)</b>					
Diesel Range Organics	1.00E+02	13/22	6300	SB-07-7	Yes

**Notes:**

mg/kg - milligrams per kilogram or parts per million

RCL - Residual Contaminant Level

RCLs for arsenic, cadmium, chromium and lead are from Table 2 of NR 720

RCLs for all other constituents were derived using WDNR (2002) guidance for deriving UCLs using the USEPA on-line soil screening level calculator. RCLs are the lower of

RCLs are based on  $1 \times 10^{-6}$  excess cancer risk or a hazard quotient of 0.2

The RCL for GROs and DROs is 100 mg/kg as listed in NR 720 (4)(a)

(a) USEPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil were used when RCLs were not available

Samples with italicized sample IDs are those samples collected from beneath the current slab and are included in the construction worker exposure scenario

Shaded Value - concentration exceeds RCL

NA - Not available

Table 4-4

Mercury Marine Plant 2  
Cedarburg, WI  
Remedial Investigation Report

Groundwater Data - Comparison to Wisconsin Groundwater Standards

Constituents	Units	ES	PAL	PRG	Detection Frequency	Maximum Detect	Max Detect Location	COPC
<b>VOCs</b>								
1,1,1-Trichloroethane	mg/L	0.200	0.040	--	21/73	0.2	MW-03-4R	Yes
1,1-Dichloroethane	mg/L	0.850	0.085	--	12/73	0.0031	MW-03-4R	No
1,1-Dichloroethene	mg/L	0.007	0.0007	--	17/73	0.012	MW-03-4R	Yes
1,2,3-Trichlorobenzene	mg/L	NA	NA	NA	1/19	0.004	MW-97-3	No
2-Butanone	mg/L	0.460	0.090	--	1/66	0.0016	MW-97-2	No
cis-1,2-Dichloroethene	mg/L	NA	NA	0.061	10/63	0.0052	MW-03-4R	No
sec-Butylbenzene	mg/L	NA	NA	0.24	1/9	0.00155	MW-99-6	No
Tetrachloroethene	mg/L	0.005	0.0005	--	41/73	0.11	MW-03-4R	Yes
Trichloroethene	mg/L	0.005	0.0005	--	14/73	0.002	MW-97-5	Yes
<b>PESTICIDES</b>								
4,4'-DDD	mg/L	NA	NA	0.00028	1/10	0.000033	MW-97-1	No
Endosulfan sulfate	mg/L	NA	NA	0.22	1/10	0.000188	MW-97-4	No
Endrin ketone	mg/L	NA	NA	0.011	1/10	0.000033	MW-97-1	No
Heptachlor	mg/L	0.0004	0.00004	--	1/10	0.000023	MW-97-1	No
<b>PCBs</b>								
Total PCBs	mg/L	0.00003	0.000003	--	7/36	0.0009	MW-04-3	Yes
<b>INORGANICS</b>								
Arsenic	mg/L	0.010	0.001	--	6/13	0.0039	MW-97-3	Yes
Barium	mg/L	2	0.4	--	13/13	0.15	MW-06-1	No
Chromium	mg/L	0.100	0.010	--	5/13	0.0049	MW-97-2	No
Copper	mg/L	1.300	0.130	--	4/13	0.0052	MW-06-1	No
Nickel	mg/L	0.100	0.020	--	5/13	0.0073	MW-97-1	No
Selenium	mg/L	0.050	0.010	--	4/13	0.0035	MW-97-5	No
Silver	mg/L	0.050	0.010	--	6/13	0.0036	MW-97-2	No
Zinc	mg/L	5	2.5	--	3/13	0.0934	MW-97-2	No

**Notes:**

mg/L - milligrams per liter or parts per million

ES - Wisconsin NR 140 Enforcement Standard

PAL - Wisconsin NR 140 Preventative Action Level

PRG = USEPA Region 9 Preliminary Remediation Goal (PRG) for tap water. PRGs were used for comparison only when ESs or PALs were unavailable

-- = PRG was not used for COPC screening for this constituent

Shaded Value - Exceeds PAL

Bordered Value - Exceeds ES

NA = Not available

**APPENDIX E**  
**Detailed Cost Analysis of Remedy**

Table 4-3

**Mercury Marine Plant 2  
Cedarburg, WI  
Focused Feasibility Study**

**Remedial Alternative 4 Cost Estimate**

Item	Unit Cost	Units	Extended
<b>CAPITAL COSTS</b>			
<b>CONSTRUCTION</b>			
1. Mobilization/demobilization	\$64,870 / ls	1	\$64,900
2. Oversight	\$3,000 / day	100	\$300,000
3. Site preparation	\$25,000 / ls	1	\$25,000
4. Removal of cap materials	\$15 / cy	1885	\$28,300
5. Concrete slab demolition			
Non-TSCA	\$20 /ton	157	\$3,100
TSCA	\$28 /ton	231	\$6,500
6. Sheet piling	\$50 / sf	7,880	\$394,000
7. Excavation	\$20 / cy	4,219	\$84,400
8. Backfill	\$20 / cy	4,219	\$84,400
9. Excavation for footings and VOC soil removal			
Excavation	\$30 / cy	236	\$7,100
Backfill	\$20 / cy	236	\$4,700
10. Monitoring well installation and pre-remediation confirmatory sampling	\$125,000 / ls	1	\$125,000
11. Site restoration	\$10,000 / ls	1	\$10,000
12. Miscellaneous disposal	\$10,000 / ls	1	\$10,000
13. Offsite transportation			
TSCA	\$1,500 /20 ton load	230	\$345,000
Non-TSCA	\$150 /20 ton load	218	\$32,700
14. Offsite disposal			
TSCA	\$85 / ton	4,595	\$390,596
Non-TSCA	\$18 / ton	6,116	\$110,100
15. Hydroseeding	\$0.10 /sf	12,049	\$1,200
Capital Cost Subtotal			\$2,026,996
Obtain deed/GIS restriction	\$10,000 / ls	1	\$10,000
Contingency (25%)			\$284,650
Engineering, administration, and management (15%)			\$170,790
<b>TOTAL COST</b>			<b>\$2,492,436</b>
<b>ANNUAL O&amp;M COSTS</b>			
16. Monitoring Well Sampling	\$20,000 / event	10	\$200,000
17. Annual Site Monitoring and Maintenance	\$5,000 / event	30	\$150,000
O&M Present Worth (30 years, 5% discount rate)			\$203,500
<b>TOTAL COST</b>			<b>\$2,695,936</b>
			<b>Rounded to \$2.7M</b>

**Alternative:**

- Removal of surface soils and subsurface soils, with groundwater monitoring.

**General Assumptions:**

- Costs are based on current Site information and project understanding. Costs may change following collection of additional data and/or actual project design.
- Costs include materials, equipment, and labor unless otherwise noted.
- Costs assume that construction of a vapor barrier and collection system will be part of future construction plans. As such, costs to construct a vapor barrier and collection system are not included in estimate.
- Costs are based on sampling of entire groundwater well network annually for the first 5 years and then once every 5 years after for a total of 30 years for VOCs and PCBs.
- Unit costs are in 2007 dollars and are estimated using standard estimating guides (e.g., Means Site Work and Landscape Cost Data), vendors, professional judgment, and experience from similar projects.
- Construction activities have been assumed to be performed in modified Level D protection.
- ARCADIS BBL prepared these estimates using current and generally accepted engineering cost estimation methods. These estimates are based on assumptions concerning future events and actual costs may be affected by known and unknown risks including, but not limited to, changes in general economic and business conditions, site conditions that were unknown to ARCADIS BBL at the time the estimates were performed, future changes in site conditions, regulatory or enforcement policy changes, and delays in performance. Actual costs may vary from these estimates and such variations may be material. We are not licensed as accountants or securities attorneys and, therefore, make no representations that these costs form an appropriate basis for complying with financial reporting requirements for such costs.

Table 4-3

**Mercury Marine Plant 2  
Cedarburg, WI  
Focused Feasibility Study**

**Remedial Alternative 4 Cost Estimate**

**Alternative 4 Assumptions:**

1. Assumed to be 10% of construction costs, except oversight, transportation and disposal. The mobilization cost estimate includes mobilization of personnel, equipment, and materials necessary to implement construction. Includes costs for decontamination of equipment.
2. Includes costs and expenses for two field oversight staff through the duration of the project. Assumes a duration of 100 days.
3. Includes costs for miscellaneous clearing and access activities. The staging area cost estimate includes labor, equipment, and materials necessary to construct a soil staging/equipment decon pad for decontamination activities and the processing of generated waste materials, and an access/staging area adjacent to the work site.
4. Cap removal costs are \$15 per cy. The cost estimate is based on removing liner materials, gravel cap, and brick/masonry rubble located across the Site property limits and processing debris as necessary for offsite disposal purposes. Removal of the materials will be conducted using standard excavation methods. Gravel cap layer assumed 6 in. thick.
5. Concrete slab demolition costs are \$28 and \$20 per ton for TSCA and non-TSCA material, respectively. The cost estimate is based on demolishing concrete slabs-on-grade located at the building footprint limits and processing demolition debris as necessary for offsite disposal purposes. The TSCA areas will be demolished in a controlled manner using standard demolition methods with some sawcutting and manual jackhammering, as needed. Demolition of the non-TSCA areas will also be conducted using standard demolition methods however, sawcutting or manual jackhammering of the slabs is not required. Non-TSCA estimates assume no vapor or dust control (other than misting with water, as needed) will be required. Interior concrete pad assumed 8 in. thick.
6. Temporary sheetpile installation/removal costs are based on installing and removing sheeting around the interior removal areas. Sheetpiles are assumed to be supported with bracing.
7. Includes costs to excavate the building perimeter (building footprint to sidewalk/fence line) 2 ft. bgs and PCBs greater than 50ppm at depth, includes a 15% volume increase from sidewall sloughing.
8. Includes costs to procure and place general fill.
9. Includes costs to excavate Sump 3 and Sump 5 to 4 ft., Location B2 in the Tool Repair Room, and fifty-two 5 ft. square future footing grids 4 ft. deep, accounting for 8 in. thick concrete pad and backfilled with general fill.
10. Includes costs to install 2 shallow wells nested with 2 deep wells, and to perform pre-remediation confirmatory soil sampling that will include collection of composite samples for PCB analysis.
11. Includes costs to perform grading to achieve pre-construction topographic contours in areas used for access, staging, and decontamination.
12. Includes costs to transport and dispose of miscellaneous site waste including PPE.
13. Transportation costs are \$1500 and \$150 per 20 ton load for TSCA and non-TSCA material, respectively. Estimates have been rounded up to the nearest whole ton load.
14. Includes costs to dispose of Site cap materials (including additional 10 tons for liner/geotextile/miscellaneous debris), excavated soils and demolished concrete slabs.
15. Assumes that the backfill placed in the excavations will be hydroseeded.

**APPENDIX F**  
**Exposure Factors and Risk Characterization Summary**  
**(Tables 4-5 – 4-15)**



Table 4-5

**Mercury Marine Plant 2  
Cedarburg, WI  
Remedial Investigation Report**

**Summary of Exposure Factors - Soil**

Exposure Factors	Units	Commercial Indoor Worker	Ref.	Residential Adult	Ref.	Residential Child	Ref.	Construction Worker	Ref.
Cancer Slope Factor (CSFo)	(mg/kg-day) <sup>-1</sup>	chemical-specific	IRIS	chemical-specific	IRIS	chemical-specific	IRIS	chemical-specific	IRIS
Reference Dose (RfDo)	mg/kg-day	chemical-specific	IRIS	chemical-specific	IRIS	chemical-specific	IRIS	chemical-specific	IRIS
Cancer Slope Factor (CSFd)	(mg/kg-day) <sup>-1</sup>	chemical-specific	IRIS, (b)	chemical-specific	IRIS, (b)	chemical-specific	IRIS, (b)	chemical-specific	IRIS, (b)
Reference Dose (RfDd)	mg/kg-day	chemical-specific	IRIS, (b)	chemical-specific	IRIS, (b)	chemical-specific	IRIS, (b)	chemical-specific	IRIS, (b)
Cancer Slope Factor (CSFi)	(mg/kg-day) <sup>-1</sup>	chemical-specific	IRIS	chemical-specific	IRIS	chemical-specific	IRIS	chemical-specific	IRIS
Reference Dose (RfDi)	mg/kg-day	chemical-specific	IRIS	chemical-specific	IRIS	chemical-specific	IRIS	chemical-specific	IRIS
Body Weight (BW)	kg	70	(a)	70	(a)	15	(a)	70	(a)
Ingestion Rate (IR)	mg/day	50	(c)	100	(c)	200	(c)	100	(c, d)
Exposed Surface Area (SA)	cm <sup>2</sup> /day	3300	(b, c)	5700	(b, c)	2800	(b, c)	3300	(b, c)
Adherence Factor (AF)	mg/cm <sup>2</sup>	0.2	(b, c)	0.07	(b, c)	0.2	(b, c)	0.3	(b, c)
Absorption Fraction (ABS)	percent	chemical-specific	(b)	chemical-specific	(b)	chemical-specific	(b)	chemical-specific	(b)
Inhalation Rate (IRA)	m <sup>3</sup> /day	20	(a)	20	(a)	10	(a)	20	(a)
Particulate Emission Factor (PEF)	m <sup>3</sup> /kg	1.32E+09	(c)	1.32E+09	(c)	1.32E+09	(c)	1.32E+09	(c)
Volatilization Factor (VF)	m <sup>3</sup> /kg	chemical-specific	(c)	chemical-specific	(c)	chemical-specific	(c)	chemical-specific	(c)
Exposure Frequency (EF)	days/year	250	(a, b, c)	350	(a, b, c)	350	(a, b, c)	30	Site-specific
Exposure Duration (ED)	years	25	(a, b, c)	24	(a, b, c)	6	(a, b, c)	1	Site-specific
Averaging Time (Cancer) (ATc)	days	25550	(a)	25550	(a)	25550	(a)	25550	(a)
Averaging Time (Non-Cancer) (ATnc)	days	9125	(a)	8760	(a)	2190	(a)	365	(a)

**Equations:**

**Carcinogens** =  $\{[(CSFo \cdot EPC \cdot CF \cdot EF \cdot ED \cdot IR)/(ATc \cdot BW)] + [(CSFd \cdot EPC \cdot CF \cdot EF \cdot ED \cdot SA \cdot AF \cdot ABS)/(ATc \cdot BW)] + [(CSFi \cdot EPC \cdot IRA \cdot EF \cdot ED \cdot 1/VF \text{ or } 1/PEF)/(ATc \cdot BW)]\}$   
**Non-carcinogens** =  $\{[(1/RfDo \cdot EPC \cdot CF \cdot EF \cdot ED \cdot IR \cdot FI)/(ATnc \cdot BW)] + [(1/RfDd \cdot EPC \cdot CF \cdot EF \cdot ED \cdot SA \cdot AF \cdot ABS)/(ATnc \cdot BW)] + [(1/RfDi \cdot EPC \cdot IRA \cdot EF \cdot ED \cdot 1/VF \text{ or } 1/PEF)/(ATnc \cdot BW)]\}$

**Notes:**

Chemical-specific toxicity data are provided in Table 4-7.

VF is used for volatile chemicals. VF for trichloroethene is 3.3E+03 m<sup>3</sup>/kg.

Default PEF is used for non-volatiles.

**References:**

(a) USEPA, 1989. Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part A). Interim Final. EPA/540/1-89/002.

(b) USEPA, 2004. Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual. Part E, Supplemental Guidance for Dermal Risk Assessment, Interim. EPA/540/R/99/005.

(c) USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

(d) Calabrese, 2003. Letter from Edward Calabrese Regarding Soil Ingestion Rates. Provided as an attachment to Comments of the General Electric Company on the U.S. Environmental Protection Agency's Human Health Risk Assessment for the Housatonic River Site – Rest of River. Prepared for General Electric by AMEC Earth and Environmental, Inc. and BBL Sciences. July 28, 2003.

IRIS = USEPA's Integrated Risk Information System

Table 4-6

**Mercury Marine Plant 2  
Cedarburg, WI  
Remedial Investigation Report**

**Summary of Exposure Factors - Groundwater**

Exposure Factors	Units	Construction Worker	Ref.
Cancer Slope Factor (CSF)	(mg/kg-day) <sup>-1</sup>	chemical-specific	IRIS
Reference Dose (RfD)	mg/kg-day	chemical-specific	IRIS
Chemical Concentration in Water (CW)	(mg/cm <sup>3</sup> )	chemical-specific	Calculated
Body Weight (BW)	kg	70	(a)
Exposed Surface Area (SA)	cm <sup>2</sup> /day	3300	(b, c)
Absorption Fraction (ABS)	percent	chemical-specific	(b)
Permeability Constant (Kp)	cm/hour	chemical-specific	(b)
Fraction Absorbed (FA)	Fraction absorbed	chemical-specific	(b)
Event Duration (t <sub>event</sub> )	hour/event	2	Site-specific
T <sub>event</sub>	lag time per event	chemical-specific	(b)
B	ratio of permeability coefficient	chemical-specific	(b)
Event Frequency (EV)	events/day	1	(b)
Exposure Frequency (EF)	days/year	30	Site-specific
Exposure Duration (ED)	years	1	Site-specific
Averaging Time (Cancer) (ATc)	days	25550	(a)
Averaging Time (Non-Cancer) (ATnc)	days	365	(a)

**Equations:****Construction Worker**

$$\text{Carcinogens} = [((\text{DAevent} * \text{EV} * \text{ED} * \text{EF} * \text{SA} * \text{CSF}) / (\text{BW} * \text{ATc}))]$$

$$\text{Non-carcinogens} = [((\text{DAevent} * \text{EV} * \text{ED} * \text{EF} * \text{SA} * 1/\text{RfD}) / (\text{BW} * \text{ATnc}))]$$

**where:**

$$\text{DAevent (for tetrachloroethane and PCBs)} = ((2\text{FA} * \text{Kp} * \text{CW} * \sqrt{6\text{T-event} * \text{t-event}/\pi}))$$

$$\text{DAevent (for 1,1,1-trichloroethene, 1,1-dichloroethene and trichloroethene)} = \text{FA} * \text{Kp} * \text{CW} [(\text{event}/1 + \text{B}) + 2\text{Tevent} (1 + 3\text{B} + 3\text{B}^2)/(1 + \text{B})^2]$$

**Note:**

Chemical-specific toxicity data are provided in Table 4-8.

**References:**

- (a) USEPA, 1989. Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part A). Interim Final. EPA/540/1-89/002.
- (b) USEPA, 2004. Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual. Part E, Supplemental Guidance for Dermal Risk Assessment, Interim. EPA/540/R/99/005.
- (c) USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.
- IRIS = USEPA's Integrated Risk Information System

**Table 4-7**  
**Mercury Marine Plant 2**  
**Cedarburg, WI**  
**Remedial Investigation Report**

**Summary of Chemical-Specific Data - Soil COPCs**

<b>Soil COPCs</b>	<b>Dermal Absorption Fraction (unitless)</b>	<b>Gastrointestinal Absorption Efficiency</b>	<b>Oral Cancer Slope Factor (mg/kg-day)<sup>-1</sup></b>	<b>Oral Reference Dose (mg/kg-day)</b>	<b>Dermal Slope Factor (mg/kg-day)</b>	<b>Dermal Reference Dose (mg/kg-day)</b>	<b>Inhalation Slope Factor (mg/kg-day)<sup>-1</sup></b>	<b>Inhalation Reference Dose (mg/kg-day)</b>
Trichloroethene	0.4	No adjustment	4.00E-01	3.00E-04	NA	NA	4.00E-01	1.00E-02
Benzo(a)anthracene	0.13	No adjustment	0.73	NA	0.73	NA	3.08E-01	NA
Benzo(a)pyrene	0.13	No adjustment	7.3	NA	7.3	NA	3.08	NA
Benzo(b)fluoranthene	0.13	No adjustment	0.73	NA	0.73	NA	3.08E-01	NA
Benzo(k)fluoranthene	0.13	No adjustment	0.073	NA	0.073	NA	3.08E-02	NA
Chrysene	0.13	No adjustment	0.0073	NA	0.0073	NA	3.08E-03	NA
Dibenz(a,h)anthracene	0.13	No adjustment	7.3	NA	7.3	NA	3.08	NA
Ideno(1,2,3-cd)pyrene	0.13	No adjustment	0.73	NA	0.73	NA	3.08E-01	NA
Total PCBs	0.14	No adjustment	2	2.00E-05	2	2.00E-05	2.00E+00	2.00E-05
Antimony	NA	Adjust	NA	4.00E-04	NA	NA	NA	NA
Arsenic	0.03	No adjustment	1.5	3.00E-04	1.5	3.00E-04	15	NA
Chromium	NA	Adjust	NA	1.50E+00	NA	NA	42	NA
Copper	NA	NA	NA	4.00E-02	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	No adjustment	NA	6.60E-05	NA	NA	NA	NA

**Notes:**

Dermal and gastrointestinal absorption values are those presented in USEPA (2004).

Toxicity data are those presented in the USEPA Integrated Risk Assessment System (IRIS).

NA - Not Applicable.

Table 4-8

**Mercury Marine Plant 2  
Cedarburg, WI  
Remedial Investigation Report**

**Summary of Chemical-Specific Data - Groundwater**

Groundwater COPCs	FA (dimensionless)	Kp (cm/hour)	T-Event (hour)	B	Cancer Slope Factor (mg/kg-day) <sup>-1</sup>	Reference Dose (mg/kg-day)
1,1,1-trichloroethane	1	1.30E-02	0.6	0.1	NA	2.80E-01
1,1-dichloroethene	1	1.20E-02	0.37	0	NA	1.00E-01
Trichloroethene	1	1.20E-02	0.58	0.1	4.00E-01	3.00E-04
Tetrachloroethene	1	3.30E-02	0.91	--	0.54	1.00E-02
Total PCB	0.5	4.30E-01	11.29	--	0.4	2.00E-05

**Notes:**

Chemical-specific dermal values are those presented in USEPA (2004).

Toxicity data are those presented in the USEPA Integrated Risk Assessment System (IRIS).

NA - Not Applicable.

Table 4-9

**Mercury Marine Plant 2  
Cedarburg, WI  
Remedial Investigation Report**

**Summary of Cancer Risks and Non-Cancer Hazards Future Commercial Indoor Worker - With Slab**

<b>Future Commercial Worker</b>				
<b>Soil COPCs</b>	<b>Exposure Point Concentrations (mg/kg)</b>	<b>Rationale</b>	<b>Cancer Risk (Adult)</b>	<b>Non-Cancer Hazard (Adult)</b>
Trichloroethene	NA	NA	NA	NA
Benzo(a)anthracene	7.395	95% KM (Chebyshev) UCL	3.E-06	NA
Benzo(a)pyrene	6.39	95% KM (Chebyshev) UCL	2.E-05	NA
Benzo(b)fluoranthene	6.075	95% KM (Chebyshev) UCL	2.E-06	NA
Benzo(k)fluoranthene	5.633	99% KM (Chebyshev) UCL	2.E-07	NA
Chrysene	7.775	95% KM (Chebyshev) UCL	3.E-08	NA
Dibenz(a,h)anthracene	1.241	95% KM (Chebyshev) UCL	4.E-06	NA
Ideno(1,2,3-cd)pyrene	3.804	95% KM (Chebyshev) UCL	1.E-06	NA
Total PCBs	18.04	95% Adjusted Gamma UCL	2.E-05	1
Antimony	2.4	95% KM (Percentile Bootstrap) UCL	NA	0.003
Arsenic	69.1	Maximum detected concentration <sup>a</sup>	3.E-05	0.2
Chromium	131	95% Chebyshev (Mean, Sd) UCL	3.E-07	0.00004
Copper	94.69	95% Student's-t UCL	NA	0.001
Lead	242	95% Chebyshev (MVUE) UCL	NA	NA
Thallium	9.815	95% Student's-t UCL	NA	0.07
<b>Total Cancer Risk =</b>			<b>8.E-05</b>	
<b>Total Non-Cancer Hazard =</b>				<b>1</b>

**Note:**

NA - Not Applicable.

<sup>a</sup> Recommended UCL exceeds maximum detected concentration. Therefore, maximum concentration is used as EPC.

Table 4-10

**Mercury Marine Plant 2  
Cedarburg, WI  
Remedial Investigation Report**

**Summary of Cancer Risks and Non-Cancer Hazards Future Commercial Indoor Worker - Without Slab**

<b>Future Commercial Worker</b>				
<b>Soil COPCs</b>	<b>Exposure Point Concentrations (mg/kg)</b>	<b>Rationale</b>	<b>Cancer Risk (Adult)</b>	<b>Non-Cancer Hazard (Adult)</b>
Trichloroethene	0.2	95% KM (Percentile Bootstrap) UCL	9.E-08	0.002
Benzo(a)anthracene	2.156	95% KM (BCA) UCL	7.E-07	NA
Benzo(a)pyrene	2.063	95% KM (BCA) UCL	7.E-06	NA
Benzo(b)fluoranthene	1.906	95% KM (BCA) UCL	7.E-07	NA
Benzo(k)fluoranthene	5.501	99% KM (Chebyshev) UCL	2.E-07	NA
Chrysene	2.397	95% KM (BCA) UCL	8.E-09	NA
Dibenz(a,h)anthracene	0.38	95% KM (BCA) UCL	1.E-06	NA
Ideno(1,2,3-cd)pyrene	1.135	95% KM (BCA) UCL	4.E-07	NA
Total PCBs	99.13	97.5% KM (Chebyshev) UCL	1.E-04	7
Antimony	2.4	95% KM (Percentile Bootstrap) UCL	NA	0.003
Arsenic	27.78	97.5% KM (Chebyshev) UCL	1.E-05	0.06
Chromium	62.57	95% Chebyshev (Mean, Sd) UCL	1.E-07	0.00002
Copper	1688	99% Chebyshev (Mean, Sd) UCL	NA	0.02
Lead	227.3	95% Chebyshev (MVUE) UCL	NA	NA
Thallium	14	Maximum detected concentration <sup>a</sup>	NA	0.1
<b>Total Cancer Risk =</b>			<b>1.E-04</b>	
<b>Total Non-Cancer Hazard =</b>				<b>7</b>

**Note:**

NA - Not Applicable.

<sup>a</sup> Recommended UCL exceeds maximum detected concentration. Therefore, maximum concentration is used as EPC.

Table 4-11

Mercury Marine Plant 2  
Cedarburg, WI  
Remedial Investigation Report

Summary of Cancer Risks and Non-Cancer Hazards Future Residents - With Slab

Future Resident Child				
Soil COPCs	Exposure Point Concentrations (mg/kg)	Rationale	Cancer Risk (Child)	Non-Cancer Hazard (Child)
Trichloroethene	NA	NA	NA	NA
Benzo(a)anthracene	7.395	95% KM (Chebyshev) UCL	8.E-06	NA
Benzo(a)pyrene	6.39	95% KM (Chebyshev) UCL	7.E-05	NA
Benzo(b)fluoranthene	6.075	95% KM (Chebyshev) UCL	7.E-06	NA
Benzo(k)fluoranthene	5.633	99% KM (Chebyshev) UCL	6.E-07	NA
Chrysene	7.775	95% KM (Chebyshev) UCL	8.E-08	NA
Dibenz(a,h)anthracene	1.241	95% KM (Chebyshev) UCL	1.E-05	NA
Ideno(1,2,3-cd)pyrene	3.804	95% KM (Chebyshev) UCL	4.E-06	NA
Total PCBs	18.04	95% Adjusted Gamma UCL	6.E-05	16
Antimony	2.4	95% KM (Percentile Bootstrap) UCL	NA	0.08
Arsenic	69.1	Maximum detected concentration <sup>a</sup>	1.E-04	3
Chromium	131	95% Chebyshev (Mean, Sd) UCL	2.E-07	0.001
Copper	94.69	95% Student's-t UCL	NA	0.03
Lead	242	95% Chebyshev (MVUE) UCL	NA	NA
Thallium	9.815	95% Student's-t UCL	NA	2
Total Cancer Risk =			3.E-04	
Total Non-Cancer Hazard =				21

Future Resident Adult				
Soil COPCs	Exposure Point Concentrations (mg/kg)	Rationale	Cancer Risk (Adult)	Non-Cancer Hazard (Adult)
Trichloroethene	NA	NA	NA	NA
Benzo(a)anthracene	7.395	95% KM (Chebyshev) UCL	4.E-06	NA
Benzo(a)pyrene	6.39	95% KM (Chebyshev) UCL	3.E-05	NA
Benzo(b)fluoranthene	6.075	95% KM (Chebyshev) UCL	3.E-06	NA
Benzo(k)fluoranthene	5.633	99% KM (Chebyshev) UCL	3.E-07	NA
Chrysene	7.775	95% KM (Chebyshev) UCL	4.E-08	NA
Dibenz(a,h)anthracene	1.241	95% KM (Chebyshev) UCL	6.E-06	NA
Ideno(1,2,3-cd)pyrene	3.804	95% KM (Chebyshev) UCL	2.E-06	NA
Total PCBs	18.04	95% Adjusted Gamma UCL	3.E-05	2
Antimony	2.4	95% KM (Percentile Bootstrap) UCL	NA	0.008
Arsenic	69.1	Maximum detected concentration <sup>a</sup>	5.E-05	0.4
Chromium	131	95% Chebyshev (Mean, Sd) UCL	4.E-07	0.0001
Copper	94.69	95% Student's-t UCL	NA	0.003
Lead	242	95% Chebyshev (MVUE) UCL	NA	NA
Thallium	9.815	95% Student's-t UCL	NA	0.2
Total Cancer Risk =			1.E-04	
Total Non-Cancer Hazard =				2
Total Residential Cancer Risk (combined child and adult risk)			4.E-04	

**Note:**

NA - Not Applicable.

<sup>a</sup> Recommended UCL exceeds maximum detected concentration. Therefore, maximum concentration is used as EPC.



Table 4-12

Mercury Marine Plant 2  
Cedarburg, WI  
Remedial Investigation Report

Summary of Cancer Risks and Non-Cancer Hazards Future Residents - Without Slab

Future Resident Child				
Soil COPCs	Exposure Point Concentrations (mg/kg)	Rationale	Cancer Risk (Child)	Non-Cancer Hazard (Child)
Trichloroethene	0.2	95% KM (Percentile Bootstrap) UCL	2.E-07	0.02
Benzo(a)anthracene	2.156	95% KM (BCA) UCL	2.E-06	NA
Benzo(a)pyrene	2.063	95% KM (BCA) UCL	2.E-05	NA
Benzo(b)fluoranthene	1.906	95% KM (BCA) UCL	2.E-06	NA
Benzo(k)fluoranthene	5.501	99% KM (Chebyshev) UCL	6.E-07	NA
Chrysene	2.397	95% KM (BCA) UCL	3.E-08	NA
Dibenz(a,h)anthracene	0.38	95% KM (BCA) UCL	4.E-06	NA
Ideno(1,2,3-cd)pyrene	1.135	95% KM (BCA) UCL	1.E-06	NA
Total PCBs	99.13	97.5% KM (Chebyshev) UCL	3.E-04	88
Antimony	2.4	95% KM (Percentile Bootstrap) UCL	NA	0.08
Arsenic	27.78	97.5% KM (Chebyshev) UCL	5.E-05	1
Chromium	62.57	95% Chebyshev (Mean, Sd) UCL	1.E-07	0.001
Copper	1688	99% Chebyshev (Mean, Sd) UCL	NA	0.5
Lead	227.3	95% Chebyshev (MVUE) UCL	NA	NA
Thallium	14	Maximum detected concentration <sup>a</sup>	NA	3
Total Cancer Risk =			4.E-04	
Total Non-Cancer Hazard =				93

Future Resident Adult				
Soil COPCs	Exposure Point Concentrations (mg/kg)	Rationale	Cancer Risk (Adult)	Non-Cancer Hazard (Adult)
Trichloroethene	0.2	95% KM (Percentile Bootstrap) UCL	1.E-07	0.002
Benzo(a)anthracene	2.156	95% KM (BCA) UCL	1.E-06	NA
Benzo(a)pyrene	2.063	95% KM (BCA) UCL	1.E-05	NA
Benzo(b)fluoranthene	1.906	95% KM (BCA) UCL	1.E-06	NA
Benzo(k)fluoranthene	5.501	99% KM (Chebyshev) UCL	3.E-07	NA
Chrysene	2.397	95% KM (BCA) UCL	1.E-08	NA
Dibenz(a,h)anthracene	0.38	95% KM (BCA) UCL	2.E-06	NA
Ideno(1,2,3-cd)pyrene	1.135	95% KM (BCA) UCL	6.E-07	NA
Total PCBs	99.13	97.5% KM (Chebyshev) UCL	1.E-04	11
Antimony	2.4	95% KM (Percentile Bootstrap) UCL	NA	0.008
Arsenic	27.78	97.5% KM (Chebyshev) UCL	2.E-05	0.1
Chromium	62.57	95% Chebyshev (Mean, Sd) UCL	2.E-07	0.0001
Copper	1688	99% Chebyshev (Mean, Sd) UCL	NA	0.06
Lead	227.3	95% Chebyshev (MVUE) UCL	NA	NA
Thallium	14	Maximum detected concentration <sup>a</sup>	NA	0.3
Total Cancer Risk =			2.E-04	
Total Non-Cancer Hazard =				11

Total Residential Cancer Risk  
(combined child and adult risk) 6.E-04

**Note:**

NA - Not Applicable.

<sup>a</sup> Recommended UCL exceeds maximum detected concentration. Therefore, maximum concentration is used as EPC.

Table 4-13

**Mercury Marine Plant 2  
Cedarburg, WI  
Remedial Investigation Report**

**Summary of Cancer Risks and Non-Cancer Hazards  
Future Construction Workers - With Slab**

<b>Future Construction Workers</b>				
<b>Soil COPCs</b>	<b>Exposure Point Concentrations (mg/kg)</b>	<b>Rationale</b>	<b>Cancer Risk</b>	<b>Non-Cancer Hazard</b>
Trichloroethene	NA	NA	NA	NA
Benzo(a)anthracene	3.325	95% KM (BCA) UCL	9.E-09	NA
Benzo(a)pyrene	2.737	95% KM (BCA) UCL	8.E-08	NA
Benzo(b)fluoranthene	2.682	95% KM (BCA) UCL	8.E-09	NA
Benzo(k)fluoranthene	8.053	99% KM (Chebyshev) UCL	2.E-09	NA
Chrysene	3.277	95% KM (BCA) UCL	9.E-11	NA
Dibenz(a,h)anthracene	0.575	95% KM (BCA) UCL	2.E-08	NA
Ideno(1,2,3-cd)pyrene	1.673	95% KM (BCA) UCL	5.E-09	NA
Total PCBs	29.59	97.5% KM (Chebyshev) UCL	2.E-07	0.4
Antimony	2.24	95% KM (Percentile Bootstrap) UCL	NA	0.0007
Arsenic	293	99% KM (Chebyshev) UCL	1.E-06	0.1
Chromium	89.18	95% Chebyshev (Mean, Sd) UCL	9.E-10	0.000007
Copper	73.28	95% Approximate Gamma UCL	NA	0.0002
Lead	298	99% Chebyshev (Mean, Sd) UCL	NA	NA
Thallium	14	Maximum detected concentration <sup>a</sup>	NA	0.02
<b>Total Cancer Risk =</b>			<b>1.E-06</b>	
<b>Total Non-Cancer Hazard =</b>				<b>0.6</b>

**Note:**

NA - Not Applicable.

<sup>a</sup> Recommended UCL exceeds maximum detected concentration. Therefore, maximum concentration is used as EPC.

Table 4-14

**Mercury Marine Plant 2  
Cedarburg, WI  
Remedial Investigation Report**

**Summary of Cancer Risks and Non-Cancer Hazards  
Future Construction Workers - Without Slab**

<b>Future Construction Workers</b>				
<b>Soil COPCs</b>	<b>Exposure Point Concentrations (mg/kg)</b>	<b>Rationale</b>	<b>Cancer Risk</b>	<b>Non-Cancer Hazard</b>
Trichloroethene	0.094	95% KM (t) UCL	3.E-10	0.0002
Benzo(a)anthracene	2.08	97.5% KM (Chebyshev) UCL	6.E-09	NA
Benzo(a)pyrene	1.012	95% KM (BCA) UCL	3.E-08	NA
Benzo(b)fluoranthene	1.061	95% KM (BCA) UCL	3.E-09	NA
Benzo(k)fluoranthene	0.925	95% KM (BCA) UCL	3.E-10	NA
Chrysene	2.178	97.5% KM (Chebyshev) UCL	6.E-11	NA
Dibenz(a,h)anthracene	0.283	95% KM (Chebyshev) UCL	8.E-09	NA
Ideno(1,2,3-cd)pyrene	0.965	97.5% KM (Chebyshev) UCL	3.E-09	NA
Total PCBs	569.5	97.5% KM (Chebyshev) UCL	5.E-06	8
Antimony	28.2	97.5% KM (Chebyshev) UCL	NA	0.008
Arsenic	26.08	95% KM (Chebyshev) UCL	9.E-08	0.01
Chromium	17.56	Use 95% H-UCL	2.E-10	0.000001
Copper	2350	97.5% Chebyshev (Mean, Sd) UCL	NA	0.007
Lead	556.8	97.5% Chebyshev (Mean, Sd) UCL	NA	NA
Thallium	9.153	99% KM (Chebyshev) UCL	NA	0.02
<b>Total Cancer Risk =</b>			<b>5.E-06</b>	
<b>Total Non-Cancer Hazard =</b>				<b>8</b>

**Notes:**

EPC - exposure point concentration

Scenario assumes that the current slab has been removed and intrusive workers are exposed to constituents in surface and subsurface soils (including soils data previously considered sub-slab).

NA - Not Applicable.

Table 4-15

**Mercury Marine Plant 2  
Cedarburg, WI  
Remedial Investigation Report**

**Summary of Cancer Risks and Non-Cancer Hazards - Groundwater**

<b>Future Construction Worker - Dermal Contact</b>				
<b>Groundwater COPCs</b>	<b>EPC (mg/cm<sup>3</sup>)</b>	<b>Rationale</b>	<b>Cancer Risk</b>	<b>Non-Cancer Hazard</b>
1,1,1-trichloroethane	0.0000192	95% KM (t) UCL	NA	0.00001
1,1-dichloroethene	0.00000191	95% KM (t) UCL	NA	0.000002
Trichloroethene	0.00000075	95% KM (t) UCL	6.E-10	0.0004
Tetrachloroethene	0.0000182	95% KM (BCA) UCL	7.E-08	0.0009
Total PCB	0.00000061	95% KM (Percentile Bootstrap) UCL	4.E-08	0.3
<b>Total Cancer Risk =</b>			<b>1.E-07</b>	
<b>Total Non-Cancer Hazard =</b>				<b>0.3</b>

**Notes:**

EPC - exposure point concentration.

According to USEPA (2004) RAGS Part E, dermal risks are not quantified for arsenic.

NA - Not Applicable.

**APPENDIX G**  
**Administrative Record Index**

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMEDIAL ACTION**

**ADMINISTRATIVE RECORD  
FOR  
CEDAR CREEK SITE  
CEDARBURG, OZAUKEE COUNTY, WISCONSIN**

**ORIGINAL  
NOVEMBER 2, 2005**

<b>NO.</b>	<b>DATE</b>	<b>AUTHOR</b>	<b>RECIPIENT</b>	<b>TITLE/DESCRIPTION</b>	<b>PAGES</b>
1	07/00/02	Foth & Van Dyke	U.S. EPA	Health and Safety Plan for the Remedial Investigation for the Amcast Industrial Corporation Site	51
2	06/00/03	Foth & Van Dyke	U.S. EPA	Remedial Investigation Work Plan for the Amcast Industrial Corporation	548
3	09/00/03	Foth & Van Dyke	U.S. EPA	Final Field Sampling Plan for the Amcast Industrial Corporation	96
4	09/00/03	Foth & Van Dyke	U.S. EPA	QAPP for the Remedial Investigation for the Amcast Industrial Corporation	585
5	10/00/03	Foth & Van Dyke	U.S. EPA	Quality Management Plan for the Remedial Investigation for the Amcast Industrial Corporation Site	72

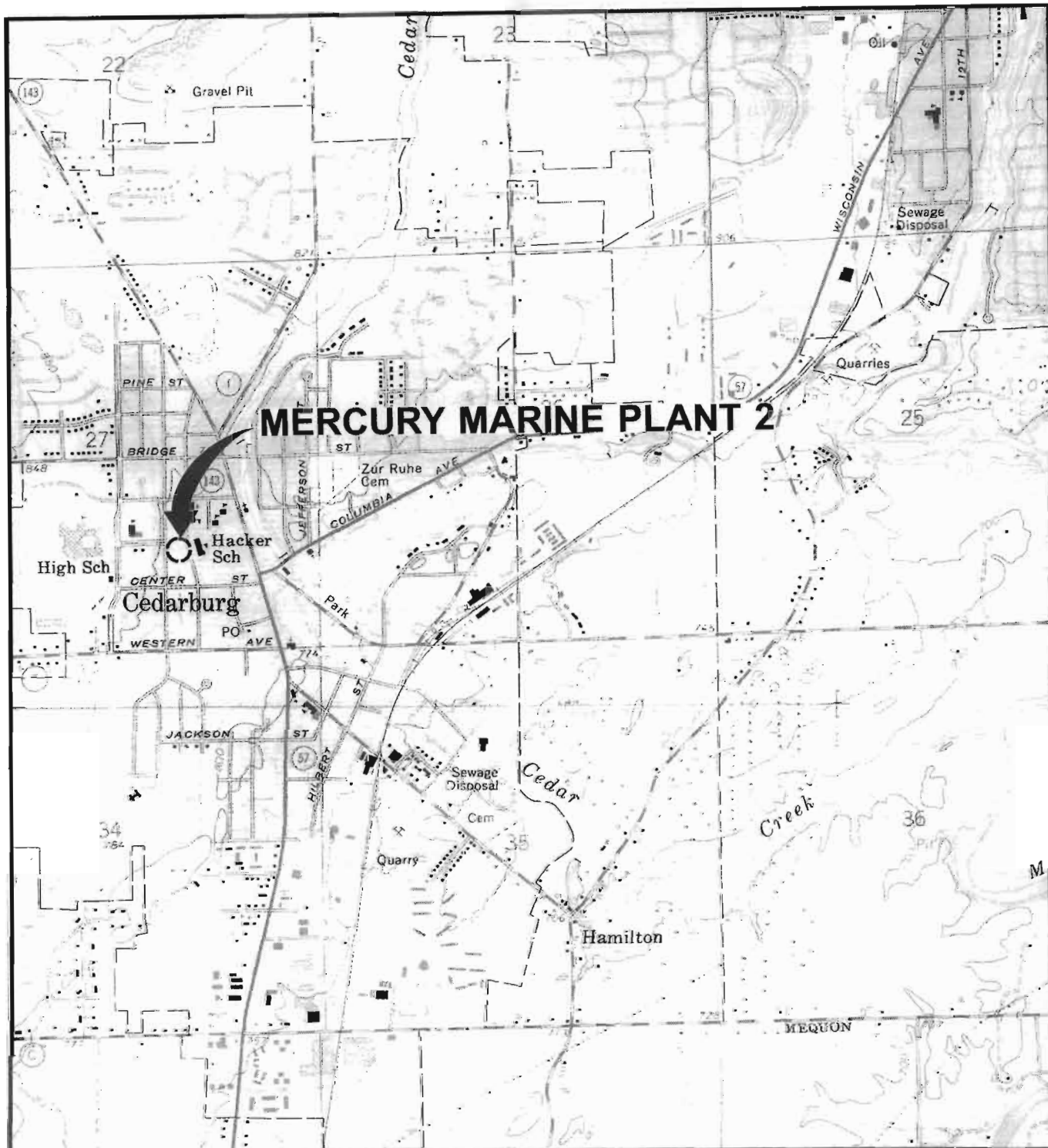
**UPDATE #1  
MARCH 25, 2008**

1	01/29/98	Haase, A., Mercury Marine	Graefe, M., WDNR	Letter re: Status Report of Cleanup Activities at Plant 2	3
2	06/13/00	Baumgartner, T., Mercury Marine	Martig, T., U.S. EPA	Subsurface Investigations Documentation Report for Mercury Marine Plant 2	93
3	09/00/01	Blasland, Bouck & Lee, Inc.	U.S. EPA	Building Investigations Documentation Report for Mercury Marine Plant 2	53
4	09/27/02	U.S. EPA	Respondent	Administrative Order on Consent for Remedial Investigation/Feasibility Study	71
5	12/02/02	Brunette, M., WDNR	Hansen, S., U.S. EPA	Memorandum re: Documents for Administrative Record w/ Attachments	82
6	07/00/03	Blasland, Bouck & Lee, Inc.	U.S. EPA	Remedial Investigation/Feasibility Study Work Plan for the Cedar Creek Site	72

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
7	11/00/03	Blasland, Bouck & Lee, Inc.	U.S. EPA	Remedial Investigation/ Feasibility Study Field Sampling Plan for the Cedar Creek Site (REVISION TO SEPTEMBER 2003 REPORT)	328
8	01/00/05	Blasland, Bouck & Lee, Inc.	U.S. EPA	Preliminary Site Charac- terization Summary for the Cedar Creek Site (REVISION TO THE DECEMBER 2004 REPORT)	173
9	10/00/07	U.S. EPA	Public	Fact Sheet: EPA Proposes Cleanup Plan for Former Cedar Creek Plant 2 Site	8
10	10/00/07	Arcadis BBL	Mercury Marine	Alternatives Document/ Focused Feasibility Study Study Report for Mercury Marine Plant 2	64
11	10/00/07	Arcadis BBL	U.S. EPA	Remedial Investigation Report for Mercury Marine Plant 2	563
12	10/10/07	Brown & Jones, Reporting, Inc.	U.S. EPA	Transcript: U.S. EPA Public Hearing for the Proposed Cleanup Plan for the Cedar Creek Plant 2 Site	46
13	03/04/08	U.S. EPA	Mercury Marine	Administrative Settlement Agreement and Order on Consent for Remedial Investigations and Feas- ibility Studies for the Cedar Creek Site	67



## FIGURES



REFERENCE: Base Map Source: USGS 7.5 Min. Topo. Quad., Cedarburg, Wis. (1959, Photorevised 1971 and 1976).

2,000' 0 2,000'  
APPROX. SCALE 1" = 2,000'



MERCURY MARINE PLANT 2  
CEDARBURG, WISCONSIN  
REMEDIAL INVESTIGATION REPORT

## SITE LOCATION MAP

ARCADIS | BBL  
infrastructure environment energy

FIGURE  
1-1

02/21/07 SYR-D86-DJH LJP KLS  
17628006/17628001.CDR

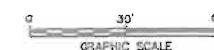
SYN-RS-DIG KLS LAY LAYER: ON+ OFF-REF  
 G:\DATA\ACTIVE\DWG\ACT\17625002\PLANT\17625002.DWG SAVED: 2/27/2007 9:43 AM LAYOUT: 2-1 PAGESETUP: 0L2B-RDF  
 PROJECTNAME: 17625002 IMAGES: 17625002 17625003



- LEGEND
- APPROXIMATE SITE BOUNDARY
  - IRON PIPE FOUND
  - GAS VALVE
  - ⊗ WATER VALVE
  - ⊗ SANITARY MANHOLE
  - ⊗ STORM MANHOLE
  - ⊗ POWER POLE
  - ⊗ HYDRANT
  - CATCH BASIN

NOTES:

1. BASE MAP FROM J.E. ARTHUR AND ASSOCIATES, INC., MAP ENTITLED "PL 2 MONITORING WELLS AND SOIL BORINGS", SHEET 1, DATED 2/13/97.



MERCURY MARINE PLANT 2  
 CEDARBURG, WISCONSIN  
 REMEDIAL INVESTIGATION REPORT

SURVEY MAP/SITE PLAN



FIGURE

2-1





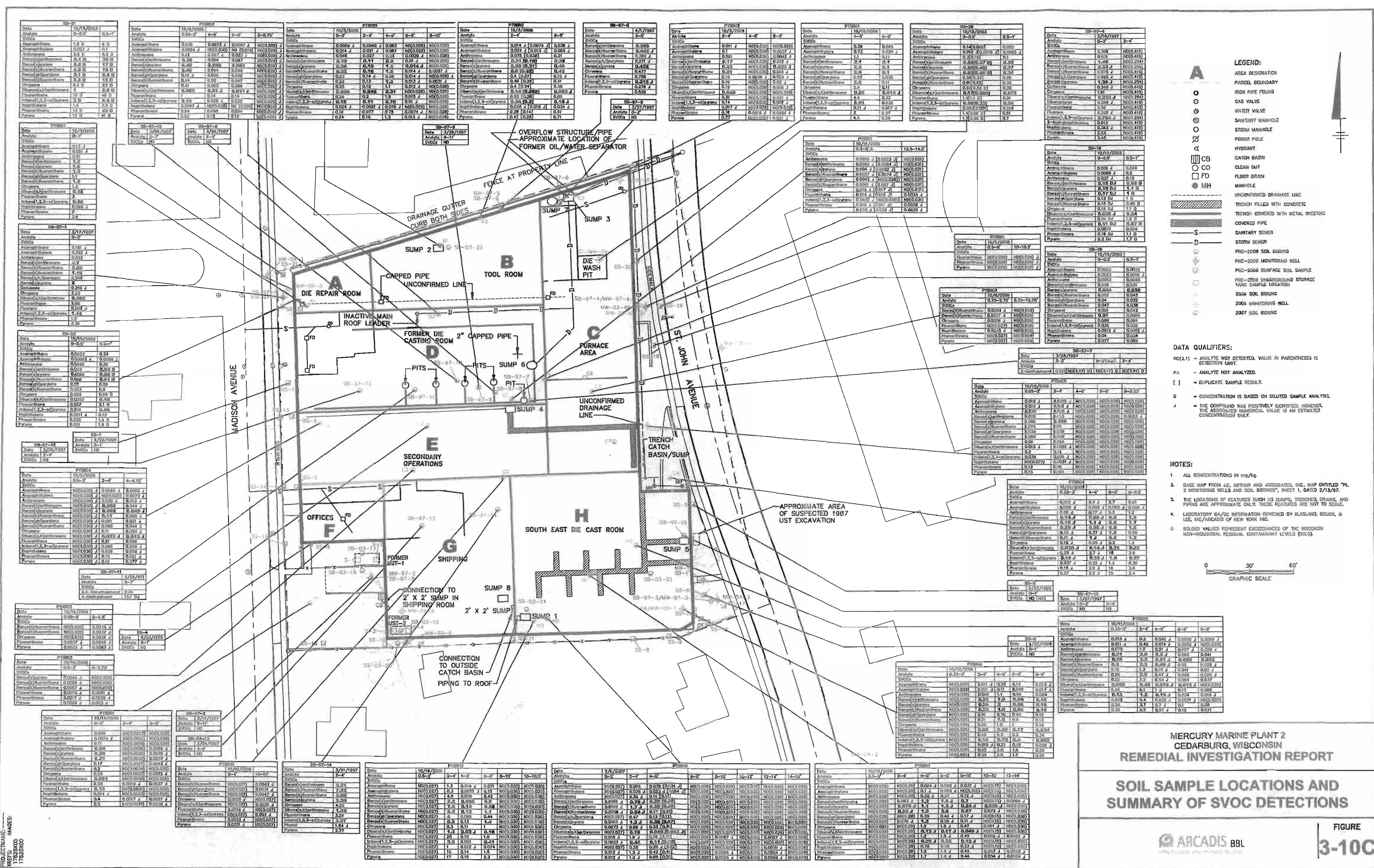






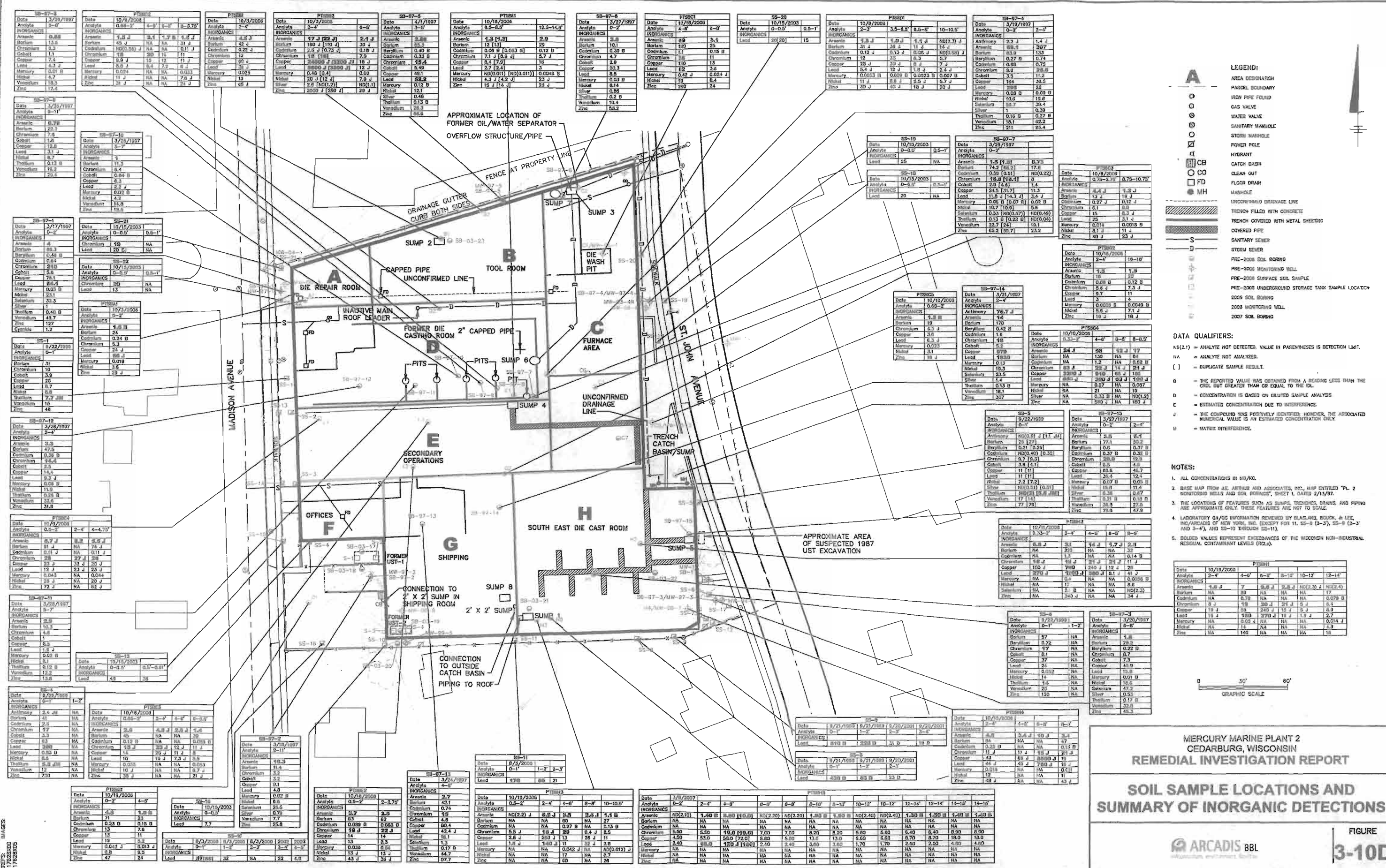








LAYER: QW-4 OFF-REF-10NAME  
G:\DAO\ACTIVE-DWG\ACTV1762002\FIN\ACTV1762002.DWG  
DATE: 5/13/2007 9:54 AM  
LAYOUT: 3-100  
PAGESETUP: D:\BTL-REF-100  
PLOTTABLE: PLTCTB.DWG  
BY: BPTTLEY



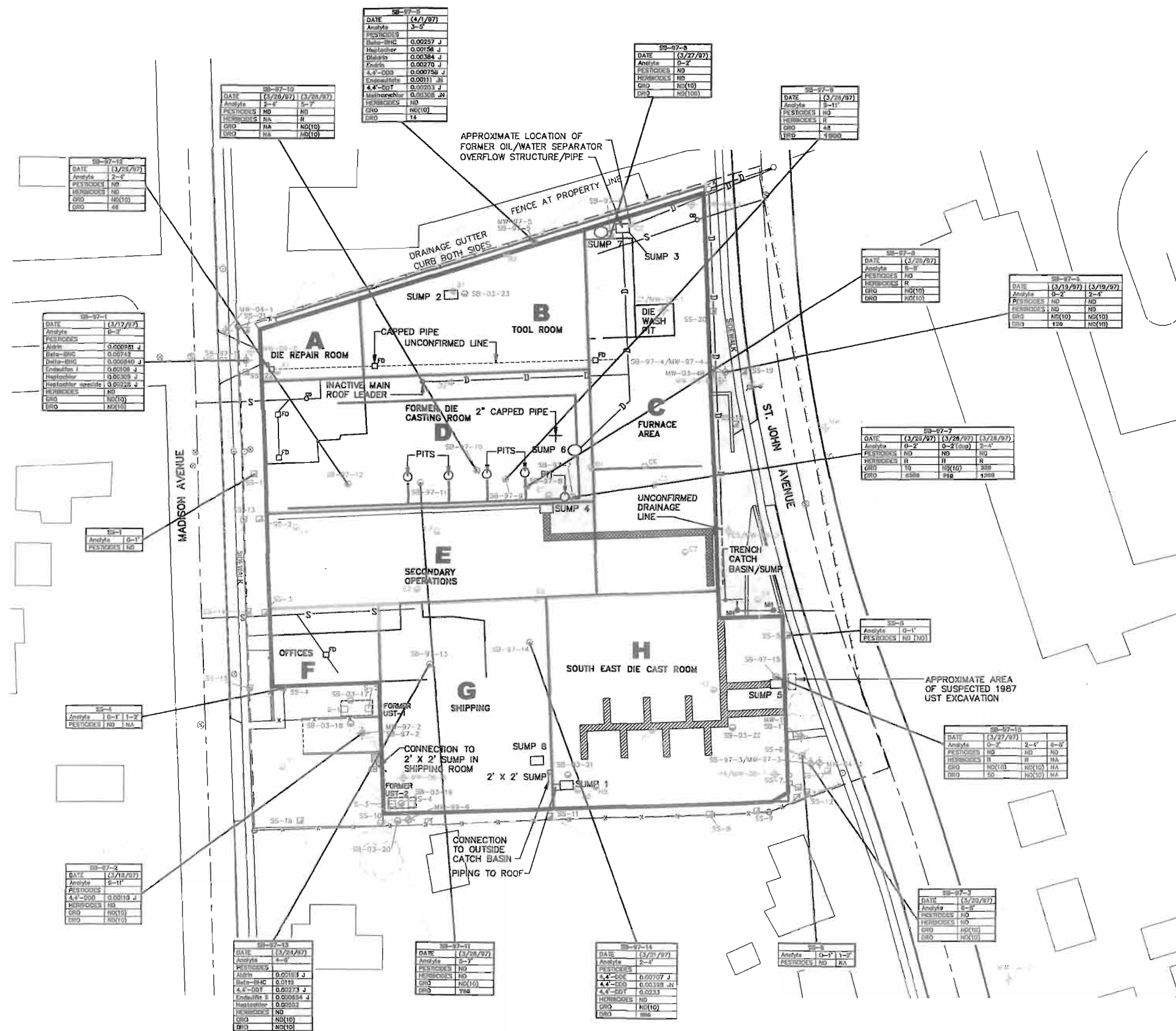
MERCURY MARINE PLANT 2  
CEDARBURG, WISCONSIN  
REMEDIAL INVESTIGATION REPORT

**SOIL SAMPLE LOCATIONS AND  
SUMMARY OF INORGANIC DETECTIONS**

ARCADIS BBL  
environmental solutions

FIGURE  
**3-10D**





MERCURY MARINE PLANT 2  
CEDARBURG, WISCONSIN  
REMEDIAL INVESTIGATION REPORT

SOIL SAMPLE LOCATIONS AND  
SUMMARY OF OTHER DETECTIONS

ARCADIS BBL

FIGURE

3-10E



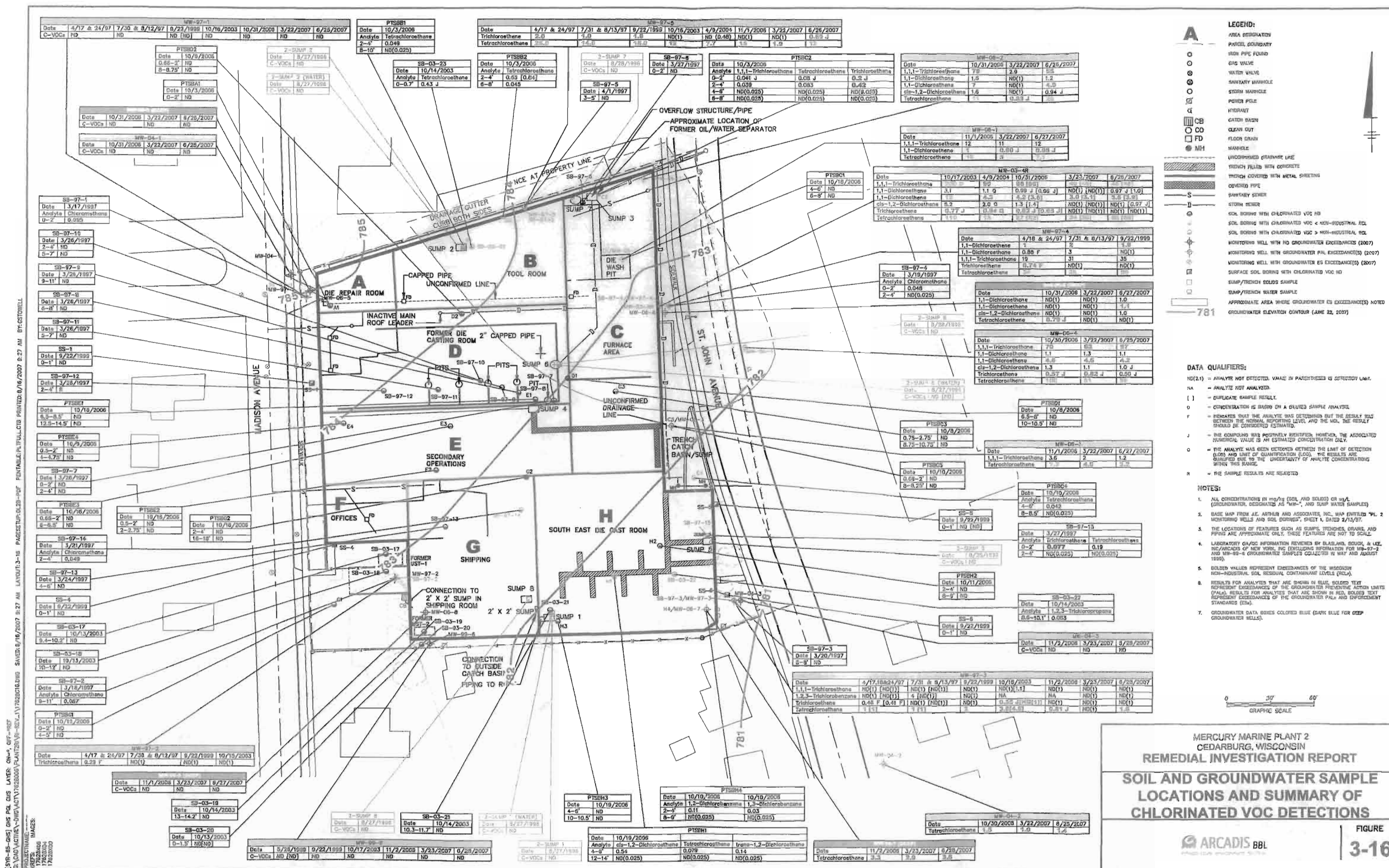




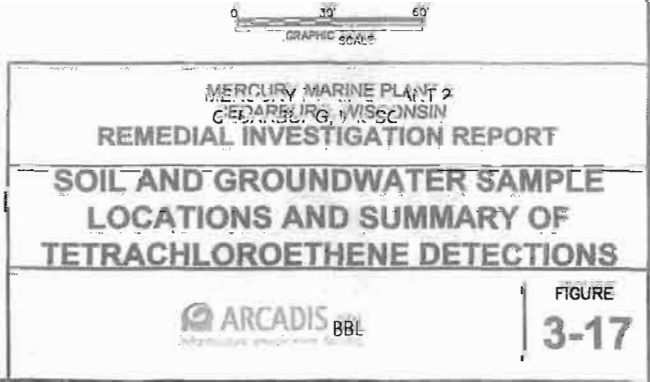
















## **STATEMENT OF WORK**

### **For Remedial Action and Operation and Maintenance at the**

#### **Cedar Creek Site-Plant 2 - Operable Unit 1 Cedarburg, WI**

#### **I. PURPOSE**

This Statement of Work (SOW) sets forth requirements for the implementation of all components of the remedial action (RA) set forth in the Record of Decision (ROD) for the Cedar Creek – Plant 2 site, designated as Operable Unit 1 Cedarburg, Wisconsin, which the United States Environmental Protection Agency (EPA) signed on March 31, 2008. The Settling Defendant shall follow the ROD, this SOW, the RA Consent Decree, the approved Remedial Design (RD), the Remedial Action (RA) Work Plan, EPA Superfund Remedial Design and Remedial Action Guidance (OSWER Directive No. 9355.0-4A), and any additional published guidance by EPA for implementation of the RA at the Site. The Scope of Work for the Remedial Action and Operation and Maintenance at the Cedar Creek Plant 2 site – Operable Unit 1, Cedarburg, Wisconsin shall be included in this SOW upon entry of the Consent Decree.

#### **II. REMEDIAL ACTION/PERFORMANCE STANDARDS**

##### **Overview of the Remedial Action**

The Settling Defendant shall implement the following response activities set forth in the ROD and approved RD:

- (a) the implementation of the PCB- and VOC-contaminated soils remedy, as set forth in the ROD and the approved RD plans and specifications;
- (b) the implementation of the groundwater monitoring plan in accordance with the ROD and the approved RD design plans and specifications; and
- (c) the operation and maintenance of all on-site remedial actions.

##### **RA Work Plan**

The Settling Defendant must submit to EPA for review and approval a RA Work Plan within 21 days of the lodging of the Consent Decree.

The RA Work Plan must state the schedule and tasks necessary to complete all the RA work required by the ROD, as set forth in the RD for the Site. Once EPA approves a RA Work Plan, the Settling Defendant shall implement the RA Work Plan in accordance with the approved schedule therein. EPA may approve portions of a RA Work Plan, and the Settling Defendant shall begin to implement the approved portions while revising disapproved sections for resubmittal to EPA for review and approval.

## **Performance Standards**

The Settling Defendant shall meet the performance standards and specifications set forth in the RD and in this SOW. Performance standards shall mean the cleanup standards and other measures of achievement of the goals of the RA, set forth in the ROD and any EPA-approved Remedial Action Work Plan, including any Performance Standards and any standards of control, quality criteria, risk calculations and other substantive requirements, criteria or limitations, including all Applicable or Relevant and Appropriate Requirements (ARARs), set forth in the ROD, the SOW, and/or the RA Consent Decree.

### **III. GENERAL PROVISIONS**

Submittals sent by the Settling Defendant to EPA for review and approval shall also be sent by Settling Defendant to the Wisconsin Department of Natural Resources (WDNR) for review and comment.

Any risk calculations required pursuant to completion of this SOW are subject to approval by EPA. These calculations will be performed according to applicable EPA procedures and guidelines, including the Risk Assessment Guidance for Superfund Manual (December 1989), as amended, and/or other EPA guidance in effect at the time the calculations are performed.

In addition to compliance with the cleanup levels set forth in the ROD, this SOW and the Performance Standards for the design, the Settling Defendant shall meet all applicable federal, state and local laws, regulations and standards including, but not limited to, requirements regarding discharges of hazardous substances, pollutants, or contaminants to the Site and to surface waters.

Any activities that take place in or impact wetlands shall be conducted in compliance with Section 104 of the Clean Water Act and with Wetland Management Executive Order 11990 for protection of wetlands, and other federal and state standards, as applicable. The Settling Defendant shall also comply with all requirements regarding the protection of state and/or federal endangered and threatened species at the Site.

### **IV. SCOPE OF THE REMEDIAL ACTION ACTIVITIES**

The scope of work for the RA activities required to implement the RD is presented below:

- a. The Settling Defendant shall implement the Site Security Plan in accordance with the approved RD and RA Work Plans and the Consent Decree.
- b. The Settling Defendant shall conduct any soil sampling and analysis activity and submit reports to EPA for review and approval in accordance with the approved Field Sampling and Analysis Plan and the approved RA Work Plan schedule.
- c. The Settling Defendant shall conduct any groundwater sampling and analysis activity and submit reports to EPA for review and approval in accordance with the approved Sampling and Analysis Plan and the approved RA Work Plan schedule.

- d. The Settling Defendant shall conduct the soil remedial action in accordance with the approved RA Work Plan schedule.
- e. The Settling Defendant shall implement the Soils Management Plan (SMP) as approved by EPA.
- f. The Settling Defendant shall implement the groundwater remedial action in accordance with the approved RA Work Plan schedule.
- g. The Settling Defendant shall complete an Operations and Maintenance (O&M) Plan and implement O&M tasks at the Site in accordance with the approved O&M Plan and the schedules in the RA Work Plan.
- h. The Settling Defendant shall complete an Institutional Control Implementation and Assurance Plan (ICIAP) and implement the Institutional Controls (ICs) set forth in the ICIAP and the ROD. The ICIAP shall include, but shall not be limited to (a) a description of the pathways for potential human exposure to Waste Material that may remain during and/or after completion of the construction of the RA; (b) a description of the areas where human activities should be restricted, including legal descriptions for such areas, sample maps, and a plan for preparing final survey maps (e.g., survey of hazardous waste cap); (c) a list of properties where Proprietary Controls are needed; (d) a description of the proposed ICs and their purpose; (e) a description of the proposed duration of each IC and an explanation for such duration; (f) a schedule for implementing each IC; (g) a schedule for completing title work; (h) draft Proprietary Controls enforceable under state law to implement the proposed land/water use restrictions; (i) a description of the authority of each affected property owner to implement each Proprietary Control, including title insurance commitments or other title evidence acceptable to EPA for proposed Proprietary Controls; (j) a description of all prior liens and encumbrances existing on any real property that may affect the subordination of any such liens and encumbrances (unless EPA waives the release or subordination of such liens and encumbrances); (k) a plan for monitoring, maintaining, reporting on, and ensuring the continued efficacy of the ICs and a contingency plan in the event ICs are ineffective; and (l) a schedule for annual certifications regarding whether the ICs remain in place, regarding whether the ICs have been complied with, and regarding enforcement of the ICs. The ICIAP shall be effective upon EPA's approval and shall become an enforceable requirement of the Consent Decree.

## **V. REMEDIAL DESIGN**

Settling Defendant has completed, under the RD Administrative Order on Consent (RD AOC) dated September 29, 2008, the Remedial Design.

## **VI. REMEDIAL ACTION**

### **Task 1: Remedial Action Work Plan**

The Settling Defendant must develop and submit to EPA for review and approval a RA Work Plan that documents the management strategy the Settling Defendant will follow to construct the



approved design plans and specifications for the remedial components outlined in Section IV, above. The RA Work Plan must include a project schedule for each major activity and submission of deliverables generated during the RA.

## **Task 2: Implement Remedial Action**

The Settling Defendant shall implement the RA in accordance with the approved RD plans and specifications and the schedules in the RA Work Plan. The Settling Defendant shall complete an O&M Plan and submit it to EPA for review and approval in accordance with the schedule in the RA Work Plan.

The following activities shall be completed during implementation of the soil and groundwater RAs:

### **1. Preconstruction Inspection and Meeting**

The Settling Defendant shall participate with EPA and WDNR in a preconstruction inspection and meeting to:

- (a) review methods for documenting and reporting inspection data;
- (b) review methods for distributing and storing documents and reports;
- (c) review work area security and safety protocol;
- (d) discuss any appropriate modifications to the RA Work Plan to ensure that Site-specific considerations are addressed; and
- (e) conduct a Site walk-around to verify that the specifications are understood and to review material and equipment storage locations.

A person designated by the Settling Defendant shall document and transmit minutes to all parties.

### **2. Pre-final Inspection**

Within 30 days after Settling Defendant makes a preliminary determination that a remedial component defined in the RA Work Plan has been completely installed, the Settling Defendant shall notify EPA for the purposes of conducting a pre-final inspection. The pre-final inspection shall consist of a walk-through inspection of the remedial component with EPA. The inspection is to determine whether the project is complete and consistent with the final design documents. Any outstanding construction items discovered during the inspection shall be identified and noted. The pre-final inspection report shall outline the outstanding construction items, actions required to resolve items, completion date for these items, and a proposed date for final inspection.

3. Final Inspection

Within 30 days after completion of any work identified in the pre-final inspection report, the Settling Defendant shall notify EPA for the purposes of conducting a final inspection. The final inspection shall consist of a walk-through inspection of the Site by EPA and the Settling Defendant. The pre-final inspection report shall be used as a checklist with the final inspection focusing on the outstanding construction items identified in the pre-final inspection.

4. Statement of Completion

Within 60 days of a successful final inspection, Settling Defendant shall submit a Completion of Construction Report. In the report, a registered professional engineer and the Settling Defendant's Project Coordinator shall state the remedial component has been completed in full satisfaction of the requirements of the Consent Decree. The written report shall include as-built drawings signed and stamped by a professional engineer. The report shall obtain the following statement, signed by a responsible corporate official of Settling Defendant or the Settling Defendant's Project Coordinator:

*"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations."*

**VII. OPERATION AND MAINTENANCE**

**Task 3: Implement Operations and Maintenance**

Upon completion of the RA (*i.e.*, EPA's acceptance of the Completion of Construction Report for the specified RA as final), the Settling Defendant shall implement the approved O&M Plan in accordance with the schedules therein.

**Task 4: Progress Reports**

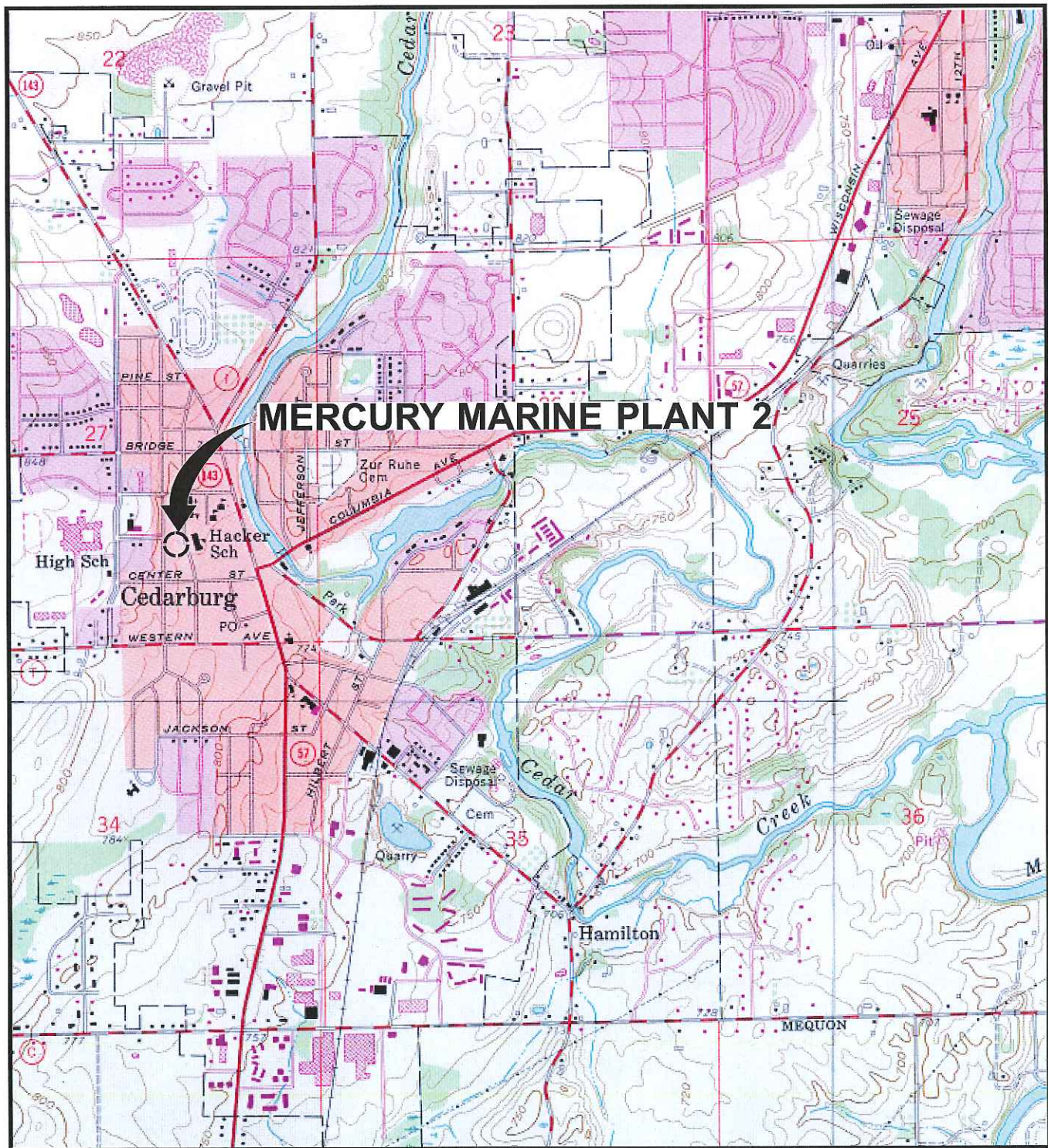
The Settling Defendant shall prepare monthly progress reports in accordance with Section X, Paragraph 30, of the Consent Decree for Remedial Action during RA construction. Following issuance of a Certification of Completion of Construction by EPA, progress reports shall be submitted quarterly or on an alternative schedule approved by EPA.

# **VIII. SUMMARY OF MAJOR DELIVERABLES/SCHEDULE**

A summary of the project schedule and reporting requirements contained in this SOW is presented below:

Submission	Due Date
1. Draft RA Work Plan	Within 21 days of Consent Decree lodging
2. Final RA Work Plan	Thirty days after receipt of EPA comments on the draft RA Work Plan
3. Implementation of RA	In accordance with approved schedule in the final RA Work Plan
4. Implementation of operation and maintenance	In accordance with approved schedule in the final RA Work Plan
5. Progress Reports	Monthly until RA completion, then quarterly or as approved by EPA





REFERENCE: Base Map Source: USGS 7.5 Min. Topo. Quad., Cedarburg, Wis. (1959, Photorevised 1971 and 1976).

2,000' 0 2,000'  
APPROX. SCALE 1" = 2,000'



Area  
Location

MERCURY MARINE PLANT 2  
CEDARBURG, WISCONSIN  
REMEDIAL ACTION WORKPLAN

**SITE LOCATION MAP**



FIGURE  
**1-1**



**PERFORMANCE BOND**

Date bond executed: September 13, 2012

Effective date: September 13, 2012

Principal: Mercury Marine  
A Division of Brunswick Corporation  
W6250 Pioneer Road  
Fond du Lac, WI 54936

Type of organization: Corporation

State of incorporation: DE

Surety: Travelers Casualty and Surety Company of America  
One Tower Square  
Hartford, CT 06183

EPA Identification Number, name,  
address, and amount for each  
facility guaranteed by this bond: EPA ID# WID988590261  
Cedar Creek OU1 – Plant 2 Superfund Alternative  
Approach Site  
Cedarburg, Ozaukee County, Wisconsin  
Amount Guaranteed: \$3,000,000

Total penal sum of bond: \$3,000,000

Surety's bond number: 105818067

KNOW ALL PERSONS BY THESE PRESENTS, THAT we, the Principal and Surety hereto are firmly bound to the U.S. Environmental Protection Agency (hereinafter called "EPA"), in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally;

WHEREAS, said Principal is required, under the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), to comply with the Remedial Action Consent Decree for the Plant 2 Operable Unit at the Cedarville Dams (a/k/a Cedar Creek OU1 – Plant 2) Superfund Alternative Approach Site issued by EPA for the facility identified above (hereinafter called "Consent Decree"); and

WHEREAS, said Principal is required to provide financial assurance for performance of the "Work," as that term is defined in the Consent Decree;



NOW, THEREFORE, the conditions of this obligation are such that if the Principal shall faithfully perform the Work, whenever required to do so, at the facility for which this bond guarantees such performance, in accordance with the Consent Decree as such Consent Decree may be amended, pursuant to all applicable laws, statutes, rules, and regulations, as such laws, statutes, rules, and regulations may be amended,

OR, if the Principal shall provide alternate financial assurance as specified in the Consent Decree, and obtain the EPA Regional Administrator's written approval of such assurance, within 90 days after the date notice of cancellation is received by both the Principal and the EPA Regional Administrator from the Surety, then this obligation shall be null and void, otherwise it is to remain in full force and effect.

1. The Surety shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above.

2. Upon notification by an EPA Regional Administrator that the Principal has been found in violation of the requirements of the Consent Decree, for the facility for which this bond guarantees performance of the Work, the Surety shall either perform the Work in accordance with the Consent Decree or place the amount guaranteed for the facility into a special account within the EPA Hazardous Substance Superfund or such other account as EPA may specify, as directed by the EPA Regional Administrator.

3. Upon notification by an EPA Regional Administrator that the Principal has failed to provide alternate financial assurance as specified in the Consent Decree, and obtain written approval of such assurance from the EPA Regional Administrator during the 90 days following receipt by both the Principal and the EPA Regional Administrator of a notice of cancellation of the bond, the Surety shall place funds in the amount guaranteed for the facility into a special account within the EPA Hazardous Substance Superfund or such other account as EPA may specify, as directed by the EPA Regional Administrator.

4. The Surety hereby waives notification of amendments to the Consent Decree, permits, applicable laws, statutes, rules, and regulations and agrees that no such amendment shall in any way alleviate its obligation on this bond.

5. The liability of the Surety shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety hereunder exceed the amount of said penal sum.

6. The Surety may cancel the bond by sending notice of cancellation by certified mail to the Principal and to the EPA Regional Administrator for the Region in which the facility is located, provided, however, that cancellation shall not occur during the 120 days beginning on the date of receipt of the notice of cancellation by both the Principal and the EPA Regional Administrator, as evidenced by the return receipts.

7. The Principal may terminate this bond by sending written notice to the Surety, provided, however, that no such notice shall become effective until the Surety receives written

authorization for termination of the bond by the EPA Regional Administrator of the EPA Region in which the bonded facility is located.

IN WITNESS WHEREOF, the Principal and Surety have executed this Performance Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety.

Principal

Mercury Marine, a Division of Brunswick Corporation

By: Todd L  
Name(s) Todd Lemke  
Title(s) Vice President, General Counsel  
Mercury Marine Division of Brunswick Corporation  
[Corporate seal]

Corporate Surety

Travelers Casualty and Surety Company of America  
One Tower Square  
Hartford, CT 06183

State of incorporation: CT

Liability limit: \$3,000,000

By: William T. Krumm  
Name(s) and title(s) William T. Krumm  
Attorney-in-Fact

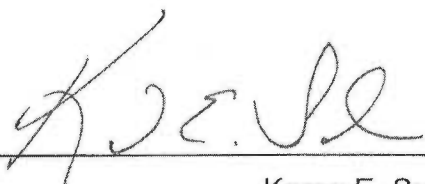
[Corporate seal]

Bond premium: \$43,500.00

State of Illinois  
 County of DuPage

I, Karen E. Socha a Notary Public of DuPage, County, in the State of Illinois, do hereby certify that William T. Krumm Attorney-in-Fact, of the Travelers Casualty and Surety Company of America who is personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person, and acknowledged that he signed, sealed and delivered said instrument, for and on behalf of the Travelers Casualty and Surety Company of America for the uses and purposes therein set forth.

Given under my hand and notarial seal at my office in the City of Itasca in said County, this 13<sup>th</sup> day of September, 2012.

  
 Notary Public Karen E. Socha  
 My Commission expires: 1/13/2016

