



270098

IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF WISCONSIN

DOCKET #

JAN 24 2005

INTERNATIONAL PAPER COMPANY,

Plaintiff,

v.

CITY OF TOMAH, WISCONSIN;  
UNITED STATES DEPARTMENT  
OF VETERAN AFFAIRS,

Defendants

CASE #

CIVIL ACTION NO. 00-C-0539-C

UNITED STATES OF AMERICA,

Plaintiff,

v.

INTERNATIONAL PAPER COMPANY;  
CITY OF TOMAH, WISCONSIN,

Defendants

CIVIL ACTION NO. 01-C-0693-C

CONSENT DECREE FOR OPERABLE UNIT 2

Copy of this document has been  
provided to Counsel  
of record  
this 31<sup>st</sup> day of May, 2005  
by S. Vogel  
S. Vogel, Secretary to  
Judge Barbara B. Crabb

TABLE OF CONTENTS

<u>I. BACKGROUND</u> .....	-1-
<u>II. JURISDICTION</u> .....	-6-
<u>III. PARTIES BOUND</u> .....	-7-
<u>IV. DEFINITIONS</u> .....	-8-
<u>V. GENERAL PROVISIONS</u> .....	-13-
<u>VI. PERFORMANCE OF THE WORK BY INTERNATIONAL PAPER</u> .....	-16-
<u>VII. REMEDY REVIEW</u> .....	-21-
<u>VIII. QUALITY, ASSURANCE SAMPLING, AND DATA ANALYSIS</u> .....	-22-
<u>IX. ACCESS AND INSTITUTIONAL CONTROLS</u> .....	-24-
<u>X. REPORTING REQUIREMENTS</u> .....	-31-
<u>XI. EPA APPROVAL OF PLANS AND OTHER SUBMISSIONS</u> .....	-33-
<u>XII. PROJECT COORDINATORS</u> .....	-35-
<u>XIII. ASSURANCE OF ABILITY TO COMPLETE WORK</u> .....	-36-
<u>XIV. CERTIFICATION OF COMPLETION</u> .....	-38-
<u>XV. EMERGENCY RESPONSE</u> .....	-41-
<u>XVI. PAYMENTS FOR RESPONSE COSTS</u> .....	-42-
<u>XVII. INDEMNIFICATION AND INSURANCE</u> .....	-46-
<u>XVIII. FORCE MAJEURE</u> .....	-48-
<u>XIX. DISPUTE RESOLUTION</u> .....	-50-
<u>XX. STIPULATED PENALTIES</u> .....	-54-
<u>XXI. COVENANTS BY THE UNITED STATES</u> .....	-59-

<u>XXII. COVENANTS BY INTERNATIONAL PAPER</u> .....	-64-
<u>XXIII. COVENANTS BY THE CITY OF TOMAH</u> .....	-66-
<u>XXIV. EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION</u> .....	-68-
<u>XXV. ACCESS TO INFORMATION</u> .....	-69-
<u>XXVI. RETENTION OF RECORDS</u> .....	-71-
<u>XXVII. NOTICES AND SUBMISSIONS</u> .....	-73-
<u>XXVIII. EFFECTIVE DATE</u> .....	-74-
<u>XXIX. RETENTION OF JURISDICTION</u> .....	-74-
<u>XXX. APPENDICES</u> .....	-75-
<u>XXXI. COMMUNITY RELATIONS</u> .....	-75-
<u>XXXII. MODIFICATION</u> .....	-75-
<u>XXXIII. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT</u> .....	-76-
<u>XXXIV. SIGNATORIES/SERVICE</u> .....	-77-
<u>XXXV. FINAL JUDGMENT</u> .....	-77-
APPENDIX A: OPERABLE UNIT 1 RECORD OF DECISION	
APPENDIX B: OPERABLE UNIT 2 RECORD OF DECISION	
APPENDIX C: STATEMENT OF WORK	
APPENDIX D: DESCRIPTION AND MAP OF THE SITE	
APPENDIX E: DRAFT EASEMENT	

## I. BACKGROUND

A. On August 31, 2000, International Paper Company, Inc. (“International Paper”) brought a civil action captioned Int’l Paper Co. v. City of Tomah (the “International Paper case”) in the United States District Court for the Western District of Wisconsin pursuant to Section 113(f) of the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”), 42 U.S.C. § 9613(f). The case was designated Civil Action Number 00-C-0539-C.

B. Through its complaint, International Paper sought to recover certain costs it allegedly incurred in response to the release or threatened release of hazardous substances at the Tomah Municipal Sanitary Landfill site in Monroe County, Wisconsin (“Site”), as well as a declaration of the liability of both the City of Tomah, Wisconsin (“City of Tomah”) and the United States Department of Veteran Affairs (“VA”) for costs to be incurred in the future.

C. On December 12, 2001, the United States of America (“United States”), on behalf of the Administrator of the United States Environmental Protection Agency (“EPA”), filed a civil complaint against International Paper and the City of Tomah captioned United States v. Int’l Paper Co. (the “EPA case”) in the United States District Court for the Western District of Wisconsin pursuant to Sections 106, 107, and 113 (g)(2) of CERCLA, 42 U.S.C. §§ 9606, 9607, 9613(g)(2). The case was designated Civil Action Number 01-C-0693-C.

D. The United States’ complaint sought, inter alia: (1) reimbursement by International Paper and the City of Tomah, pursuant to Section 107 of CERCLA, 42 U.S.C. § 9607, of certain costs incurred and to be incurred by the United States in responding to releases or threatened releases of hazardous substances at or from the Site, as well as a declaration of



future liability pursuant to Section 113(g)(2) of CERCLA, 42 U.S.C. § 9613(g)(2); and (2) injunctive relief in the form of an Order requiring International Paper and the City of Tomah implement the remedial actions selected by EPA in the Record of Decision ("ROD") for the Site.

E. Upon an unopposed motion filed by the United States, the International Paper case and the EPA case were consolidated pursuant to Federal Rule of Civil Procedure 42(a) under Civil Action Number 00-C-0539-C.

F. In accordance with the National Contingency Plan, 40 C.F.R. Part 300 (as amended) ("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 November 5, 2003, of negotiations with potentially responsible parties regarding the implementation of the remedial design and remedial action for Operable Unit 2 at the Site, and EPA has provided the State with an opportunity to participate in such negotiations and be a party to this Consent Decree.

G. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the United States Department of Interior on October 6, 2003, of negotiations with potentially responsible parties regarding the release of hazardous substances that may have resulted in injury to the natural resources under Federal trusteeship and encouraged the natural resource Trustee(s) to participate in the negotiation of this Consent Decree.

H. International Paper enters into this Consent Decree voluntarily and does not admit any liability to the United States or to any other Party, person or entity arising out of the transactions or occurrences alleged in the United States' complaint or in any way arising out of the Site, nor does International Paper acknowledge that the release or threatened release of

hazardous substance(s) at or from the Site constitutes an imminent or substantial endangerment to the public health or welfare or the environment.

I. The City of Tomah enters into this Consent Decree voluntarily and does not admit any liability to the United States or to any other Party, person or entity arising out of the transactions or occurrences alleged in the United States' complaint or in any way arising out of the Site, nor does the City of Tomah admit any liability to any other Party, person or entity arising out of the transactions or occurrences alleged in International Paper's complaint, nor does the City of Tomah acknowledge that the releases or threatened releases of hazardous substance(s) at or from the Site constitute an imminent or substantial endangerment to the public health or welfare or the environment.

J. The VA does not admit any issue of fact or law.

K. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on March 31, 1989, 54 Fed. Reg. 19,526.

L. In response to a release or a substantial threat of a release of a hazardous substance(s) at or from the Site, Union Camp Corporation ("Union Camp," International Paper's predecessor), the VA, and the City of Tomah commenced on January 11, 1994, a Remedial Investigation and Feasibility Study ("RI/FS") for the Site pursuant to 40 C.F.R. § 300.430.

M. The Site was subsequently divided into two operable units that would be the subject of remedial response work: "Operable Unit 1" or "OU1" being the portion of the remedial response at the Site dealing with source control, and "Operable Unit 2" or "OU2" being the portion of the remedial response at the Site dealing with contaminated ground water.

N. Pursuant to 40 C.F.R. § 300.430, Union Camp, the VA, and the City of Tomah completed a Remedial Investigation ("RI") Report on July 15, 1996, and a Feasibility Study ("FS") Report for OU1 on July 15, 1997.

O. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the OUI FS Report, as well as the proposed Remedial Action ("RA") plan for OU1, on August 7, 1997, and August 11, 1997, in two major local newspapers of general circulation. EPA held a public meeting on August 18, 1997, to discuss the RI/FS Report and the proposed RA plan for OU2. 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 based the selection of the response action.

P. EPA's decision on the Remedial Action to be implemented for OU1 is embodied in a final Record of Decision ("ROD"), executed on September 25, 1997 ("OU1 ROD"), upon which the State has given its concurrence. The OU1 ROD includes a responsiveness summary to the public comments received by EPA pertaining to the proposed RA plan for OU1. Notice of the final plan was published on December 29, 1997, and on January 9, 1998, in two major local newspapers of general circulation, in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b).

Q. On September 29, 1998, Union Camp signed an Administrative Order on Consent ("AOC") for Remedial Design ("RD"), in which it agreed to perform the design necessary to implement the OU1 remedy designated by the EPA in the OU1 ROD. EPA signed the AOC on September 30, 1998.

R. On September 30, 1999, EPA issued a Unilateral Administrative Order (“UAO”) pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606, directing International Paper to implement the Remedial Action for OU1. International Paper responded to the UAO by agreeing to perform the work outlined in the RA Work Plan for OU1, as approved by EPA.

S. On February 19, 2002, this Court entered a Consent Decree among the United States, International Paper, and the City of Tomah (collectively, the “Parties”) in Civil Action Numbers 00-C-0539-C and 01-C-0693-C (“2002 Consent Decree”), which addressed response action at the Site related to Operable Unit 1: containing the source of contamination by capping the 18-acre Tomah Municipal Sanitary Landfill, expanding an existing gas collection system, and monitoring the effectiveness of these response actions.

T. The Parties now enter into this Consent Decree for Operable Unit 2 to address response action at the Site related to Operable Unit 2, i.e., groundwater monitoring.

U. In April of 2003, International Paper, the VA, and the City of Tomah completed a FS Report for OU2.

V. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the FS Report, as well as the proposed RA plan for OU2 on June 6, 2003, in two major local newspapers of general circulation. EPA held a public meeting on June 24, 2003, to discuss the proposed RA plan for OU2. A copy of the transcript of the public meeting is available to the public as part of the administrative record upon which the Director of the Superfund Division based the selection of the OU2 response action.

W. EPA’s decision on the Remedial Action to be implemented for OU2 is embodied in a final ROD, executed on September 24, 2003 (“OU2 ROD”), upon which the State has given

its concurrence. The OU2 ROD includes a responsiveness summary to the public comments. In accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b), notice of the final RA plan was published on October 13 and 16, 2003, in two major local newspapers of general circulation.

X. International Paper herein agrees to undertake Remedial Action for OU2, as shall be set forth in the Remedial Design/Remedial Action Work Plan for OU2 developed pursuant to Section VI of this Consent Decree. Solely for the purposes of Section 113(j) of CERCLA, 42 U.S.C. § 9613(j), the Remedial Action selected for the Site by the OUI and OU2 RODs, and the Site Work to be performed by International Paper, shall constitute a response action taken or ordered by the President.

Y. The Parties recognize, and this 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 International Paper and the City of Tomah. Solely for the purposes of this Consent Decree and the underlying complaints, International Paper and the City of Tomah waive all objections and defenses that they may have to jurisdiction of the Court or to venue in

this District. International Paper and the City of Tomah 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, the City of Tomah, and International Paper and its successors and assigns. Any change in ownership or corporate status of International Paper including, but not limited to, any transfer of assets or real or personal property, shall in no way alter International Paper's responsibilities under this Consent Decree.

3. International Paper shall provide a copy of this Consent Decree to each contractor hired to perform the Work (as defined below) required by this Consent Decree and to each person representing International Paper 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. International Paper 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. International Paper shall nonetheless be responsible for ensuring that its contractors and subcontractors perform the Work contemplated herein in accordance with 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 International Paper within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

#### IV. DEFINITIONS

4. Unless otherwise expressly provided herein, terms used in this Consent Decree which 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 in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

“CERCLA” shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 *et seq.*

“City of Tomah” shall mean the City of Tomah, Monroe County, Wisconsin.

“Consent Decree” shall mean this Consent Decree for Operable Unit 2 and all appendices attached hereto (listed in Section XXX). In the event of a conflict between this Consent Decree and any appendix, this Consent Decree shall control.

“Construction Completion Report” shall mean the report required under Section IV of the Statement of Work.

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

“Effective Date” shall be the effective date of this Consent Decree as provided in Paragraph 109.

“EPA” shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

“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 items pursuant to this Consent Decree, verifying 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 Sections VII, IX (including, but not limited to, the cost of attorney time and any monies paid to secure access and/or to secure or implement institutional controls including, but not limited to, the amount of just compensation), XV, and Paragraph 88 of Section XXI. Future Response Costs shall also include all Interim Response Costs.

“Interim Response Costs” shall mean all costs, including direct and indirect costs, incurred by the United States in connection with Operable Unit 2 between May 19, 2003 and the Effective 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. A different rate of interest may be specified for amounts owed by the City of Tomah to International Paper as set forth in the International Paper/City of Tomah Side Agreement.

“International Paper” shall mean International Paper Company.

“International Paper/City of Tomah Side Agreement” shall mean a written agreement between International Paper and the City of Tomah, dated December 1, 2001.



“Major Milestone” shall mean a due date designated for a submission or task listed in Section IV of the Statement of Work or expressly designated as a Major Milestone in any submission required under this Consent Decree or the Statement of Work.

“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.

“Operable Unit 1” or “OU1” shall mean the portion of the remedial response at the Site dealing with source control, as set forth in the OU1 Record of Decision.

“Operable Unit 2” or “OU2” shall mean the portion of the remedial response at the Site dealing with contaminated ground water, as set forth in the OU2 Record of Decision.

“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 this Consent Decree and the Statement of Work (“SOW”).

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

“Parties” shall mean the United States, International Paper, and the City of Tomah.

“Performance Standards” shall mean the cleanup standards and other measures of achievement of the goals of the Remedial Action, set forth in Section 2.12.2 of the OU2 ROD and Section II of the SOW. For purposes of Paragraph 50 (Completion of the Remedial Action), “Performance Standards” shall also include the cleanup standards and other measures of

achievement of the goals of the Remedial Action set forth in Section VII of the OU1 Record of Decision.

“Potentially Responsible Parties” or “PRPs” shall mean parties whom EPA identifies as potentially liable under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), for costs incurred at the Site.

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

“Record of Decision for Operable Unit 1” or “OU1 ROD” shall mean the EPA Record of Decision relating to Source Control at the Site, Operable Unit 1, signed on September 25, 1997, by the Superfund Division Director, EPA Region 5, including all attachments thereto, and as may be amended in the future. The OU1 ROD is attached hereto as Appendix A.

“Record of Decision for Operable Unit 2” or “OU2 ROD” shall mean the EPA Record of Decision relating to contaminated ground water at the Site, Operable Unit 2, signed on September 24, 2003, by the Superfund Division Director, EPA Region 5, including all attachments thereto, and as may be amended in the future. The OU2 ROD is attached hereto as Appendix B.

“Remedial Action” shall mean those activities, except for Operation and Maintenance, to be undertaken by International Paper to implement the OU1 and OU2 RODs, in accordance with the Statement of Work for this Consent Decree, the Statement of Work for the 2002 Consent Decree, the OU2 RD/RA Work Plan, the OU1 RA Work Plan, and other plans approved by EPA.

“Remedial Action Work Plan for OU1” or “OU1 RA Work Plan” shall mean the work plan developed pursuant to EPA Administrative Order Docket No. V-W-99-C-566 and incorporated by reference in Paragraph 18 of the 2002 Consent Decree.

“Remedial Design” shall mean those activities to be undertaken by International Paper to develop the final plans and specifications for the Remedial Action pursuant to the OU2 RD/RA Work Plan.

“Remedial Design/Remedial Action Work Plan for OU2” or “OU2 RD/RA Work Plan” shall mean the document developed pursuant to Paragraph 12 of this Consent Decree, and any amendments thereto.

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

“Settling Federal Agency” shall mean the United States Department of Veterans Affairs, which is resolving any claims which have been or could be asserted against it with regard to this Site as provided in this Consent Decree.

“Site” shall mean the Tomah Municipal Sanitary Landfill Superfund Site, encompassing approximately 40 acres, located on West 24th Avenue in Monroe County, Wisconsin, and depicted generally on the map attached as Appendix D.

“State” shall mean the State of Wisconsin; only for Paragraphs 9, 10, and 16 however, “State” shall mean any of the several United States.

“Statement of Work” or “SOW” shall mean the statement of work for implementation of the Remedial Design, Remedial Action, and Operation and Maintenance with respect to Operable Unit 2 at the Site, as set forth in Appendix C to this Consent Decree and any modifications made in accordance with this Consent Decree. In addition, “Statement of Work for the 2002 Consent

Decree” shall mean the statement of work for implementation of the Remedial Action and Operation and Maintenance with respect to Operable Unit 1 at the Site and any modifications made in accordance with the 2002 Consent Decree.

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

“United States” shall mean the United States of America, including all of its departments, agencies, and instrumentalities, which includes without limitation EPA, the Settling Federal Agency and any federal natural resource trustee.

“VA” shall mean the United States Department of Veterans Affairs and any successor departments or agencies of the United States.

“Waste Material” shall mean (1) any “hazardous substance” under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33), 42 U.S.C. § 9601(33); (3) any “solid waste” under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and (4) any “hazardous material” under Section 292.01(5) of the Wisconsin Statutes, Wis. Stat. § 292.01(5) (1997).

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

“Work” shall mean all activities International Paper is required to perform under this Consent Decree, except those required by Section XXVI (Retention of Records).

#### V. GENERAL PROVISIONS

5. Objectives of the Parties. The Parties entered into the 2002 Consent Decree to address response work for OUI, and now enter into this Consent Decree to address response

work for OU2. The objectives of the Parties in entering into this Consent Decree are: (a) to protect public health or welfare or the environment at the Site by the implementation of response actions by International Paper; (b) to reimburse the United States' for costs incurred and to be incurred with regard to the OU2 portion of the response action at the Site; (c) to resolve, as provided in this Consent Decree, the claims of International Paper which have been or could have been asserted against the United States or the City of Tomah with regard to the OU2 portion of the response action at the Site; and (d) to avoid the complication and expense of further litigation of other such claims concerning the Site.

6. Effect of this Consent Decree on the 2002 Consent Decree. This Consent Decree shall not supersede the 2002 Consent Decree, nor shall this Consent Decree have any effect upon any of the duties owed by the Parties thereunder. Nothing in this Consent Decree shall be deemed to bar the United States from enforcing duties owed by International Paper under the 2002 Consent Decree, and enforcement of such duties may take place at any time, including after the Effective Date of this Consent Decree.

7. Commitments by International Paper. International Paper shall finance and perform the Work in accordance with this Consent Decree, the OU2 ROD, the SOW, and all work plans and other plans, standards, specifications, and schedules set forth herein or developed by International Paper and approved by EPA pursuant to this Consent Decree. International Paper shall also reimburse the United States for Future Response Costs as provided in this Consent Decree.

8. Commitments by Settling Federal Agency. The VA as the “Settling Federal Agency” shall reimburse International Paper for its response costs as provided in this Consent Decree.

9. Compliance With Applicable Law. All activities undertaken by International Paper pursuant to this Consent Decree shall be performed in accordance with the requirements of all applicable federal and state laws and regulations. International Paper must also comply with all applicable or relevant and appropriate requirements of all federal and state environmental laws as set forth in the OU2 ROD and the SOW. The activities conducted pursuant to this Consent Decree, if approved by EPA, shall be considered to be consistent with the NCP.

10. Permits.

a. As provided in Section 121(e) of CERCLA, 42 U.S.C. § 9621(e), and Section 300.400(e) of the NCP, 40 C.F.R. § 300.400(e), 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, International Paper shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals.

b. International Paper may seek relief under the provisions of Section XVIII (Force Majeure) of this Consent Decree for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, any permit required for the Work.

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.

VI. PERFORMANCE OF THE WORK BY INTERNATIONAL PAPER

11. Selection of Supervising Contractor.

a. All aspects of the Work to be performed by International Paper pursuant to Sections VI (Performance of the Work by International Paper), VII (Remedy Review), VIII (Quality Assurance, Sampling and Data Analysis), and XV (Emergency Response) of this Consent Decree shall be conducted under the direction and supervision of the Supervising Contractor. International Paper's current Supervising Contractor under the 2002 Consent Decree, Conestoga-Rovers & Associates, shall continue to be Supervising Contractor. If at any time International Paper proposes to change its current Supervising Contractor, International Paper shall give notice to EPA and must obtain an authorization to proceed from EPA before the proposed Supervising Contractor performs, directs, or supervises any Work under this Consent Decree. If EPA disapproves a change in Supervising Contractor proposed by International Paper, EPA shall give its reasons.

b. If EPA disapproves a proposed change in Supervising Contractor, EPA will notify International Paper in writing. International Paper shall submit to EPA a list of contractors, including the qualifications of each contractor, that would be acceptable to them within thirty (30) days of 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. EPA shall give its reasons for disapproving any contractor. International Paper may select any contractor from that list that is not disapproved and shall notify EPA of the name of the contractor selected within twenty-one (21) days of EPA's authorization to proceed.

12. OU2 Remedial Design/Remedial Action.

a. Within thirty (30) days after the Effective Date of this Consent Decree, International Paper shall submit to the EPA and the State one (1) copy each of a Work Plan for the design and implementation of the Remedial Action for OU2 at the Site (the "Remedial Design/Remedial Action Work Plan for OU2" or "OU2 RD/RA Work Plan"). The OU2 RD/RA Work Plan shall provide for design, construction, and implementation of the remedy set forth in the OU2 ROD, in accordance with the SOW, for achievement of the Performance Standards and other requirements set forth in the OU2 ROD, this Consent Decree, and/or the SOW. Upon its approval by EPA, the OU2 RD/RA Work Plan shall be incorporated into and become enforceable under this Consent Decree.

b. The OU2 RD/RA Work Plan shall include plans and schedules for implementation of the OU2 remedial action, remedial design, and pre-design tasks identified in the SOW, including, but not limited to, plans and schedules for the completion of: (1) a preliminary design submittal, as detailed in Section III, Task 2(A) of the SOW; (2) final design submittal, as detailed in Section III, Task 2(B) of the SOW; (3) final project schedule for the construction and implementation of the OU2 RA, consistent with Section III, Task 3 of the SOW; (4) methods for documenting and reporting data gathered as part of the groundwater monitoring plan (Monitored Natural Attenuation, "MNA") under the OU2 RA; (5) institutional controls consistent with the OU2 ROD, such as governmental controls, proprietary controls, and information devices; (6) contingency plans consistent with the OU2 ROD.

c. Within thirty (30) days after the Effective Date of this Consent Decree, International Paper shall submit to EPA and the State one (1) copy each of a Health and Safety



Plan for field design activities which conforms to the applicable Occupational Safety and Health Administration and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120.

d. Upon approval of the OU2 RD/RA Work Plan by EPA, after a reasonable opportunity for review and comment by the State, and submittal of the Health and Safety Plan for all field activities to EPA and the State, International Paper shall implement the OU2 RD/RA Work Plan. International Paper shall submit to EPA and the State all plans, submittals and other deliverables required under the approved OU2 RD/RA Work Plan in accordance with the approved schedule for review and approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). Unless otherwise directed by EPA, International Paper shall not commence further OU2 RD/RA activities at the Site prior to approval of the OU2 RD/RA Work Plan.

13. International Paper shall implement the Remedial Action and O&M until the Performance Standards are achieved and for so long thereafter as is otherwise required under this Consent Decree.

14. Modification of the SOW or Related Work Plans.

a. If EPA determines that modification to the work specified in the SOW and/or in work plans developed pursuant to the SOW is necessary to achieve and maintain the Performance Standards or to carry out and maintain the effectiveness of the remedy set forth in the ROD, EPA may require that such modification be incorporated in the SOW and/or such work plans; provided, however, that a modification may only be required pursuant to this Paragraph to the extent that it is consistent with the scope of the remedy selected in the ROD.

b. For the purposes of this Paragraph and Paragraphs 50 and 51 only, the "scope of the remedy selected in the ROD" is: monitored natural attenuation of groundwater

contaminants outside the landfill to meet Applicable and Relevant and Appropriate Requirements; long-term monitoring of groundwater contamination and addressing migration of groundwater contaminants, if any; and establishment of appropriate deed restrictions.

c. If International Paper objects to any modification determined by EPA to be necessary pursuant to this Paragraph, it may seek dispute resolution pursuant to Section XIX (Dispute Resolution), Paragraph 70 (record review). The SOW and/or related work plans shall be modified in accordance with final resolution of the dispute.

d. International Paper shall implement any work required by any modifications incorporated in the SOW and/or in work plans developed pursuant to the SOW in accordance with this Paragraph.

e. 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.

15. International Paper acknowledges and agrees that nothing in this Consent Decree, the SOW, or the OU2 RD/RA Work Plan constitutes a warranty or representation of any kind by the United States that compliance with the work requirements set forth in the SOW and the OU2 RD/RA Work Plan will achieve the Performance Standards.

16. Off-Site Shipments.

a. International Paper shall, prior to any off-Site shipment of Waste Material from the Site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving facility's state, and to the EPA Project Coordinator, of such shipment of Waste Material. However, this notification requirement shall

not apply to any off-Site shipments when the total volume of all such shipments will not exceed 10 cubic yards.

(1) International Paper shall include in the written notification the following information, where available: (1) the name and location of the facility to which the Waste Material is to be shipped; (2) the type and quantity of the Waste Material to be shipped; (3) the expected schedule for the shipment of the Waste Material; and (4) the method of transportation. International Paper shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

(2) The identity of the receiving facility and state will be determined by International Paper following the award of the contract for Remedial Action construction. International Paper shall provide the information required by Paragraph 16.a as soon as practicable after the award of the contract and before the Waste Material is actually shipped.

b. Before shipping any hazardous substances, pollutants, or contaminants from the Site to an off-site location, International Paper shall obtain EPA's certification that the proposed receiving facility is operating in compliance with the requirements of CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. International Paper shall only send hazardous substances, pollutants, or contaminants from the Site to an off-site facility that complies with the requirements of the statutory provision and regulations cited in the preceding sentence.

## VII. REMEDY REVIEW

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

18. 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.

19. Opportunity To Comment. International Paper and, if required by Sections 113(k)(2) or 117 of CERCLA, 42 U.S.C. §§ 9613(k)(2), 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, 42 U.S.C. § 9621(c), and to submit written comments for the record during the comment period.

20. International Paper's Obligation To Perform Further Response Actions. If EPA selects further response actions for the Site, International Paper shall undertake such further response actions to the extent that the reopener conditions in Paragraph 84 or Paragraph 85 are satisfied. International Paper may invoke the procedures set forth in Section XIX (Dispute Resolution) to dispute (1) EPA's determination that the reopener conditions of Paragraph 84 or Paragraph 85 of Section XXI (Covenants by the United States) are satisfied, (2) EPA's determination that the Remedial Action is not protective of human health and the environment, or (3) EPA's selection of the further response actions. Disputes pertaining to the whether the

Remedial Action is protective or to EPA's selection of further response actions shall be resolved pursuant to Paragraph 70 (record review).

21. Submissions of Plans. If International Paper is required to perform the further response actions pursuant to Paragraph 20, it shall submit a plan for such work to EPA for approval in accordance with the procedures set forth in Section VI (Performance of the Work by International Paper) and shall implement the plan approved by EPA in accordance with the provisions of this Consent Decree.

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

22. International Paper 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) "Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/600/R-98/018, February 1998), and subsequent amendments to such guidelines upon notification by EPA to International Paper of such amendment. Amended guidelines shall apply only to procedures conducted after such notification. Prior to the commencement of any monitoring project under this Consent Decree, International Paper 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. International Paper shall ensure that EPA personnel and its authorized representatives are allowed access at reasonable times to all laboratories utilized by International

Paper in implementing this Consent Decree. In addition, International Paper shall ensure that such laboratories shall analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring. International Paper shall ensure that the laboratories it utilizes 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 which are documented in the "Contract Lab Program Statement of Work for Inorganic Analysis" and the "Contract Lab Program Statement of Work for Organic Analysis," dated February 1988, 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, International Paper may use other analytical methods which are as stringent as or more stringent than the CLP-approved methods. International Paper shall ensure that all laboratories it uses for analysis of samples taken pursuant to this Consent Decree participate in an EPA or EPA-equivalent QA/QC program. International Paper shall only use laboratories that have a documented Quality System which 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) 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. International Paper shall ensure that all field methodologies utilized in collecting samples for subsequent analysis pursuant to this Consent Decree will be conducted in accordance with the procedures set forth in the QAPP approved by EPA.

23. Upon request, International Paper shall allow split or duplicate samples to be taken by EPA or its authorized representatives. International Paper shall notify EPA not less than 7 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 EPA deems necessary. Upon request, EPA shall allow International Paper to take split or duplicate samples of any samples it takes as part of the United States' oversight of International Paper's implementation of the Work.

24. International Paper shall submit to EPA two (2) copies of the results of all sampling and/or tests or other data obtained or generated by or on behalf of International Paper with respect to the Site and/or the implementation of this Consent Decree unless EPA agrees otherwise.

25. Notwithstanding any provision of this Consent Decree, the United States hereby 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

26. If any property where access and/or land/water use restrictions are needed to implement this Consent Decree is owned or controlled by the City of Tomah, the City of Tomah shall:

a. commencing on the date of lodging of this Consent Decree, provide the United States and its representatives, including EPA and its contractors, access at all reasonable

times to such property for the purpose of conducting any activity related to this 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;
- (3) conducting investigations relating to 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 Quality Assurance Project Plans;
- (7) implementing the Work pursuant to the conditions set forth in Paragraph 88 of this Consent Decree;
- (8) inspecting and copying records, operating logs, contracts, or other documents maintained or generated by International Paper or its agents, consistent with Section XXV (Access to Information);
- (9) assessing International Paper's compliance with this Consent Decree; and
- (10) determining whether the Site or other property is being used in a manner that is prohibited or restricted, or that may need to be prohibited or restricted, by or pursuant to this Consent Decree;



b. commencing on the date of lodging of this Consent Decree, refrain from using the property in any manner that would interfere with or adversely affect the implementation, integrity, or protectiveness of the remedial measures to be performed pursuant to this Consent Decree. Such restrictions include, but are not limited to, a prohibition on drilling new wells on land overlying the plume of contamination where hook-ups to municipal water have been provided; and

c. execute and record with the Register of Deeds for Monroe County, State of Wisconsin, an easement, running with the land, that grants to the parties identified below in this subparagraph: (i) a right of access for the purpose of conducting any activity related to this Consent Decree including, but not limited to, those activities listed in Paragraph 26.a of this Consent Decree, and (ii) the right to enforce the land/water use restrictions listed in Paragraph 26.b of this Consent Decree, or other restrictions that EPA determines are necessary to implement, ensure non-interference with, or ensure the protectiveness of the remedial measures to be performed pursuant to this Consent Decree. The City of Tomah shall grant the access rights and the rights to enforce the land/water use restrictions to (i) the United States, on behalf of EPA, and its representatives, (ii) the State and its representatives, and (iii) International Paper and its representatives. The City of Tomah shall, within 60 days of entry of this Consent Decree, submit to EPA for review and approval with respect to such property:

- (1) a draft easement, in substantially the form attached hereto as Appendix E, that is enforceable under the laws of the State of Wisconsin, and
- (2) a current title insurance commitment or some other evidence of title acceptable to EPA, which shows title to the land described in the easement to be free

and clear of all prior liens and encumbrances (except when those liens or encumbrances are approved by EPA or when, despite best efforts, the City of Tomah is unable to obtain release or subordination of such prior liens or encumbrances).

Within 15 days of EPA's approval and acceptance of the easement and the title evidence, the City of Tomah shall update the title search and, if it is determined that nothing has occurred since the effective date of the commitment to affect the title adversely, record the easement with the Register of Deeds for Monroe County. Within 30 days of recording the easement, the City of Tomah shall provide EPA with a final title insurance policy, or other final evidence of title acceptable to EPA, and a certified copy of the original recorded easement showing the clerk's recording stamps. If the easement is to be conveyed to the United States, the easement 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 must be obtained as required by 40 U.S.C. § 255.

27. If any property where access and/or land/water use restrictions are needed to implement this Consent Decree, is owned or controlled by persons other than International Paper or the City of Tomah, International Paper shall use best efforts to secure from such persons:

a. an agreement to provide access thereto for International Paper, as well as for the United States on behalf of EPA, and the State, as well as their representatives (including contractors), for the purpose of conducting any activity related to this Consent Decree including, but not limited to, those activities listed in Paragraph 26.a of this Consent Decree;

b. an agreement, enforceable by International Paper and the United States, to refrain from using the Site, or such other property, in any manner that would interfere with or

adversely affect the implementation, integrity, or protectiveness of the remedial measures to be performed pursuant to this Consent Decree. Such restrictions include, but are not limited to, a prohibition on drilling new wells on land overlying the plume of contamination, and on using existing wells on land overlying the plume of contamination where hook-ups to municipal water have been provided; and

c. the execution and recordation with the Register of Deeds for Monroe County, State of Wisconsin, of an easement, running with the land, that grants to the parties identified below in this subparagraph: (i) a right of access for the purpose of conducting any activity related to this Consent Decree including, but not limited to, those activities listed in Paragraph 26.a of this Consent Decree, and (ii) the right to enforce the land/water use restrictions listed in Paragraph 26.b of this Consent Decree, or other restrictions that EPA determines are necessary to implement, ensure non-interference with, or ensure the protectiveness of the remedial measures to be performed pursuant to this Consent Decree. The access rights and rights to enforce land/water use restrictions shall be granted to (i) the United States, on behalf of EPA, and its representatives, (ii) the State and its representatives, and (iii) International Paper and its representatives. Within 60 days of entry of this Consent Decree, International Paper shall submit to EPA for review and approval with respect to such property:

- (1) a draft easement, in substantially the form attached hereto as Appendix E, that is enforceable under the laws of the State of Wisconsin, and
- (2) a current title insurance commitment, or some other evidence of title acceptable to EPA, which shows title to the land described in the easement to be free and clear of all prior liens and encumbrances (except when those liens or encumbrances

are approved by EPA or when, despite best efforts, International Paper is unable to obtain release or subordination of such prior liens or encumbrances).

Within 15 days of EPA's approval and acceptance of the easement and the title evidence, International Paper shall update the title search and, if it is determined that nothing has occurred since the effective date of the commitment to affect the title adversely, the easement shall be recorded with the Register of Deeds for Monroe County. Within 30 days of the recording of the easement, International Paper shall provide EPA with a final title insurance policy, or other final evidence of title acceptable to EPA, and a certified copy of the original recorded easement showing the clerk's recording stamps. If the easement is to be conveyed to the United States, the easement 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 must be obtained as required by 40 U.S.C. § 255.

28. For purposes of Paragraphs 26.c.(2), 27, and 27.c.(2) of this Consent Decree, "best efforts" includes the payment of reasonable sums of money in consideration of access, access easements, land/water use restrictions, restrictive easements, and/or an agreement to release or subordinate a prior lien or encumbrance. If (a) any access or land/water use restriction agreements required by Paragraphs 27.a or 27.b of this Consent Decree are not obtained within 60 days of the date of entry of this Consent Decree, (b) any access easements or restrictive easements required by Paragraph 27.c of this Consent Decree are not submitted to EPA in draft form within 60 days of the date of entry of this Consent Decree, or (c) International Paper or the City of Tomah is unable to obtain an agreement pursuant to Paragraph 26.c.(1) or Paragraph 27.c.(1) from the holder of a prior lien or encumbrance to release or subordinate such lien or

encumbrance to the easement being created pursuant to this Consent Decree within 60 days of the date of entry of this Consent Decree, International Paper shall promptly notify the United States in writing, and shall include in that notification a summary of the steps that were taken to attempt to comply with Paragraph 26 or 27 of this Consent Decree. The United States may, as it deems appropriate, assist International Paper and the City of Tomah in obtaining access or land/water use restrictions, either in the form of contractual agreements or in the form of easements running with the land, or in obtaining the release or subordination of a prior lien or encumbrance. International Paper shall reimburse the United States in accordance with the procedures in Section XVI (Payments for Response Costs), for all costs incurred, direct or indirect, by the United States in obtaining such access, land/water use restrictions, 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.

29. If EPA determines that land/water use restrictions in the form of state or local laws, regulations, ordinances or other governmental controls are needed to implement the remedy selected in the OU2 ROD, ensure the integrity and protectiveness thereof, or ensure non-interference therewith, International Paper and the City of Tomah shall cooperate with EPA's efforts to secure such governmental controls.

30. Notwithstanding any provision of this Consent Decree, the United States retains all of its access authorities and rights, as well as all of its rights to require land/water use restrictions, including enforcement authorities related thereto, under CERCLA, RCRA and any other applicable statute or regulations.

## X. REPORTING REQUIREMENTS

31. In addition to any other requirement of this Consent Decree, International Paper shall submit to EPA and the State one (1) copy each of a written quarterly OU2 progress report by the tenth day of every quarter following the lodging of this Consent Decree, until EPA approves the OU2 Construction Completion Report. The quarterly report submitted in accordance with this Paragraph: (a) must describe the actions which have been taken toward achieving compliance with this Consent Decree during the previous quarter; (b) include a summary of all results of sampling and tests and all other data received or generated by International Paper or its contractors or agents in the previous quarter; (c) identify all work plans, plans and other deliverables required by this Consent Decree completed and submitted during the previous quarter; (d) describe all actions, including, but not limited to, data collection and implementation of work plans, which are scheduled for the next quarter 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 International Paper has proposed to EPA or that have been approved by EPA; and (g) describe all activities undertaken in support of the Community Relations Plan during the previous quarter and those to be undertaken in the next quarter. If requested by EPA, International Paper shall—in addition to the written quarterly reports required under this Paragraph—provide briefings for EPA to discuss the progress of the Work.

32. International Paper shall notify EPA of any change in the schedule described in the quarterly 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.

33. Upon the occurrence of any event during performance of the Work that International Paper 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, International Paper 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 or 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, 42 U.S.C. § 9603, or EPCRA Section 304, 42 U.S.C. § 11004.

34. Within 20 days of the onset of such an event, International Paper shall furnish to the United States a written report, signed by International Paper's Project Coordinator, setting forth the events which occurred and the measures taken, and to be taken, in response thereto. Within 30 days of the conclusion of such an event, International Paper shall submit a report setting forth all actions taken in response thereto.

35. International Paper shall submit three (3) copies of all plans, reports, and data required by the SOW, the OU2 RD/RA Work Plan, or any other approved plans to EPA in accordance with the schedules set forth in such plans. International Paper shall simultaneously

submit one (1) copy of all such plans, reports and data to the State. Upon request by EPA International Paper shall submit in electronic form all portions of any report or other deliverable International Paper is required to submit pursuant to the provisions of this Consent Decree.

36. All reports and other documents submitted by International Paper to EPA (other than the quarterly progress reports referred to above) which purport to document International Paper's compliance with the terms of this Consent Decree shall be signed by an authorized representative of International Paper.

#### XI. EPA APPROVAL OF PLANS AND OTHER SUBMISSIONS

37. After review of any plan, report or other item which is required to be submitted for approval pursuant to this Consent Decree, EPA, after reasonable opportunity for review and comment by the State, shall: (a) approve, in whole or in part, the submission; (b) approve the submission upon specified conditions; (c) modify the submission to cure the deficiencies; (d) disapprove, in whole or in part, the submission, directing that International Paper modify the submission; or (e) any combination of the above. However, EPA shall not modify a submission without first providing International Paper at least one notice of deficiency and an opportunity to cure within thirty (30) days, except where to do so would cause serious disruption to the Work or where previous submission(s) have been disapproved due to material defects and the deficiencies in the submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

38. In the event of approval, approval upon conditions, or modification by EPA, pursuant to Paragraph 37(a), (b), or (c), International Paper shall proceed to take any action required by the plan, report, or other item, as approved or modified by EPA 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. In the event that EPA modifies the submission to cure the deficiencies pursuant to Paragraph 37(c) and the submission has a material defect, EPA retains its right to seek stipulated penalties, as provided in Section XX (Stipulated Penalties).

39. Resubmission of Plans.

a. Upon receipt of a notice of disapproval pursuant to Paragraph 37(d), International Paper shall, within thirty (30) days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the plan, report, or other item for approval. Any stipulated penalties applicable to the submission, as provided in Section XX, shall accrue during the 30-day period or otherwise specified period but shall not be payable unless the resubmission is disapproved or modified due to a material defect as provided in Paragraphs 40 and 41.

b. Notwithstanding the receipt of a notice of disapproval pursuant to Paragraph 37(d), International Paper shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submission. Implementation of any non-deficient portion of a submission shall not relieve International Paper of any liability for stipulated penalties under Section XX (Stipulated Penalties).

40. In the event that a resubmitted plan, report or other item, or portion thereof, is disapproved by EPA, EPA may again require International Paper to correct the deficiencies, in accordance with the preceding Paragraphs. EPA also retains the right to modify or develop the plan, report or other item. International Paper shall implement any such plan, report, or item as

modified or developed by EPA, subject only to its right to invoke the procedures set forth in Section XIX (Dispute Resolution).

41. If upon resubmission, a plan, report, or item is disapproved or modified by EPA due to a material defect, International Paper shall be deemed to have failed to submit such plan, report, or item timely and adequately unless International Paper invokes the dispute resolution procedures set forth in Section XIX (Dispute Resolution) and EPA's action is overturned pursuant to that Section. The provisions of Section XIX (Dispute Resolution) and Section XX (Stipulated Penalties) shall govern the implementation of the Work and accrual and payment of any stipulated penalties during Dispute Resolution. If EPA's disapproval or modification is upheld, stipulated penalties shall accrue for such violation from the date on which the initial submission was originally required, as provided in Section XX.

42. All plans, reports, and other items required to be submitted to EPA under this Consent Decree shall, upon approval or modification by EPA, be enforceable under this Consent Decree. In the event EPA approves or modifies a portion of a plan, report, or other item required to be submitted to EPA under this Consent Decree, the approved or modified portion shall be enforceable under this Consent Decree.

#### XII. PROJECT COORDINATORS

43. The Project Coordinator and/or Alternate Project Coordinator currently designated by International Paper or EPA with respect to OU1 shall also be the Project Coordinator and/or Alternate Project Coordinator with respect to OU2. 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 5 working days before the changes occur, unless impracticable, but in no

event later than the actual day the change is made. International Paper'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. International Paper's Project Coordinator shall not be an attorney for International Paper 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.

44. The United States 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 National Contingency Plan, 40 C.F.R. Part 300. In addition, EPA's Project Coordinator or Alternate Project Coordinator shall have authority, consistent with the National Contingency Plan, to halt any Work required by this Consent Decree and to take any necessary response action when s/he 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.

### XIII. ASSURANCE OF ABILITY TO COMPLETE WORK

45. Prior to lodging of this Consent Decree, International Paper provided EPA with information regarding its financial resources and its ability to finance the Work. The United States has reviewed this information and is satisfied that International Paper has sufficient financial resources to assure that it can and shall timely complete all of the Work.

46. If any material change occurs in International Paper's financial resources such that International Paper may no longer have the financial ability to assure timely completion of the Work, International Paper shall promptly notify EPA.

47. If the United States obtains information regarding any material change in International Paper's financial resources that leads the United States to believe that International Paper may no longer have the financial ability to assure timely completion of all of the Work, the United States shall so notify International Paper. International Paper shall have sixty (60) days after receiving any such written notice to respond and provide corrected or supplemental information, or otherwise demonstrate to the United States' satisfaction that International Paper does have the ability to timely complete all of the Work.

48. If within sixty (60) days after receiving notice noted in Paragraph 47 above, International Paper does not demonstrate to the United States' satisfaction that it has the ability to timely complete all of the Work, the United States may require International Paper to establish and maintain financial security for the estimated cost of the Work remaining to be completed in one of the forms described in 40 C.F.R. § 264.143. Within thirty (30) days of receiving written notice of such requirement by the United States, International Paper shall demonstrate that it has established and is maintaining financial security in one of the forms described in 40 C.F.R. § 264.143.

49. If International Paper seeks to demonstrate the ability to complete the Work through a guarantee by a third party pursuant to Paragraph 48 of this Consent Decree, International Paper shall demonstrate that the guarantor satisfies the requirements of 40 C.F.R. § 264.143(f). If International Paper seeks to demonstrate its ability to complete the Work by

means of the financial test or the corporate guarantee pursuant to Paragraph 48, it shall resubmit sworn statements conveying the information required by 40 C.F.R. § 264.143(f) annually, on the anniversary of the Effective Date of this Consent Decree. In the event that the United States determines at any time that the financial assurances provided pursuant to this Section are inadequate, International Paper shall, within thirty (30) days of receipt of notice of the United States' determination, obtain and present to International Paper for approval one of the other forms of financial assurance listed in Paragraph 48 of this Consent Decree. International Paper's inability to demonstrate financial ability to complete the Work shall not excuse performance of any activities required under this Consent Decree.

#### XIV. CERTIFICATION OF COMPLETION

##### 50. Completion of the Remedial Action.

a. Within 90 days after International Paper concludes that the Remedial Action has been fully performed and the Performance Standards have been attained, International Paper shall schedule and conduct a pre-certification inspection to be attended by International Paper, EPA, and the State. If, after the pre-certification inspection, International Paper still believes that the Remedial Action has been fully performed and the Performance Standards have been attained, it shall submit a written report requesting certification to EPA for approval, with a copy to the State, pursuant to Section XI (EPA Approval of Plans and Other Submissions) within 30 days of the inspection. In the report, a registered professional engineer and International Paper's Project Coordinator shall state that the Remedial Action has been completed in full satisfaction of the requirements of this Consent Decree. The written report shall include as-built drawings signed and stamped by a professional engineer. The report shall contain the following

statement, signed by a responsible corporate official of International Paper or International Paper'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 that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If, after completion of the pre-certification inspection and receipt and review of the written report, EPA, after reasonable opportunity to review and comment by the State, determines that the Remedial Action or any portion thereof has not been completed in accordance with this Consent Decree or that the Performance Standards have not been achieved, EPA will notify International Paper in writing of the activities that must be undertaken by International Paper pursuant to this Consent Decree to complete the Remedial Action and achieve the Performance Standards, provided, however, that EPA may only require International Paper to perform such activities pursuant to this Paragraph to the extent that such activities are consistent with the "scope of the remedy selected in the ROD," as that term is defined in Paragraph 14.b. EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW or require International Paper to submit a schedule to EPA for approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). International Paper shall perform all activities described in the notice in accordance with the specifications and schedules established pursuant to this Paragraph, 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 report requesting Certification of Completion and after a reasonable opportunity for review and comment by the

State, that the Remedial Action has been performed in accordance with this Consent Decree and that the Performance Standards have been achieved, EPA will so certify in writing to International Paper. This certification shall constitute the Certification of Completion of the Remedial Action for purposes of this Consent Decree, including, but not limited to, Section XXI (Covenants by the United States). Certification of Completion of the Remedial Action shall not affect International Paper's obligations under this Consent Decree.

51. Completion of the Work.

a. Within 90 days after International Paper concludes that all phases of the Work (including O & M), have been fully performed, International Paper shall schedule and conduct a pre-certification inspection to be attended by representatives of International Paper, EPA and the State. If, after the pre-certification inspection, International Paper still believes that the Work has been fully performed, International Paper 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 International Paper or International Paper'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 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 to 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 International Paper in writing of the activities that must be

undertaken by International Paper pursuant to this Consent Decree to complete the Work, provided, however, that EPA may only require International Paper to perform such activities pursuant to this Paragraph to the extent that such activities are consistent with the "scope of the remedy selected in the ROD," as that term is defined in Paragraph 14.b. EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW or require International Paper to submit a schedule to EPA for approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). International Paper 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 by International Paper 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 International Paper in writing.

#### XV. EMERGENCY RESPONSE

52. In the event of any action or occurrence during the performance of the Work which 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, International Paper shall, subject to Paragraph 53, 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, International Paper shall notify the EPA



Emergency Response Branch, Region 5. International Paper 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 International Paper fails to take appropriate response action as required by this Section, and EPA takes such action instead, International Paper shall reimburse EPA all costs of the response action incurred not inconsistent with the NCP pursuant to Section XVI (Payments for Response Costs).

53. Nothing in the preceding Paragraph or in this Consent Decree shall be deemed to limit any authority of the United States to: (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) 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, subject to Section XXI (Covenants by the United States).

#### XVI. PAYMENTS FOR RESPONSE COSTS

54. Payments for Future Response Costs. International Paper shall pay to EPA all Future Response Costs incurred not inconsistent with the National Contingency Plan. The United States will send International Paper a bill requiring payment for such Future Response Costs that includes an EPA Itemized Cost Summary and a Department of Justice Cost Summary (or the functional equivalent) on a periodic basis.

a. International Paper shall make all payments within 30 days of its receipt of each bill requiring payment, except as otherwise provided in Paragraph 55. International Paper

shall make all payments required by this Paragraph by a certified or cashier's check or checks made payable to "EPA Hazardous Substance Superfund," referencing the name and address of the party making the payment, EPA Site/Spill ID Number 05-3F, and DOJ Case Number 90-11-2-1317. International Paper shall send the check(s) to U.S. EPA, Superfund Accounting, P.O. Box 70753, Chicago, Illinois 60673.

b. At the time of payment, International Paper shall send notice that payment has been made to the United States, to EPA and to the Regional Financial Management Officer, in accordance with Section XXVII (Notices and Submissions).

c. The total amount to be paid by International Paper pursuant to Paragraph 54.a shall be deposited in the EPA Hazardous Substance Superfund.

55. International Paper may contest payment of any Future Response Costs under Paragraph 54 if it determines that the United States has made an accounting error or if it alleges that a cost item that is included represents costs that are inconsistent with the NCP. Such objection shall be made in writing within 30 days of receipt of the bill and must be sent to the United States pursuant to Section XXVII (Notices and Submissions). Any such objection shall specifically identify the contested Future Response Costs and the basis for objection. In the event of an objection, International Paper shall within the 30 day period pay all uncontested Future Response Costs to the United States in the manner described in Paragraph 54. Simultaneously, International Paper shall establish an interest-bearing escrow account in a federally-insured bank duly chartered in the State of Wisconsin and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. International Paper shall send to the United States, as provided in Section XXVII (Notices and Submissions), a copy of the

transmittal letter and check paying the uncontested 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, International Paper shall initiate the Dispute Resolution procedures in Section XIX (Dispute Resolution). If the United States prevails in the dispute, within 5 days of the resolution of the dispute, International Paper shall pay the sums due (with accrued interest) to the United States in the manner described in Paragraph 54. If International Paper prevails concerning any aspect of the contested costs, International Paper shall pay that portion of the costs (plus associated accrued interest) for which it did not prevail to the United States in the manner described in Paragraph 54; International Paper shall be disbursed any balance of the escrow account. 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 International Paper's obligation to reimburse the United States for its Future Response Costs.

56. In the event that the payments required by Paragraph 54 are not made within 30 days of International Paper's receipt of the bill, International Paper shall pay Interest on the unpaid balance. The Interest on Future Response Costs shall begin to accrue on the date of the bill. The Interest shall accrue through the date of International Paper's payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to the United States by virtue of International Paper's failure to make timely payments under this Section including, but not limited to, payment of stipulated penalties pursuant to

Paragraph 73. International Paper shall make all payments required by this Paragraph in the manner described in Paragraph 54.

57. Payment by the United States. As soon as reasonably practicable after the effective date of this Consent Decree, and consistent with Paragraph 58, the United States, on behalf of the Settling Federal Agency, shall pay to International Paper \$350,000 in reimbursement of International Paper's Future Response Costs, by Electronic Funds Transfer in accordance with instructions provided by International Paper. Such payment represents 15 percent of: (1) the costs incurred and estimated to be incurred by International Paper as a result of performing the Work, as provided by this Consent Decree; and (2) the estimated Future Response Costs.

58. In the event that the payment required by Paragraph 57 is not made within one hundred twenty (120) days of the effective date of this Consent Decree, Interest on the unpaid balance shall be paid at the rate established pursuant to section 107(a) of CERCLA, 42 U.S.C. § 9607(a), commencing on the effective date of this Consent Decree and accruing through the date of the payment.

59. The Parties to this Consent Decree recognize and acknowledge that the payment obligations of the Settling Federal Agency under this Consent Decree can only be paid from appropriated funds legally available for such purpose. Nothing in this Consent Decree shall be interpreted or construed as a commitment or requirement that the Settling Federal Agency obligate or pay funds in contravention of the Anti-Deficiency Act, 31 U.S.C. § 1341, or any other applicable provision of law.

XVII. INDEMNIFICATION AND INSURANCE

60. International Paper's Indemnification of the United States.

a. The United States does not assume any liability by entering into this agreement or by virtue of any designation of International Paper as EPA's authorized representative under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). International Paper shall indemnify, save and hold harmless the United States (with the exception of the Settling Federal Agency) and its officials, agents, employees, contractors, subcontractors, or 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 International Paper, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Consent Decree, including, but not limited to, any claims arising from any designation of International Paper as EPA's authorized representatives under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). Further, International Paper agrees to pay the United States (with the exception of the Settling Federal Agency) all costs the United States 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 International Paper, 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 International Paper in carrying out activities pursuant to this Consent Decree. Neither International Paper nor any such contractor shall be considered an agent of the United States.

b. The United States shall give International Paper notice of any claim for which the United States plans to seek indemnification pursuant to Paragraph 60, and shall consult with International Paper prior to settling such claim.

61. International Paper waives all claims 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 International Paper 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, International Paper 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 International Paper and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

62. International Paper shall maintain until the first anniversary of EPA's Certification of Completion of the Remedial Action pursuant to Paragraph 50.b of Section XIV (Certification of Completion) comprehensive general liability insurance with limits of three million dollars, combined single limit, and automobile liability insurance with limits of one million dollars, combined single limit, naming the United States as an additional insured. In addition, for the duration of this Consent Decree, International Paper shall satisfy, or shall ensure that their 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 International Paper in furtherance of this Consent Decree. If International Paper 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, International Paper need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

#### XVIII. FORCE MAJEURE

63. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of International Paper, of any entity controlled by International Paper, or of International Paper's contractors, that delays or prevents the performance of any obligation under this Consent Decree despite International Paper's best efforts to fulfill the obligation. The requirement that International Paper exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (1) as it is occurring and (2) following the potential force majeure event, such that the delay is minimized to the greatest extent possible. "Force Majeure" does not include financial inability to complete the Work or a failure to attain the Performance Standards.

64. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree, whether or not caused by a force majeure event, International Paper shall orally notify EPA's Project Coordinator 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 three (3) days of when International Paper first knew that the event might cause a delay. Within seven (7) days thereafter, International Paper 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; International Paper's rationale for attributing such delay to a force majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of International Paper, such event may cause or contribute to an endangerment to public health, welfare or the environment. International Paper shall include with any notice all available documentation supporting its claim that the delay was attributable to a force majeure. Failure to comply with the above requirements shall preclude International Paper from asserting any claim of force majeure for that event for the period of time of such failure to comply, and for any additional delay caused by such failure. International Paper shall be deemed to know of any circumstance of which International Paper, any entity controlled by International Paper, or International Paper's contractors knew or should have known.

65. If EPA agrees that the delay or anticipated delay is attributable to a force majeure event, the time for performance of the obligations under this Consent Decree that are affected by the force majeure event 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 event 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 event, EPA will notify International Paper in writing of its decision. If EPA agrees that the delay is attributable to a force majeure event, EPA will notify International Paper in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure event.



66. If International Paper 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, International Paper 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 event, 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 International Paper complied with the requirements of Paragraphs 63 and 64, above. If International Paper carries this burden, the delay at issue shall be deemed not to be a violation by International Paper of the affected obligation of this Consent Decree identified to EPA and the Court.

#### XIX. DISPUTE RESOLUTION

67. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. However, the procedures set forth in this Section shall not apply to actions by the United States to enforce obligations of International Paper that have not been disputed in accordance with this Section. Nor shall this Section apply to disputes between or among International Paper, the City of Tomah and/or the Settling Federal Agency under this Consent Decree, or to disputes between the City of Tomah and International Paper under the International Paper/City of Tomah Side Agreement.

68. Any dispute which arises under or with respect to 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.

69. 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 14 days after the conclusion of the informal negotiation period, International Paper 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 International Paper. The Statement of Position shall specify International Paper's position as to whether formal dispute resolution should proceed under Paragraph 70 or Paragraph 71.

b. Within 21 days after receipt of International Paper's Statement of Position, EPA will serve on International Paper 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 70 or 71. Within 14 days after receipt of EPA's Statement of Position, International Paper may submit a Reply.

c. If there is disagreement between EPA and International Paper as to whether dispute resolution should proceed under Paragraph 70 or 71, the parties to the dispute shall follow the procedures set forth in the paragraph determined by EPA to be applicable. However, if International Paper 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 70 and 71.

70. 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: (1) the adequacy or appropriateness of plans, procedures to implement plans, or any other items requiring approval by EPA under this Consent Decree; and (2) 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 International Paper 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 70.a. This decision shall be binding upon International Paper, subject only to the right to seek judicial review pursuant to Paragraph 70.c and d.

c. Any administrative decision made by EPA pursuant to Paragraph 70.b. shall be reviewable by this Court, provided that a motion for judicial review of the decision is filed by International Paper with the Court and served on all Parties within 10 days of 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 International Paper's motion.

d. In proceedings on any dispute governed by this Paragraph, International Paper 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 70.a.

71. 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 International Paper's Statement of Position submitted pursuant to Paragraph 69, 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 International Paper unless, within 10 days of receipt of the decision, International Paper 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 International Paper's motion.

b. Notwithstanding Paragraph X of Section I (Background) of this Consent Decree, judicial review of any dispute governed by this Paragraph shall be governed by applicable principles of law.

72. The invocation of formal dispute resolution procedures under this Section shall not extend, postpone or affect in any way any obligation of International Paper 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 80. 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 International Paper does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XX (Stipulated Penalties).

#### XX. STIPULATED PENALTIES

73. Nonpayment of Future Costs.

a. If International Paper fails to pay any amounts due to EPA under this Consent Decree by the required date, International Paper shall pay to EPA as a stipulated penalty, in addition to the Interest required by Paragraph 56, \$100 per violation per day that such payment is late. Stipulated penalties pursuant to this Paragraph are due and payable within 30 days of the date of the demand for payment of the penalties by EPA.

b. All payments shall indicate that the payment is for stipulated penalties and be in the form of a certified or cashier's check or checks made payable to "EPA Hazardous Substance Superfund" and referencing the EPA Region and Site/Spill ID #05-3F, USAO File Number 2000V00303, the DOJ case number 90-11-2-1317, and the name and address of the party making payment. Copies of the check(s) shall be sent to the United States as specified in

Section XXVII (Notices and Submissions) and to the EPA Region 5 Financial Management Officer, Mail Code MF 10-J, 77 West Jackson Boulevard, Chicago, Illinois 60604.

c. Penalties shall accrue as provided in this Paragraph regardless of whether EPA has notified International Paper of the violation or made a demand for payment, but need only be paid upon demand. All penalties shall begin to accrue on the day after performance is due or the day a violation occurs, and shall continue to accrue through the final day of correction of the noncompliance or completion of the activity. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

74. Non-Performance of Work.

a. International Paper shall be liable for stipulated penalties in the amounts set forth in Paragraphs 74.b and 74.c, below, 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 International Paper shall include completion of the activities under this Consent Decree or any work plan or other plan approved under this Consent Decree identified below in accordance with all applicable requirements of law, this Consent Decree, the SOW, and any plans or other documents approved by EPA pursuant to this Consent Decree and within the specified time schedules established by and approved under this Consent Decree.

b. The following stipulated penalties shall accrue per violation per day for any failure to meet a Major Milestone, as provided in Section IV of the SOW:

Penalty per violation, per day	Period of Noncompliance
\$100	First week
\$200	Second or partial week thereafter; all subsequent weeks

c. The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate reports pursuant to Section X of this Consent Decree:

Penalty per violation, per day	Period of Noncompliance
\$50	First week
\$100	Second or partial week thereafter; all subsequent weeks

75. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 88 of Section XXI (Covenants by the United States), International Paper shall be liable for a stipulated penalty in the amount of ten thousand dollars (\$10,000).

76. 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: (1) with respect to a deficient submission under Section XI (EPA Approval of Plans and Other Submissions), during the period, if any, beginning on the thirty-first (31st) day after EPA's receipt of such submission until the date that EPA notifies International Paper of any deficiency; (2) with respect to a decision by the Director of the Superfund Division, EPA Region 5, under Paragraph 70 or 71 of Section XIX (Dispute Resolution), during the period, if any, beginning on the twenty-first (21st) day after the date that International Paper's reply to EPA's Statement of Position is received until the date that the Director issues a final decision regarding such dispute; or (3) with respect to judicial review by this Court of any dispute under Section XIX (Dispute Resolution), during the period, if any, beginning on the thirty-first (31st) day after this Court's receipt of the final submission regarding the dispute until the date that this Court

issues a final decision regarding such dispute. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

77. Following EPA's determination that International Paper has failed to comply with a requirement of this Consent Decree, EPA may give International Paper written notification of the same and describe the noncompliance. EPA may send International Paper 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 International Paper of a violation.

78. All penalties accruing under this Paragraph shall be due and payable to the United States within thirty (30) days of International Paper's receipt from EPA of a demand for payment of the penalties, unless International Paper invokes the Dispute Resolution procedures under Section XIX (Dispute Resolution). All payments to the United States under this Section shall be paid by certified or cashier's check(s) made payable to "EPA Hazardous Substances Superfund," shall be mailed to U.S. EPA, Superfund Accounting, P.O. Box 70753, Chicago Illinois 60673, shall indicate that the payment is for stipulated penalties, and shall reference the EPA Region and Site/Spill ID #05-3F, the DOJ Case Number 90-11-2-1317, and the name and address of the party making payment. Copies of check(s) paid pursuant to this Section, and any accompanying transmittal letter(s), shall be sent to the United States as provided in Section XXVI (Notices and Submissions).

79. The payment of penalties shall not alter in any way International Paper's obligation to complete the performance of the Work required under this Consent Decree.

80. Penalties shall continue to accrue as provided in Paragraph 76, above, during any dispute resolution period, but need not be paid until the following:



a. if the dispute is resolved by agreement or by a decision of EPA that is not appealed to this Court, accrued penalties determined to be owing shall be paid to EPA within fifteen (15) days of 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, International Paper shall pay all accrued penalties determined by this Court to be owed to EPA within sixty (60) days of receipt of this Court's decision or order, except as provided in subparagraph (c) below;

c. if this Court's decision is appealed by any Party, International Paper shall pay all accrued penalties determined by this Court to be owing to the United States into an interest-bearing escrow account within sixty (60) days of receipt of this Court's decision or order; penalties shall be paid into this account as they continue to accrue, at least every sixty (60) days, and within fifteen (15) days of receipt of the final appellate court decision, the escrow agent shall pay the balance of the account to EPA or to International Paper to the extent that they prevail.

81. Enforcement of Penalties by the United States.

a. If International Paper fails to pay stipulated penalties when due, the United States may institute proceedings to collect the penalties, as well as interest. Interest on the unpaid balance shall begin to accrue on the date of demand made pursuant to Paragraph 76.

b. 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 International Paper'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, 42 U.S.C. § 9622(l), for any violation for which a stipulated penalty is provided herein, except in the case of a willful violation of this Consent Decree.

c. If the United States brings an action against International Paper to enforce the payment provisions of this Consent Decree, International Paper shall reimburse the United States for all costs of such action, including but not limited to costs of attorney time, if the EPA is the prevailing party.

82. 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 THE UNITED STATES

83. Covenants Not to Sue or Take Administrative Action.

a. In consideration of the actions that will be performed and the payments that will be made by International Paper under the terms of the Consent Decree, and except as specifically provided in Paragraphs 84, 85, and 87, the United States covenants not to sue or to take administrative action against International Paper or the City of Tomah pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606, 9607(a), relating to the Site. Except with respect to future liability, these covenants not to sue shall take effect upon the Effective Date of this Consent Decree. With respect to future liability, these covenants not to sue shall take effect upon Certification of Completion of Remedial Action by EPA pursuant to Paragraph 50.b of Section XIV (Certification of Completion). These covenants not to sue are conditioned upon the satisfactory performance by International Paper of its obligations under this Consent Decree.

These covenants not to sue extend only to International Paper and the City of Tomah, and do not extend to any other person.

b. In consideration of the payments that will be made by the Settling Federal Agency under the terms of this Consent Decree, and except as specifically provided in Paragraphs 84, 85, and 87 of this Section, EPA covenants not to take administrative action against the Settling Federal Agency pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606, 9607(a), relating to the Site. EPA's covenant is conditioned upon the satisfactory performance by the Settling Federal Agency of its obligations under this Consent Decree. EPA's covenant extends only to the Settling Federal Agency and does not extend to any other person.

84. United States' Pre-certification Reservations. Notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, or to issue an administrative order seeking to compel International Paper or the City of Tomah, and EPA reserves the right to issue an administrative order seeking to compel the Settling Federal Agency

- a. to perform further response actions relating to the Site, or
- b. to reimburse the United States for additional costs of response,

if prior to Certification of Completion of the Remedial Action:

- (1) conditions at the Site, previously unknown to EPA, are discovered,
- or
- (2) information, previously unknown to EPA, is received, in whole or in part,

and EPA determines that these previously unknown conditions or information together with any other relevant information indicates that the Remedial Action is not protective of human health or the environment.

85. United States' Post-certification Reservations. Notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, or to issue an administrative order seeking to compel International Paper or the City of Tomah, and EPA reserves the right to issue an administrative order seeking to compel the Settling Federal Agency

- a. to perform further response actions relating to the Site, or
- b. to reimburse the United States for additional costs of response,

if subsequent to Certification of Completion of the Remedial Action:

- (1) conditions at the Site, previously unknown to EPA, are discovered,

or

- (2) information, previously unknown to EPA, is received, in whole or

in part,

and EPA determines that these previously unknown conditions or this information together with other relevant information indicate that the Remedial Action is not protective of human health or the environment.

86. For purposes of Paragraph 84, the information and the conditions known to EPA shall include only that information and those conditions known to EPA as of the date the OU2 ROD was signed and set forth in the OU1 and OU2 Records of Decision for the Site and the administrative records supporting the Records of Decision. For purposes of Paragraph 85, the

information and the conditions known to EPA shall include only that information and those conditions known to EPA as of the date of Certification of Completion of the Remedial Action and set forth in the OU1 and OU2 Records of Decision, the administrative records supporting the OU1 and OU2 Records of Decision, the post-ROD administrative records, or in any information received by EPA pursuant to the requirements of this Consent Decree prior to Certification of Completion of the Remedial Action.

87. General reservations of rights. The covenants set forth above do not pertain to any matters other than those expressly specified in Paragraph 83. The United States reserves, and this Consent Decree is without prejudice to, all rights against International Paper and the City of Tomah, and EPA and the Federal natural resources trustees reserve, and this Consent Decree is without prejudice to, all rights against the Settling Federal Agency, with respect to all other matters, including but not limited to, the following:

- a. claims based on a failure by International Paper, the City of Tomah, or the Settling Federal Agency 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 upon ownership or operation of the Site by International Paper, the City of Tomah, or the Settling Federal Agency, or upon the transportation, treatment, storage, or disposal, or the arrangement for the transportation, treatment, storage, or disposal of Waste Material at or in connection with the Site by International Paper, the City of Tomah, or the Settling Federal Agency, other than as provided in the OU1 or OU2 RODs, the Work, or otherwise ordered by EPA, after signature of this Consent Decree by the Parties;

- d. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;
- e. criminal liability;
- f. liability for violations of federal or state law which occur during or after implementation of the Remedial Action; and
- g. liability, prior to Certification of Completion of the Remedial Action, for additional response actions that EPA determines are necessary to achieve Performance Standards, but that cannot be required pursuant to Paragraph 14 (Modification of the SOW or Related Work Plans).

88. Work Takeover. In the event EPA determines that International Paper has ceased implementation of any portion of the Work, is seriously or repeatedly deficient or late in its performance of the Work, or is implementing the Work in a manner which may cause an endangerment to human health or the environment, EPA may assume the performance of all or any portions of the Work as EPA determines necessary. International Paper may invoke the procedures set forth in Section XIX (Dispute Resolution), Paragraph 70, to dispute EPA's determination that takeover of the Work is warranted under this Paragraph. Costs incurred by the United States in performing the Work pursuant to this Paragraph shall be considered Future Response Costs that International Paper shall pay pursuant to Section XVI (Payment for Response Costs).

89. Notwithstanding any other provision of this Consent Decree, the United States retains all authority and reserves all rights to take any and all response actions authorized by law.

XXII. COVENANTS BY INTERNATIONAL PAPER

90. Covenant Not to Sue. Subject to the reservations in Paragraph 91, International Paper hereby covenants not to sue and agrees not to assert any claims or causes of action against the United States with respect the Site or this Consent Decree, including, but not limited to:

a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 107, 111, 112, 113, 42 U.S.C. §§ 9606(b)(2), 9607, 9611-9613, or any other provision of law;

b. any claims against the United States, including any department, agency or instrumentality of the United States under CERCLA Sections 107 or 113, 42 U.S.C. §§ 9607, 9613, related to the response action at the Site, or

c. any claims arising out of response actions at or in connection with the response action at the Site, including claims based on EPA's selection of response actions, oversight of response activities, or approval of plans for such activities, as well as 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.

Except as provided in Paragraph 100 (waiver of Claim-Splitting Defenses), these covenants not to sue shall not apply in the event that the United States brings a cause of action or issues an order pursuant to the reservations set forth in Paragraphs 84, 85, or 87(b) (d), (g), but only to the extent that International Paper's claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

91. International Paper reserves, and this Consent Decree is without prejudice to:

a. claims against the United States, subject to the provisions of Chapter 171 of Title 28 of the United States Code, 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 while acting within the scope of his 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, any such claim shall not include a claim for any damages caused, in whole or in part, by the act or omission of any person, including any contractor, who is not a federal employee as that term is defined in 28 U.S.C. § 2671; nor shall any such claim include a claim based on EPA's selection of response actions, or the oversight or approval of International Paper's plans or activities. The foregoing applies only to claims which are brought pursuant to any statute other than CERCLA and for which the waiver of sovereign immunity is found in a statute other than CERCLA;

b. contribution claims against the City of Tomah and/or the Settling Federal Agency in the event any claim is asserted by the United States against International Paper under the authority of or under Paragraph 87(b)-(d), (g) of Section XXI (Covenants by the United States), but only to the same extent and for the same matters, transactions or occurrences as are raised in the claim of the United States against International Paper;

c. claims based on a failure by the City of Tomah or the Settling Federal Agency to meet a requirement of this Consent Decree or the 2002 Consent Decree; and

d. claims based on a failure by the City of Tomah to meet a requirement of the International Paper/City of Tomah Side Agreement.



92. 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).

### XXIII. COVENANTS BY THE CITY OF TOMAH

93. Covenant Not to Sue. Subject to the reservations in Paragraph 94, the City of Tomah hereby covenants not to sue and agrees not to assert any claims or causes of action against the United States with respect to the response action at the Site or this Consent Decree, including, but not limited to:

a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 107, 111, 112, 113, 42 U.S.C. §§ 9606(b)(2), 9607, 9611-9613, or any other provision of law;

b. any claims against the United States, including any department, agency or instrumentality of the United States under CERCLA Sections 107 or 113, 42 U.S.C. §§ 9607, 9613, related to the response action at the Site, or

c. any claims arising out of response actions at or in connection with the response action at the Site, including claims based on EPA's selection of response actions, oversight of response activities, or approval of plans for such activities, as well as 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.

Except as provided in Paragraph 100 (waiver of Claim-Splitting Defenses), these covenants not to sue shall not apply in the event that the United States brings a cause of action or issues an

order pursuant to the reservations set forth in Paragraphs 84, 85, 87(b)-(d), (g), but only to the extent that International Paper's claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

94. The City of Tomah reserves, and this Consent Decree is without prejudice to:

a. claims against the United States, subject to the provisions of Chapter 171 of Title 28 of the United States Code, 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 while acting within the scope of his 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, any such claim shall not include a claim for any damages caused, in whole or in part, by the act or omission of any person, including any contractor, who is not a federal employee as that term is defined in 28 U.S.C. § 2671; nor shall any such claim include a claim based on EPA's selection of response actions, or the oversight or approval of International Paper's plans or activities. The foregoing applies only to claims which are brought pursuant to any statute other than CERCLA and for which the waiver of sovereign immunity is found in a statute other than CERCLA;

b. contribution claims against International Paper and/or the Settling Federal Agency in the event any claim is asserted by the United States against the City of Tomah under the authority of or under Paragraph 87(b)-(d), (g) of Section XXI (Covenants by the United States), but only to the same extent and for the same matters, transactions or occurrences as are raised in the claim of the United States against the City of Tomah; and

c. claims based on a failure by International Paper or the Settling Federal Agency to meet a requirement of this Consent Decree or the 2002 Consent Decree.

XXIV. EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION

95. 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. The preceding sentence shall not be construed to waive or nullify any rights that any person not a signatory to this Consent Decree may have under applicable law. Each of the Parties expressly reserves any and all rights (including, but not limited to, any right to contribution), defenses, claims, demands, and causes of action which 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.

96. The Parties agree, and by entering this Consent Decree this Court finds, that International Paper, the City of Tomah, and the Settling Federal Agency are entitled, as of the Effective Date, to protection from contribution actions or claims as provided by CERCLA Section 113(f)(2), 42 U.S.C. § 9613(f)(2), for matters addressed in this Consent Decree; provided, however, that such contribution protection shall not bar claims by International Paper or the City of Tomah against one another for failure to meet a requirement of the International Paper/City of Tomah Side Agreement. The "matters addressed in this Consent Decree" are the Work and Future Response Costs.

97. International Paper agrees that with respect to any suit or claim for contribution brought by it for matters related to this Consent Decree it will notify the United States and the City of Tomah in writing no later than 60 days prior to the initiation of such suit or claim against any party not previously identified by EPA as a Potentially Responsible Party at the Site.

98. The City of Tomah agrees that with respect to any suit or claim for contribution brought by it for matters related to this Consent Decree it will notify the United States and International Paper in writing no later than 60 days prior to the initiation of such suit or claim against any party not previously identified by EPA as a Potentially Responsible Party at the Site.

99. International Paper and the City of Tomah also agree that with respect to any suit or claim for contribution brought against them for matters related to this Consent Decree they will notify in writing the United States within 10 days of service of the complaint on them. In addition, International Paper and the City of Tomah shall notify the United States within 10 days of service or receipt of any Motion for Summary Judgment and within 10 days of receipt of any order from a court setting a case for trial.

100. 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, International Paper and the City of Tomah 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 the United States).

#### XXV. ACCESS TO INFORMATION

101. International Paper shall provide to EPA, upon request, copies of all documents and information 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 related to the Work. International Paper shall also make available to EPA, for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

102. Business Confidential and Privileged Documents.

a. International Paper may assert business confidentiality claims covering part or all of the documents or information submitted to the United States 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). Documents or information 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 documents or information when they are submitted to EPA, or if EPA has notified International Paper that the documents or information 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 documents or information without further notice to International Paper.

b. International Paper may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If International Paper asserts such a privilege in lieu of providing documents, it shall provide the United States the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a

description of the contents of the document, record, or information: and (6) the privilege asserted by International Paper. However, no documents, reports or other information created or generated pursuant to the requirements of the Consent Decree shall be withheld on the grounds that they are privileged.

103. No claim of confidentiality 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.

#### XXVI. RETENTION OF RECORDS

104. Until 10 years after International Paper's receipt of EPA's notification pursuant to Paragraph 51.b of Section XIV (Certification of Completion of the Work), International Paper shall preserve and retain all non-identical copies of records and documents (including records or documents in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to its liability under CERCLA with respect to the Site. International Paper 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 documents or records (including documents or records in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work, provided, however, that International Paper (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 documents required to be retained. Each of the above

record retention requirements shall apply regardless of any corporate retention policy to the contrary.

105. At the conclusion of this document retention period, International Paper shall notify the United States at least 90 days prior to the destruction of any such records or documents, and, upon request by the United States, International Paper shall deliver any such records or documents to EPA. International Paper may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If International Paper asserts such a privilege, it shall provide the United States with the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted by International Paper. However, no documents, reports or other information created or generated pursuant to the requirements of the Consent Decree shall be withheld on the grounds that they are privileged.

106. International Paper hereby certifies individually 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, documents or other information (other than identical copies) relating to its potential liability regarding the Site since 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 pursuant to Section 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.

107. The United States acknowledges that the Settling Federal Agency: (1) is subject to all applicable Federal record retention laws, regulations, and policies; and (2) has certified that it has fully complied with any and all EPA requests for information pursuant to Section 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.

XXVII. NOTICES AND SUBMISSIONS

108. 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 herein shall constitute complete satisfaction of any written notice requirement of the Consent Decree with respect to the United States (including the Settling Federal Agency), EPA, International Paper, and the City of Tomah.

As to the United States:

Chief, Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, D.C. 20044-7611  
Re: DJ # 90-11-2-1317/1

and

Chief, Environmental Defense Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 23986  
Washington, D.C. 20026-3986  
Re: DJ # 90-11-6-17206



As to EPA:

Director, Superfund Division  
U. S. Environmental Protection Agency  
Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604

and

Denise Boone  
EPA Project Coordinator  
U. S. Environmental Protection Agency  
Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604

As to the State:

Eileen Kramer  
Project Manager  
Wisconsin Department of Natural Resources  
P.O. Box 4001  
1300 W. Clairmont Avenue  
Eau Claire, WI 54702

As to International Paper:

Roger Schumer  
Project Coordinator  
International Paper Company  
6400 Poplar Avenue  
Memphis, TN 38197

As to the City of Tomah:

Richard A. Radcliffe  
City Attorney  
917 Superior Avenue  
P.O. Box 110  
Tomah, WI 54660-0110

XXVIII. EFFECTIVE DATE

109. The effective date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court, except as otherwise provided herein.

XXIX. RETENTION OF JURISDICTION

110. This Court retains jurisdiction over both the subject matter of this Consent Decree and International Paper and the City of Tomah 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) hereof.

#### XXX. APPENDICES

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

“Appendix A” is the OUI ROD.

“Appendix B” is the OU2 ROD.

“Appendix C” is the SOW.

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

“Appendix E” is a draft easement.

#### XXXI. COMMUNITY RELATIONS

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

#### XXXII. MODIFICATION

113. Schedules specified in this Consent Decree for completion of the Work may be modified by agreement of EPA and International Paper. All such modifications shall be made in writing.

114. Except as provided in Paragraph 14 (Modification of the SOW or Related Work Plans), no material modifications shall be made to the SOW without written notification to and written approval of the United States, International Paper, and the Court, if such modifications fundamentally alter the basic features of the selected remedy within the meaning of 40 C.F.R. § 300.435(c)(2)(B)(ii). Prior to providing its approval to any modification, the United States will provide the State with a reasonable opportunity to review and comment on the proposed modification. Modifications to the SOW that do not materially alter that document, or material modifications to the SOW that do not fundamentally alter the basic features of the selected remedy within the meaning of 40 C.F.R. § 300.435(c)(2)(B)(ii), may be made by written agreement between EPA, after providing the State with a reasonable opportunity to review and comment on the proposed modification, and International Paper.

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

#### XXXIII. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

116. This Consent Decree shall be lodged with the Court for a period of not less than thirty (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 which indicate that the Consent Decree is inappropriate, improper, or inadequate. International Paper and the City of Tomah consent to the entry of this Consent Decree without further notice.

117. 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.

#### XXXIV. SIGNATORIES/SERVICE

118. The undersigned representative of International Paper, the City of Tomah, and the Assistant Attorney General for the Environment and Natural Resources Division of the United States Department of Justice 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.

119. International Paper and the City of Tomah hereby agree 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 International Paper and the City of Tomah in writing that it no longer supports entry of the Consent Decree.

120. International Paper and the City of Tomah shall each 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 behalf of that Party with respect to all matters arising under or relating to this Consent Decree. International Paper and the City of Tomah hereby agree 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.

#### XXXV. FINAL JUDGMENT

121. This Consent Decree and its appendices constitute the final, complete, and exclusive agreement and understanding among the parties with respect to 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.

122. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment between and among the United States, International Paper, and the City of Tomah. The Court finds that there is no just reason for delay and therefore enters this judgment as a final judgment under Fed. R. Civ. P. 54 and 58.

SO ORDERED THIS 30<sup>th</sup> DAY OF March, 2005.

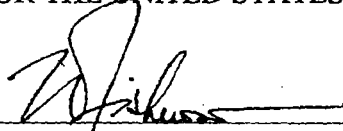
BY THE COURT:

Barbara B. Crabb  
BARBARA B. CRABB  
United States District Judge

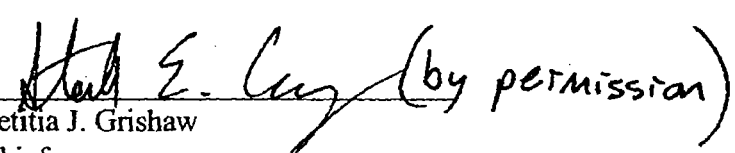
THE UNDERSIGNED PARTIES enter into this CONSENT DECREE FOR OPERABLE UNIT 2 in the matter of United States v. City of Tomah, et al., relating to the Tomah Municipal Sanitary Landfill Superfund Site.

FOR THE UNITED STATES OF AMERICA

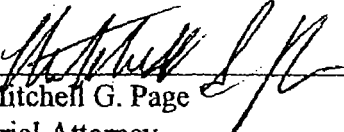
Date: 12/8/04

  
W. Benjamin Fisherow  
Deputy Chief  
Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice

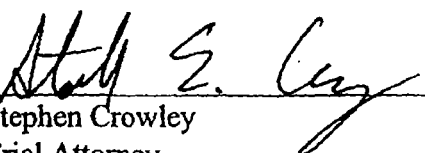
Date: 12/17/04

 (by permission)  
Letitia J. Grishaw  
Chief  
Environmental Defense Section  
Environment and Natural Resources Division  
U.S. Department of Justice

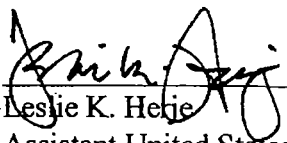
Date: 12/8/04

  
Mitchell G. Page  
Trial Attorney  
Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611, Ben Franklin Station  
Washington, D.C. 20044-7611  
Tel. (202) 305-0258

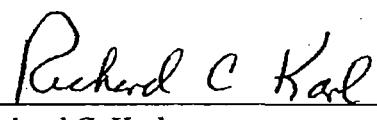
Date: 12/17/04

  
Stephen Crowley  
Trial Attorney  
Environmental Defense Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 23986  
Washington, D.C. 20026-3986  
Tel. (202) 514-0165

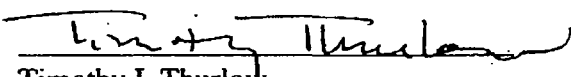
Date: 1/20/2005

  
\_\_\_\_\_  
Leslie K. Herje  
Assistant United States Attorney  
Chief, Civil Division  
United States Attorney's Office  
Western District of Wisconsin  
660 W. Washington Ave., Suite 303  
PO Box 1585  
Madison, Wisconsin 53701-1585  
608/264-5158

Date: 9-30-04

  
\_\_\_\_\_  
Richard C. Karl  
~~Acting~~ Director, Superfund Division  
U.S. Environmental Protection Agency,  
Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604


Date: 9/28/04

  
\_\_\_\_\_  
Timothy J. Thurlow  
Associate Regional Counsel  
U.S. Environmental Protection Agency,  
Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604

THE UNDERSIGNED PARTY enters into this CONSENT DECREE FOR OPERABLE UNIT 2 in the matter of United States v. City of Tomah, et al., relating to the Tomah Municipal Sanitary Landfill Superfund Site.

FOR INTERNATIONAL PAPER COMPANY

Date: 9/23/04

  
\_\_\_\_\_  
Duane Marshall  
Director, Corporate Environment,  
~~Health and Safety~~ *DM*  
International Paper Company  
6400 Poplar Avenue  
Memphis, TN 38197

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

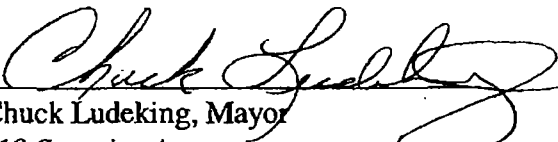
Name: Ronald R. Ragatz, DeWitt Ross & Stevens, S.C.  
Title: Attorney  
Address: 2 East Mifflin Street, Suite 600  
Madison, WI 53703  
Tel. Number: 608-255-8891



THE UNDERSIGNED PARTY enters into this CONSENT DECREE FOR OPERABLE UNIT 2 in the matter of United States v. City of Tomah, et al., relating to the Tomah Municipal Sanitary Landfill Superfund Site.

FOR THE CITY OF TOMAH, WISCONSIN

Date: 9-28-04

  
Chuck Ludeking, Mayor  
819 Superior Avenue  
Tomah, WI 54660

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

Name: Richard A. Radcliffe  
Title: City Attorney  
Address: 917 Superior Avenue  
P.O. Box 110  
Tomah, WI 54660  
Tel. Number: (608) 372-2014



International Paper Company v. City of Tomah, United States v. International Paper  
Consent Decree for Operable Unit 2

## **APPENDIX A**



## **DECLARATION FOR THE RECORD OF DECISION**

### **SITE NAME AND LOCATION**

Tomah Municipal Sanitary Landfill, Tomah, Monroe County, Wisconsin

### **STATEMENT OF BASIS AND PURPOSE**

This decision document presents the selected remedial action for source control, operable unit 1, at the Tomah Municipal Sanitary Landfill (TMSL) site in Tomah, Monroe County, Wisconsin. The remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) and is consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) to the extent practicable. This decision is based upon the contents of the Administrative Record for the site.

It is anticipated that the State of Wisconsin will concur with this decision. A written confirmation is expected by September 30, 1997, and will be added to the administrative record upon receipt.

### **ASSESSMENT OF THE SELECTED REMEDY**

Actual or threatened releases of hazardous substances from the site, if not addressed by implementing the response action selected in this Record of Decision (ROD), may present an imminent and substantial endangerment to public health, welfare, or the environment.

### **DESCRIPTION OF THE SELECTED REMEDY**

This operable unit is the first of two that are planned for the site. The first operable unit addresses the source of contamination by containing on-site wastes and contaminated soils. The function of this operable unit is to seal off the TMSL site as a source of groundwater contamination and to reduce the risks associated with exposure to the contaminated materials. While the remedy does address one of the principal threats at the site, the second operable unit will involve continued study and possible remediation of the downgradient contaminant plume.

The major components of the selected remedy include:

- Capping the approximately 18-acre landfill with a dual barrier cap that includes a geosynthetic clay liner, overlain by a low-permeability geomembrane, and covered with 3 feet of soil and vegetated with plants that have a root system less than 3 feet. This cap would meet the Wisconsin Administrative Code requirements for closed landfills and would provide a landfill cap in conformance with Wis. Admin. Code § NR 504.07 (1996);
- Expansion of an already existing active gas collection system; and
- Conducting environmental monitoring to ensure the effectiveness of the remedial action.

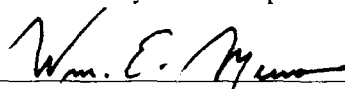
Institutional controls are not included as part of the selected remedy because deed restrictions on the TMSL property, enforceable by the State of Wisconsin, are already in place. U.S. EPA has concluded that no additional controls are necessary to prevent inappropriate use of the site.

**DECLARATION STATEMENT**

The selected remedy is protective of human health and the environment; complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action except for groundwater cleanup standards, where a waiver is justified; and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for the site. However, because treatment of the principal threats of the site was not found to be practicable, this remedy does not satisfy the statutory preference for treatment as a principal element of the remedy. The size of the landfill and the fact that there are no on-site hot spots that represent the major sources of contamination preclude a remedy in which contaminants could be excavated and treated effectively.

Because hazardous substances will remain at the site, U.S. EPA will conduct a five-year review in accordance with Section 121 of CERCLA to assess whether any other response is necessary.

9/25/97  
DATE

  
\_\_\_\_\_  
William E. Muno  
Superfund Division Director

**U.S. EPA Superfund  
Record of Decision**

**Tomah Municipal Sanitary Landfill Site**

**Tomah, Monroe County, Wisconsin  
September, 1997**

## TABLE OF CONTENTS

I.	Site Description.....	1
II.	Site History and Enforcement Activities.....	1
III.	Highlights of Community Participation.....	2
IV.	Scope and Role of Operable Unit.....	3
V.	Site Characteristics.....	3
VI.	Summary of Site Risks.....	7
VII.	Description of the Remedial Alternatives.....	10
VIII.	Evaluation of Alternatives.....	14
IX.	Statutory Determinations.....	19
X.	State Concurrence.....	19

### **FIGURES**

Figure 1	Tomah Municipal Sanitary Landfill Site Location Map
Figure 2	Tomah Municipal Sanitary Landfill Site Base Map With Sampling Locations
Figure 3	Profile of Landfill Cap Design
Figure 4	Comparison of Alternatives

### **TABLES**

Table 1	Summary of Contaminants Detected in Groundwater
---------	---

### **APPENDICES**

Appendix A	-	Responsiveness Summary
Appendix B	-	Administrative Record



## DECISION SUMMARY

### **I. Site Description**

The Tomah Municipal Sanitary Landfill (TMSL) is located north of the City of Tomah, Monroe County, Wisconsin (Figure 1). The landfill occupies approximately 18 acres within the 40-acre site (Figure 2). The site is bordered on the north by Deer Creek and its associated wetlands, on the east by 24<sup>th</sup> Avenue and agricultural property, on the south by the Sunnyvale Subdivision, and on the west by agricultural fields and wetlands.

### **II. Site History and Enforcement Activities**

The City of Tomah ("the City" or "Tomah") operated the TMSL as a disposal site from 1959 to 1979, disposing of municipal and industrial wastes on 18 acres located on the southern portion of the site. Wastes were placed in shallow (3 to 8 feet) unlined trenches, which were excavated in the sandy subsoils over the southern half of the site and covered with native soils.

In August, 1975, the Wisconsin Department of Natural Resources (WDNR) ordered the City to close the site because of potential degradation of local groundwater quality. The City closed the site in 1979, covered it with soil and topsoil, and planted grass and trees on the site.

In June, 1981, Union Camp Corporation submitted a Notification of Hazardous Waste Activity for a facility in Tomah. The company reported that from 1960 to 1977, it had disposed of 75,700 gallons of solvent waste from plastics and printing operations at the TMSL. These wastes contained volatile organic compounds (VOCs) and heavy metals.

In December, 1983, representatives of the WDNR conducted a Potential Hazardous Waste Site Preliminary Assessment for the TMSL. The WDNR's assessment indicated that the landfill represented a potential hazard to ground water and surface water, and that there could be other migration pathways.

In June, 1984, the WDNR and the consulting firm Ecology and Environment, under authorization from U.S. EPA, conducted a site inspection. A groundwater sample from a downgradient monitoring well contained organic contamination above levels of health concern. Based on these findings, WDNR nominated the site for inclusion on U.S. EPA's National Priorities List (NPL) on April 3, 1985. The site was subsequently added to the NPL on March 31, 1989.

In February, 1992, U.S. EPA's Technical Assistance Team (TAT) sampled nine residential wells in the Sunnyvale Subdivision adjacent to the TMSL. One residential well contained elevated levels of vinyl chloride.

In 1993, the City provided municipal water to homes in the Sunnyvale Subdivision, south of the site, to eliminate the potential hazard posed by the landfill for private drinking wells in the subdivision. The private wells were subsequently abandoned.

Research to identify parties responsible for conditions at the TMSL was completed early in 1993. U.S. EPA identified 3 potentially responsible parties (PRPs): the City of Tomah as owner and operator of the landfill; and Union Camp Corporation and the Veterans Hospital as generators of hazardous substances disposed of at the site. U.S. EPA sent a special notice letter to the PRPs in July, 1993, to conduct a remedial investigation/feasibility study (RI/FS) with oversight by U.S. EPA. On January 11, 1994, an Administrative Order on Consent (AOC) was entered into voluntarily by the PRPs to conduct the RI/FS at the TMSL site.

In April, 1994, U.S. EPA decided to take a presumptive remedy approach to the selection of a remedy for the site. After years of addressing contaminated landfills, U.S. EPA has found that the most practical way to deal with the large variety and volume of waste found in municipal landfills is containment. A containment remedy may include one or more of the following components: a landfill cap; a groundwater collection and treatment system; a landfill gas collection and treatment system; a leachate collection and treatment system; and future land use restrictions. In the early stages of the presumptive remedy analysis for this site, U.S. EPA concluded that containment at the TMSL would involve placing a cap over the landfill to reduce the amount of water entering and migrating out of the landfill and installing and operating a landfill gas collection system. Data collection efforts in the RI, risk assessment, and analysis of remedial alternatives in the FS were streamlined based upon application of the OSWER Directive No. 9355.0-49FS entitled "Presumptive Remedy for CERCLA Municipal Landfill Sites." Use of the presumptive remedy approach allows a focused effort on data collection to determine risk at the site, usually by examining groundwater conditions, and a subsequent streamlined evaluation of alternatives to contain contaminated waste in the landfill. Thus, the presumptive remedy allows for selection of an on-site source control remedy before all off-site long-term groundwater contamination issues are resolved. This ROD addresses only the containment of contaminants from the source area (i.e., the landfill).

In July, 1996, in response to indications that landfill gas was migrating off-site, the PRPs installed an active gas extraction system along the southern boundary of the landfill.

### **III. Highlights of Community Participation**

In June, 1994, U.S. EPA hosted a "kick-off" public meeting at the Tomah City Hall Council Chambers. The purpose of the meeting was to inform local residents of the Superfund process, the presumptive remedy approach and the work to be performed under the RI. In addition, because there are two other Superfund sites in Tomah, numerous other public meetings and availability sessions have been conducted.

In 1993, U.S. EPA established an information repository at the Tomah Public Library, 716 Superior Avenue, Tomah, Wisconsin. U.S. EPA maintains a copy of the administrative record for the site in the information repository. The RI and FS were released to the public in July, 1996, and April, 1997, respectively. A Proposed Plan was made available on August 7, 1997. A public meeting was held on August 18, 1997, to discuss the RI/FS and Proposed Plan. Advertisements were placed in local newspapers to announce the public meeting and comment period. A public comment period for the Proposed Plan was established from August 7, 1997 to September 5, 1997. The public generally supports the selected remedy. The responsiveness summary is contained in Appendix A.

The public participation requirements of sections 113(k)(2)(B) and 117 of CERCLA, 42 U.S.C. §§ 9613(k)(2)(B) and 9617, have been met in the remedy selection process. This decision document presents the selected remedy for the Tomah Municipal Sanitary Landfill Superfund site, chosen in accordance with CERCLA, as amended by SARA, and to the extent practicable, the NCP. The decision for this site is based on the Administrative Record.

#### **IV. Scope and Role of Operable Unit**

U.S. EPA has determined that installation of a low permeability geomembrane and a geosynthetic clay liner (GCL) over the landfill and the operation of the active gas collection system is necessary at the TMSL. This decision is based on an analysis of site risks, described in detail below. The decision relies on the indications that the landfill is the source of contamination to ground water which may be used by residents downgradient of the site and that landfill gas is migrating off-site.

This ROD addresses on-site source control. The source control remedy will be implemented and the site will be monitored to determine the effects of the source control on reducing the levels of off-site groundwater contamination. After a period of sufficient monitoring a second risk assessment and FS will be conducted for the off-site contamination, primarily in ground water. An additional Proposed Plan and ROD will then be issued to select a remedial alternative for the off-site contamination.

Because hazardous substances will remain at the site, U.S. EPA will conduct a five-year review in accordance with Section 121 of CERCLA to assess whether any other source control response is necessary.

#### **V. Site Characteristics**

The Phase I and II RI involved sampling and analysis of ground water, landfill gas, surface water and sediment to determine site conditions. Groundwater samples were collected from residential and monitoring wells around the site to determine the nature and extent of groundwater contamination. Gas samples were collected from gas probes in and around the landfill and near

residents south of the landfill to determine if landfill gases have migrated beyond the limits of the waste and the site boundary. Surface water and sediment samples were collected in Deer Creek and in the wetlands north of the landfill to evaluate if contaminants from the landfill were impacting Deer Creek. Test pit excavations were also conducted to determine the approximate boundaries of the landfilled area.

Based on the results of the RI, U.S. EPA examined the threats to human health and the environment through exposure by ingestion and/or direct contact with contaminants in ground water, and surface water and sediment. U.S. EPA did not quantify risks associated with contaminants in surface soil and landfill gas because EPA presumed that a landfill cap and an expanded gas collection system would be installed, thereby addressing the risks associated with surface soil and gas, whatever they may be.

## **Site Conditions**

### Physical Features

#### 1. Geology

Data from soil borings indicate that the TMSL is underlain predominantly by residual sand materials, formed by the in-place weathering of sandstone bedrock, and alluvial unconsolidated sands overlying the sandstone bedrock. The unconsolidated material consists of silty sands to poorly graded fine- to medium-grained sand. The thickness of the unconsolidated deposits in the immediate vicinity of the landfill ranges from 1 to 19 feet and generally increases toward Deer Creek.

Underlying the unconsolidated sands is sandstone bedrock of Cambrian age. Two sandstone mounds are located in the southwest and southeast corners of the site. The bedrock surface slopes down from the sandstone mounds in all directions.

#### 2. Hydrology

The TMSL site lies in the Deer Creek valley which is the primary drainage way near the site. Deer Creek flows northeast across the northwestern corner of the property, within 230 feet of the northwest corner of the landfilled area. The creek meanders through an extensive emergent wetland located on the northwest portion of the property and joins Lemonweir Creek about one mile east of the site. Deer Creek is classified as a cold water sport fishery (trout stream).

The moderately permeable site soils permit infiltration and restrict the volume of overland flow. Surface runoff across the landfill is generally north toward Deer Creek, with the exception of the low area along the southern property boundary where runoff drains to the south.

### 3. Hydrogeology

Ground water beneath the site was encountered within the unconsolidated deposits, the landfill waste, and the bedrock. The data collected indicates that the unconsolidated sand and the sandstone bedrock generally function as a single aquifer. The water level data indicate that the groundwater flow is northeast toward Deer Creek and the surrounding wetlands averaging velocities between 0.02 and 0.38 ft/day. The groundwater contribution to Deer Creek appears to be limited to the shallow portion of the aquifer. Deeper flow may occur beneath Deer Creek.

The majority of the landfill appears to be unsaturated. However, investigations showed up to 2 feet of saturated waste at the base of the landfill in some areas. The total thickness of the waste is approximately 10 - 12 feet. Using the highest water levels measured at the site, U.S. EPA estimates that 19,000 out of the 300,000 cubic yards in the landfill may be saturated. However, seasonal fluctuations in the water table make it difficult to estimate the volume of saturated wastes with any reliability.

The City and the majority of the private well owners obtain their water supply from the Cambrian age sandstone aquifers. The City provides municipal water for all residential properties within the City limits. Residents living outside of the city limits obtain their water supply from private wells except for those persons living in the Sunnyvale Subdivision who are serviced by municipal water. Ten of the eleven private wells currently used within one-half mile of the site are located north and northeast of the site. Well logs from the current property owners indicate that several of the wells are screened in the sandstone at depths of 50 to 80 feet. One additional well is located approximately 500 feet east of the landfill. No well log could be located for this well.

### 4. Ecology

The TMSL site is zoned as conservancy. The areas to the north, east, and west are classified as vacant or agricultural. Deer Creek flows northeast across the northwestern corner of the site. The WDNK has designated Deer Creek as Class II trout waters, supporting primarily brook trout. Adjacent woodlands, wetlands, and fields add to the diversity of wildlife habitat in the area. Wildlife species found at the site would be typical of an urbanizing rural, agricultural area or transients from adjacent habitats.

WDNR's Bureau of Endangered Resources reports no known occurrences of threatened, endangered, or special concern species; natural communities; or State Natural Areas that would be affected by remedial actions at the TMSL site. The U.S. Fish and Wildlife Service does report that two federally listed species occur in Monroe County. However, the U.S. Fish and Wildlife Service concluded that due to the nature and location of the proposed activities, the species identified would not be adversely affected.

## 5. Contamination

### a) Surface Water and Sediment

Surface water and sediment samples were collected from four locations as part of the Phase I investigation (see Figure 2). Three of the four surface water/sediment samples were collected from Deer Creek. The fourth sample was collected in the emergent wetland adjacent to the Creek.

Volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) were not detected in the four surface water samples. 2-Butanone was detected in both the upstream and downstream sediment samples. Low levels (56 to 60  $\mu\text{g}/\text{kg}$ ) of three polynuclear aromatic hydrocarbons (PAHs) were detected in the most downstream sediment sample location.

Comparable values for inorganic constituents were measured for surface water and sediment samples collected at upstream and downstream sample locations, as well as in the wetland. The data collected did not indicate that the surface water and sediment have been impacted by landfill-related contaminants.

### b) Ground water

The nature and extent of groundwater contamination was evaluated based on the results from 12 groundwater monitoring wells sampled during Phase I, and 7 additional wells installed and sampled during the Phase II investigation. In addition, six private wells were sampled during Phase II (see Figure 2). A summary of contaminants detected in the Phase I and II groundwater sampling is presented in Table 1. Additional monitoring wells have been added and sampled since the completion of the Phase II RI and the risk assessment. The groundwater operable unit will include a complete evaluation of all data collected from the entire groundwater monitoring well network.

Seven chlorinated VOCs were detected in the samples collected from the monitoring wells. These VOCs include chloroethane, 1,1-dichloroethane, 1,2-dichloroethene (*cis* and *trans*), 1,2-dichloropropane, 1,2-dichloroethane, and vinyl chloride. Five aromatic VOCs were also detected including benzene, toluene, ethylbenzene, xylenes, and chlorobenzene. Vinyl chloride and benzene were detected most frequently and exhibited the highest concentrations. The vinyl chloride (0.7 to 1,200  $\mu\text{g}/\text{L}$ ) and benzene (0.5 to 48  $\mu\text{g}/\text{L}$ ) concentrations exceeded the WDNR's Chapter NR 140 Preventative Action Limit (PAL), Enforcement Standard (ES), and Federal Maximum Contaminant Level (MCL) in each sample in which they were detected. Vinyl chloride appears to be the most persistent and widespread VOC. The vinyl chloride concentrations decreased from 1,200  $\mu\text{g}/\text{L}$  adjacent to the landfill (in MW-7) to 36  $\mu\text{g}/\text{L}$  approximately 800 feet downgradient from the site (in MW-9B). Analytical data from individual well nests indicated that concentrations of both benzene and vinyl chloride were typically higher in samples collected at depth compared with those collected at the water table. VOCs were not detected in the upgradient or residential wells.

Several SVOCs were also detected in the groundwater samples. The only SVOC to exceed Ch. NR 140 ES and the MCL was bis(2-ethylhexyl) phthalate.

Various inorganic constituents were detected in groundwater samples. Twelve of the inorganic parameters were detected in groundwater samples at concentrations exceeding federal primary or secondary drinking-water standards. Inorganic constituents detected in downgradient ground water may have migrated from the landfill. Downgradient concentrations of aluminum, iron, and manganese were significantly higher than those concentrations found in upgradient wells. Thallium, cadmium, and chromium concentrations measured downgradient of the landfill also exceeded the federal drinking-water standards.

Groundwater samples collected from the downgradient wells during the Phase I were also analyzed for pesticides, PCBs, dioxins, and furans. The results of these analyses indicate trace concentrations of octachloro-dibenzopara-dioxin (OCDD) in three of the samples. Three pesticides were also detected: endrin, 2,4,5-TP, and chlordane. No PCBs or furans were detected.

#### c) Landfill Gas

Data collected from the investigation indicate that landfill gas is being generated at the site. Methane concentrations, as measured in the gas probes and monitoring wells, ranged from 4 to 71 percent (by volume in air). Data collected from gas probes installed beyond the boundary of the landfill indicate that landfill gas is migrating offsite. The methane concentrations measured from zero to 37 percent by volume. The lower explosive limit (LEL) for methane is 5 percent by volume. Chapters NR 504 and NR 506 of the Wisconsin Administrative Code (WAC) require that all waste disposal facilities have an effective means for controlling landfill gas migration such that the concentration of explosive gases at or beyond the property boundary do not exceed the LEL.

Gas samples were also analyzed using a portable gas chromatograph. VOCs detected include vinyl chloride, 1,2-dichloroethene, 1,1,1-trichloroethane, trichloroethene, and toluene. In general, the highest (338.7 to 773.10 ppm) and most consistent contaminant measured was 1,1,1-trichloroethane.

## **VI. Summary of Site Risks**

U.S. EPA used the data collected during the RI to assess human health and ecological risks. This assessment compared contamination levels at the site with U.S. EPA standards. In addition, further assessment of conditions at the site compared contamination levels at the site with Wis. Admin. Code Ch. NR 140 (1996), Groundwater Standards. The assessment considered ways in which people and wildlife could be exposed to site-related contaminants and whether such exposure could increase the incidence of cancer and noncarcinogenic (noncancer related) diseases above the levels that normally occur in the study area.

The screening assumed that people could be exposed to site-related contaminants by a number of different pathways (e.g., ingestion, inhalation, dermal contact). Exposure to surface water and sediment and ground water were evaluated under current and future land use conditions. The installation of a landfill cap and a gas collection system was presumed. As a result, risks from direct contact with contaminants in soil on the landfill surface or landfill gases were not evaluated.

Current land use and reasonably anticipated future use of the land at NPL sites are important considerations in determining current risks, future potential risks, and the appropriate extent of remediation. (See "Land Use in the CERCLA Remedy Selection Process," OSWER Directive No. 9355.7-04, May 25, 1995). Land use assumptions affect the exposure pathways that are evaluated in the risk assessment. The results of the risk assessment aid in determining the degree of remediation necessary to ensure current and long-term protection at the site. The risk assessment considers present use of the site to determine current risks. It may restrict its analysis of future risks to the reasonably anticipated future land use.

In the case of the TMSL risk assessment, U.S. EPA assumed that the exposure to contaminants in the surface water and sediment would continue to be the recreational use of Deer Creek. U.S. EPA assumed the most conservative scenario for exposure to ground water in the future would be residential use downgradient of the site.

Potential risks to public health for cancer are expressed numerically, i.e.,  $1 \times 10^{-4}$  or  $1 \times 10^{-6}$ . Carcinogenic risk expressed as  $1 \times 10^{-4}$  means that of 10,000 people exposed to contamination over a 70-year lifetime one individual could potentially develop cancer as a result of the exposure. A carcinogenic risk of  $1 \times 10^{-6}$  means that of 1,000,000 people exposed over a 70-year lifetime one individual could potentially develop cancer as a result of the exposure. U.S. EPA has established a carcinogenic risk range from  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$  in an attempt to set standards for remediation and protectiveness. The measure of noncarcinogenic risk is termed a hazard index (HI) and is also expressed numerically. When the HI exceeds 1, there is a potential for adverse health effects.

In general, the majority of the predicted potential health impacts were associated with exposure to contaminants detected in ground water. Dermal exposures to contaminants in the surface water and sediment resulted in excess lifetime cancer risks below  $1 \times 10^{-6}$  and hazard indices below 1 for recreational receptors. Contaminants in ground water were evaluated for residential ingestion, inhalation, and dermal exposures. The total excess lifetime cancer risk for adult residents was  $3 \times 10^{-2}$ , while that for child residents was  $1 \times 10^{-2}$ . The adult resident's hazard index was 139 and



the child's hazard index was estimated to be 325. Ingestion of groundwater contaminants (i.e., vinyl chloride) resulted in the majority of the estimated risk and hazard.

The total overall risk for adult residents using the groundwater and utilizing the wetlands for fishing or other recreational activities is  $3 \times 10^{-2}$ , while that for the child is  $1 \times 10^{-2}$ . The risk is primarily due to the presence of vinyl chloride in the ground water.

It should be noted that two exposure pathways were not evaluated quantitatively in the baseline human health risk assessment. Because no soil samples were collected from the landfill itself and a source control action has been proposed, no assessment of risk to persons having contact with landfill soil and contents were estimated. However, hazardous substances are present in the landfill that could pose some level of hazard should exposure occur.

Sampling from gas probes has confirmed the presence of landfill gases including VOCs. These gases have been found to contain vinyl chloride, 1,2-dichloroethene, 1,1,1-trichloroethane, toluene, and trichloroethene. However, the lack of quality assurance/quality control (QA/QC) documentation preclude the use of gas samples taken to date in a quantitative risk assessment. Thus, no quantitative risk was estimated for nearby residents who may be exposed to ambient concentrations of these landfill gases. A review of the data indicates that the maximum vinyl chloride concentration in the landfill gas was approximately 20 parts per million (ppm), while that in ground water was 1,200  $\mu\text{g/L}$  or 1.2 ppm. Given that inhalation of vinyl chloride vapors from ground water was estimated to result in a risk of approximately  $2 \times 10^{-4}$  and the landfill gas concentration is an order of magnitude higher than the groundwater concentration, the cancer risk due to inhalation of vinyl chloride in the landfill gas could potentially result in risks of the same magnitude. Additional cancer risk could also be contributed by the other carcinogenic compounds (such as trichloroethene) detected in the landfill gases.

The source control measures proposed in the FS call for the landfill gases to be collected with an active gas collection system and treated prior to release. The gas collection system and treatment will reduce explosion hazards and exposures to ambient concentrations inhaled by nearby residents.

An ecological risk assessment was conducted to estimate the risks to terrestrial and aquatic organisms at the site and qualitative measure impacts on areas surrounding the TMSL. Terrestrial organisms associated with the TMSL were not considered at risk based on literature-derived benchmark values. Exposure and risk to aquatic organisms was evaluated by directly comparing surface water and sediment exposure dose to National Ambient Water Quality Criteria, state standards, or other literature-based benchmark values. Based on this analysis, cobalt and manganese in surface water were the only metals found that would potentially pose a risk to aquatic organisms.

Actual damage to the aquatic and terrestrial ecosystem of Deer Creek and the adjacent wetlands was not observed. Based on this analysis, ecological effects from TMSL contaminants are considered insignificant at this time.

Based on the information collected to date on the site contamination and associated risks to human health and the environment, the installation of a low permeability cap to reduce the amount of contaminants leaching from the landfill wastes to the underlying ground water and continued collection of landfill gases is warranted. The need for remediation of the contaminated ground water will be determined after implementation of the source control remedial actions and after the investigation of the offsite ground water has been completed. The groundwater operable unit will be addressed in a separate RI/FS, proposed plan and ROD.

## **VII. Description of the Remedial Alternatives**

### **Remedial Action Objectives**

The source control remedial action objectives were developed for this site to address the landfill as a long-term source of contamination, to provide short- and long-term protection of human health and the environment, and to meet the applicable or relevant and appropriate requirements (ARARs).

Based on the analytical data collected to date and the associated risks, the media of concern include the landfill gas and ground water. The site specific remedial action objectives for this site include:

#### Landfill Gas Source Remedial Action Objectives

- Prevent landfill gas migration such that at no time shall the standard concentration of explosive gases in the soils outside the limits of waste, or air within 200 feet of or beyond the landfill property boundary exceed the lower explosive limit (LEL) for such gases, in accordance with Wis. Admin. Code Ch. NR 506 (1996), Landfill Operational Criteria. Chapter NR 506 (1996) of the Wis. Admin Code requires that all waste disposal facilities have an effective means for controlling landfill gas migration such that the concentration of explosive gases at or beyond the property boundary does not exceed the LEL.
- Prevent blower emission exceedances above standards for the interim and permanent landfill gas extraction system set forth in Wis. Admin. Code Ch. NR 445 (1996).

#### Groundwater Source Control Remedial Action Objectives

- Provide an effective means to reduce infiltration through the landfill waste.
- Eliminate contaminant migration pathways to the ground water, by providing a mechanism to reduce VOC and metals contamination, thereby providing a potential means to meet State groundwater standards within the aquifer affected by contaminants associated with the landfill.

## Development of Alternatives

The remedial alternatives for the FS are typically assembled from applicable remedial technology options. A wide range of technologies and remedial options are reduced by evaluating them with respect to technical implementability, effectiveness, and cost. However, U.S. EPA has found that the most practical way to deal with the large variety and volume of waste found in municipal landfills is containment. U.S. EPA's guidance on presumptive remedies for CERCLA municipal landfill sites indicates that components of the source containment may include:

- landfill capping to reduce the amount of water entering and migrating out of the landfill;
- extraction and treatment of contaminated ground water and leachate to control offsite migration
- construction of an active landfill gas collection and treatment system to prevent offsite migration

Based on site-specific conditions, the selection of response actions need only consider those components that are necessary. The lack of measurable leachate with the landfill indicates that a leachate collection system is not necessary as a general component of the presumptive remedy.

Even though the majority of the landfill appears to be unsaturated, reconsolidation was considered in the alternatives. Investigations showed up to 2 feet of saturated waste at the base of the landfill in some areas. As noted above, it is difficult to estimate the volume of saturated waste with any reliability, but U.S. EPA believes that at most, 19,000 out of a total of 300,000 cubic yards of waste in the entire landfill are saturated.

In addition to source containment, the NCP requires that a no-action alternative be considered for the site. The no-action alternative serves primarily as a point of comparison for other alternatives.

The approach to develop the containment alternatives was to provide general source response actions that address each medium of interest in order to satisfy the remedial action objectives:

### Landfill Gas Response Actions

- No action
- Collection and treatment, if necessary, of landfill gas to prevent migration

### Groundwater Source Response Actions

- No action
- Installation of a low permeability cap to reduce infiltration

specifications set forth in Wis. Admin. Code § NR 504.06(2)(a) (1996). However, due to site design restrictions, the clay would be discontinued along a line north of the existing gas extraction system. A GCL material would be substituted for the clay south of the existing gas system to reduce the encroachment on the adjacent residential properties, reduce drainage problems, and eliminate the need to reconstruct the existing landfill gas collection system. The alternative would meet both the landfill gas and groundwater source control objectives.

Alternative 6: Reconsolidation of Saturated Waste, Installation Geomembrane Cap with Active Gas Extraction System

This alternative includes installation of a low permeability landfill cap and gas extraction system. As described in Alternative 3, the landfill cap would be a multi-layered, single barrier cover, consisting of an upper vegetative layer, a rooting zone/drainage layer and a geomembrane. The final cap design would be modified by excavation of the maximum saturated area of waste found along the northern portion of the landfill. Approximately 174,000 cubic yards of waste from the north central portion of the landfill could be excavated and reconsolidated. Reconsolidation options include moving excavated wastes to a more upland (south side) of the landfill or backfilling the excavation with clean fill to water table and placing the wastes on top (i.e., effectively raising waste above high water levels). As with Alternative 3, this alternative would meet both the landfill gas and groundwater source control objectives but would not comply with Wis. Admin. Code Ch. NR 504 (1996), Landfill Location, Performance Design, and Construction Criteria.

Alternative 7: Reconsolidation of Saturated Waste, Installation Geomembrane and GCL Cap with Active Gas Extraction System

This alternative includes all the components of Alternative 6 with the addition of the GCL layer below the geomembrane. This alternative would meet both the landfill gas and groundwater source control objectives.

Alternative 8: Reconsolidation of Saturated Waste, Installation Geomembrane and Clay Cap with Active Gas Extraction System

This alternative includes all the components of Alternative 6 with the additional of a 2-foot clay layer. This alternative would meet both the landfill gas and groundwater source control objectives.

## **VIII. Evaluation of Alternatives**

### **Nine Evaluation Criteria**

In the NCP, the U.S. EPA has established nine criteria that balance health, technical, and cost considerations to determine the most appropriate remedial alternative. The criteria are designed to select a remedy that will be protective of human health and the environment, attain Applicable or Relevant and Appropriate Requirements (ARARs), utilize permanent solutions and treatment

technologies to the maximum extent practicable, and be cost effective. The relative performance of each of the remedial alternatives listed above has been evaluated using the nine criteria set forth in the NCP as the basis of comparison. These nine criteria are summarized below:

#### Threshold Criteria

The selected remedy must meet the following threshold criteria:

1. **Overall Protection of Human Health and the Environment** addresses whether a remedy provides adequate protection and describes how risks are eliminated, reduced or controlled through treatment, engineering controls or institutional controls.
2. **Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)** addresses whether a remedy will attain applicable or relevant and appropriate requirements under federal environmental laws and state environmental or facility siting laws or provide grounds for issuing a waiver.

#### Primary Balancing Criteria

The balancing criteria are used to compare the effectiveness of the remedies.

3. **Long-term Effectiveness and Permanence** refers to the amount of risk to maintain reliable protection of human health and the environment over time once cleanup goals have been met.
4. **Reduction of Toxicity, Mobility or Volume Through Treatment** is the anticipated performance of treatment technologies that may be employed in a remedy to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.
5. **Short-term Effectiveness** refers to the speed with which the remedy achieves protection, as well as the remedy's potential to create adverse impacts on human health and the environment during the construction and implementation period.
6. **Implementability** is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.
7. **Cost** addresses the estimated capital and operation and maintenance (O&M) costs, evaluated as the present worth cost. Present worth is the present value of the capital and future O&M costs of an alternative based on the time value of money.

#### Modifying Criteria

These criteria deal with support agency and community response to the alternatives.

8. **State Acceptance** indicates whether, based on its review of the FS and the Proposed Plan, the support agency (in this case, the WDNR) concurs with, opposes, or has no comment on the recommended alternative.
9. **Community Acceptance** is assessed in the Record of Decision based upon a review of the public comments received on the FS report and the Proposed Plan.

### **Evaluation of the Remedial Alternatives**

As part of the FS all the remedial alternatives are evaluated against the nine criteria. Figure 4 contains a summary of this analysis.

#### Threshold Criteria

The threshold criteria are CERCLA statutory requirements that must be satisfied by any alternative in order for it to be eligible for selection as a CERCLA remedy. Alternatives that do not meet the threshold criteria are not carried through a comparison with the other alternatives.

#### 1. Overall Protection of Human Health and the Environment

The no action alternative will not provide protection of human health and the environment. Alternative 2 will provide only limited reduction of risk to human health and the environment by collecting landfill gas along the southern perimeter of the landfill. The remaining alternatives that include a landfill cap and active gas extraction system provide the applicable components for a CERCLA presumptive remedy for source control at the TMSL. Risks to human health and the environment would be reduced due to the extraction and treatment of landfill gases and reduction or elimination of source pathways for additional groundwater contamination.

#### 2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

ARARs for the alternatives considered are contained in Table 1 of the Feasibility Study for Source Control, dated April 14, 1997, as amended by U.S. EPA's letter of July 15, 1997. Note that, at this time, EPA cannot say whether any of the alternatives considered will restore ground water outside the landfill to federal and state drinking water standards. But under section 121(d)(4) of CERCLA, 42 U.S.C. §9621(d)(4), U.S. EPA may select a remedy that does not attain cleanup standards when the remedial action selected is only part of a total remedial action that will attain such level or standard of control when completed. That is the case here. Ground water conditions will be addressed in a second operable unit.

The no action alternative and Alternative 2 will not comply with the ARARs because they do not include the multi-layer cap required under Wis. Admin. Code § NR 504.06 (1996) for closed landfills. In addition, for Alternative 2, the existing gas extraction system does not achieve compliance with Wis. Admin. Code §§ NR 504 and 506 (1996) because some gas is continuing to migrate off-site. The cap proposed as part of Alternatives 3 and 6 does not provide the back-up component required by Wis. Admin. Code § NR 504.07 (1996). Alternatives 4, 5, 7, and 8

would meet the Wisconsin Administrative Code requirements for closed landfills and would provide a landfill cap in conformance with Wis. Admin. Code § NR 504.07 (1996). Alternatives 4 and 7 would meet the Wisconsin requirement for a clay capping layer by substituting a geosynthetic clay liner that has an equivalent standard of performance, such that these alternatives qualify for a variance under Wis. Admin. Code § NR 500.08(4) (1996).

### Primary Balancing Criteria

#### 3. Long-term Effectiveness and Permanence

Installation of a presumptive remedy cap and gas extraction system have been proven to be reliable long-term containment technologies for municipal landfills. Alternatives 4, 5, 7 and 8 provide additional long-term effectiveness and permanence by including a back-up barrier to the geomembrane layer in the multi-layer cap.

Alternatives 6, 7, and 8 include reconsolidation of saturated waste which may provide an effective means to remedy groundwater within the waste. However, the majority of the landfill appears to be unsaturated. U.S. EPA estimates that only 19,000 out of the 300,000 cubic yards of waste estimated to be in the landfill are saturated. However, seasonal fluctuations in the water table make it difficult to estimate the volume of saturated wastes with any reliability. In addition, as has been shown at other landfill sites, water table elevations under the landfill may drop after installation of the cap, reducing the volume of saturated wastes. The combination of these factors makes it difficult to assess the contribution of saturated waste to groundwater contamination and the benefits, if any, of reconsolidation.

#### 4. Reduction of Toxicity, Mobility or Volume Through Treatment

The no action alternative will not reduce toxicity, mobility or volume of contamination. The rest of the alternatives include a gas collection/extraction system that will treat VOCs if the levels are such that treatment is necessary to meet Wisconsin air standards.

#### 5. Short-term Effectiveness

Alternatives 3, 4, 5, 6, 7 and 8 would provide a remedy for off-site landfill gas migration by installation of an interior active gas extraction system, that would effectively reduce the health and safety threat to landowners adjacent to the landfill. These alternatives would also result in relatively little site disturbance. As a result, they will reduce public exposure to air emissions, odor, noise and traffic. Because no waste will be exposed, the installation of the landfill cap will not put workers or the public at risk from exposure.

#### 6. Implementability

Required materials, services and equipment are available to implement each source control alternative. Operation and maintenance of the existing landfill gas collection system have already been implemented. Thus, Alternative 2 involves no construction and is the easiest to

implement. All the Alternatives except 1 and 2 involve placement of the multi-layer cap and would require care in construction to minimize potential damage to the existing gas collection system.

#### 7. Cost

The costs for the alternatives (including both capital expenditures and future operating costs that have been discounted at a 2 percent rate) range from \$1.4 million to \$7.2 million. The cost for each alternative is presented in Figure 4.

Costs associated with Alternatives 6, 7, and 8 are high due to a number of factors, including: the amount of unsaturated wastes that would need to be moved to get to the saturated wastes at the base of the fill, the small area available for excavation activities, a phased excavation approach, waste handling activities, uncertainty concerning the treatment of groundwater produced during excavation, and potential characterization of any portion of reconsolidated waste, contaminated soils, or contaminated ground water. Costs of these alternatives are almost double that of their counterpart with no reconsolidation.

#### Modifying Criteria

#### 8. Support Agency Acceptance

U.S. EPA is the lead agency for this site and the author of this ROD. WDNR has been the support agency for the RI/FS and has reviewed this ROD. The State of Wisconsin has indicated a willingness to concur with this decision. A written confirmation is expected by September 30, 1997, and will be added to the administrative record upon receipt.

#### 9. Community Acceptance

A Proposed Plan was prepared and released to the public on August 5, 1997. A 30-day public comment period was conducted between August 7, 1997, and September 5, 1997. A public meeting on the proposal was held on August 18, 1997. The public generally supports the proposed remedy. The comments U.S. EPA received, together with U.S. EPA's responses, are described in the Responsiveness Summary attached to this ROD.

#### **Selected Alternative**

U.S. EPA has determined that Alternative 4: Installation of a low permeability geomembrane and a geosynthetic clay liner (GCL) over the landfill and the operation of the active gas collection system is the best remedy for source control at the TMSL. Alternatives 4, 5, 7, and 8 fully meet all the NCP criteria. The only criterion that clearly revealed differences between the four acceptable alternatives was cost. All things being equal, U.S. EPA prefers to select the most cost-effective remedial alternative. Alternative 4 while meeting all threshold, balancing, and modifying criteria was also the least costly of the four acceptable alternatives.



The Remedial Action Objectives that the selected remedy must meet are described above in Section VII. The ARARs for the selected remedy are listed in Table 1 of the Feasibility Study for Source Control, dated April 14, 1997, as amended by U.S. EPA's letter of July 15, 1997. They include Wisconsin regulations concerning landfill performance and design set forth in Wis. Admin. Code Chs. NR 504 and 506, and air standards set forth in the Clean Air Act, 42 U.S.C. § 7401 et seq., and Wis. Admin. Code Ch. NR 439 (1996).

It should be mentioned that Alternative 4 only addresses on-site source control at the landfill and that a subsequent risk assessment, FS, proposed plan, and ROD will address off-site groundwater contamination.

#### **IX. Statutory Determinations**

U.S. EPA and the State of Wisconsin believe the selected remedy will protect human health and the environment; complies with ARARs, except for groundwater cleanup standards where a waiver is justified; is cost-effective; and utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The selected remedy will not satisfy the preference for treatment as a principal element. The size of the landfill and the fact that there are no on-site hot spots that represent the major sources of contamination preclude a remedy in which contaminants could be excavated and treated effectively.

#### **X. State Concurrence**

The State of Wisconsin has indicated a willingness to concur with this decision. A written confirmation is expected by September 30, 1997 and will be added to the administrative record upon receipt.

**FIGURES**

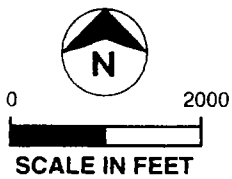
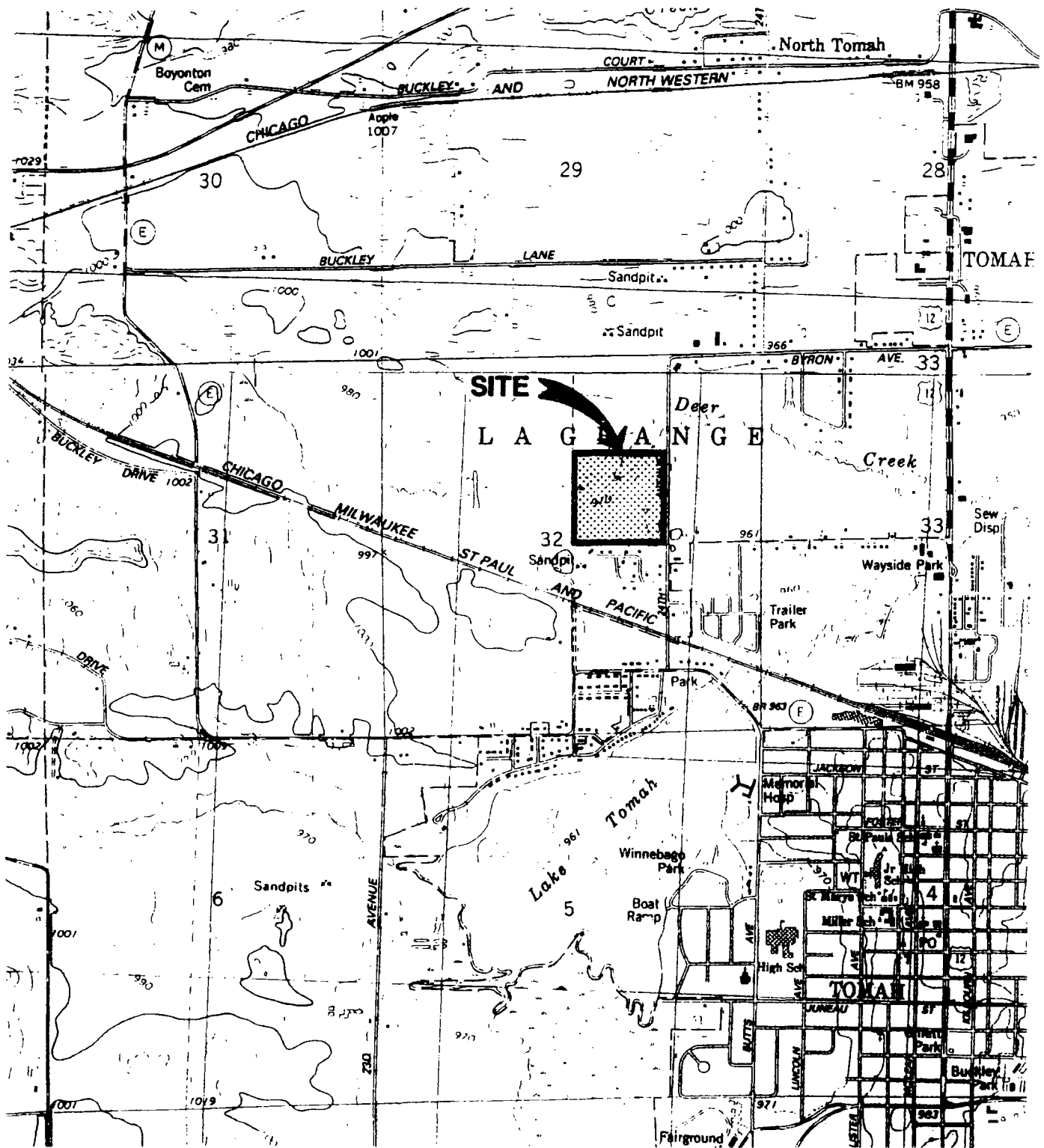
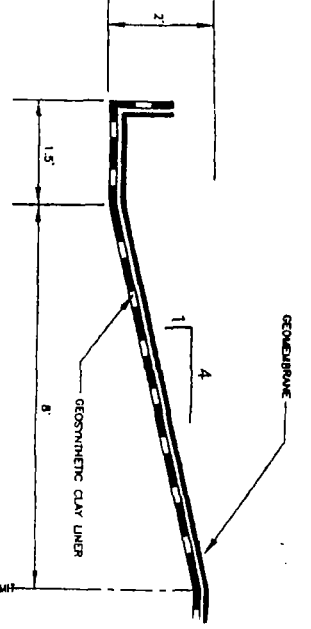
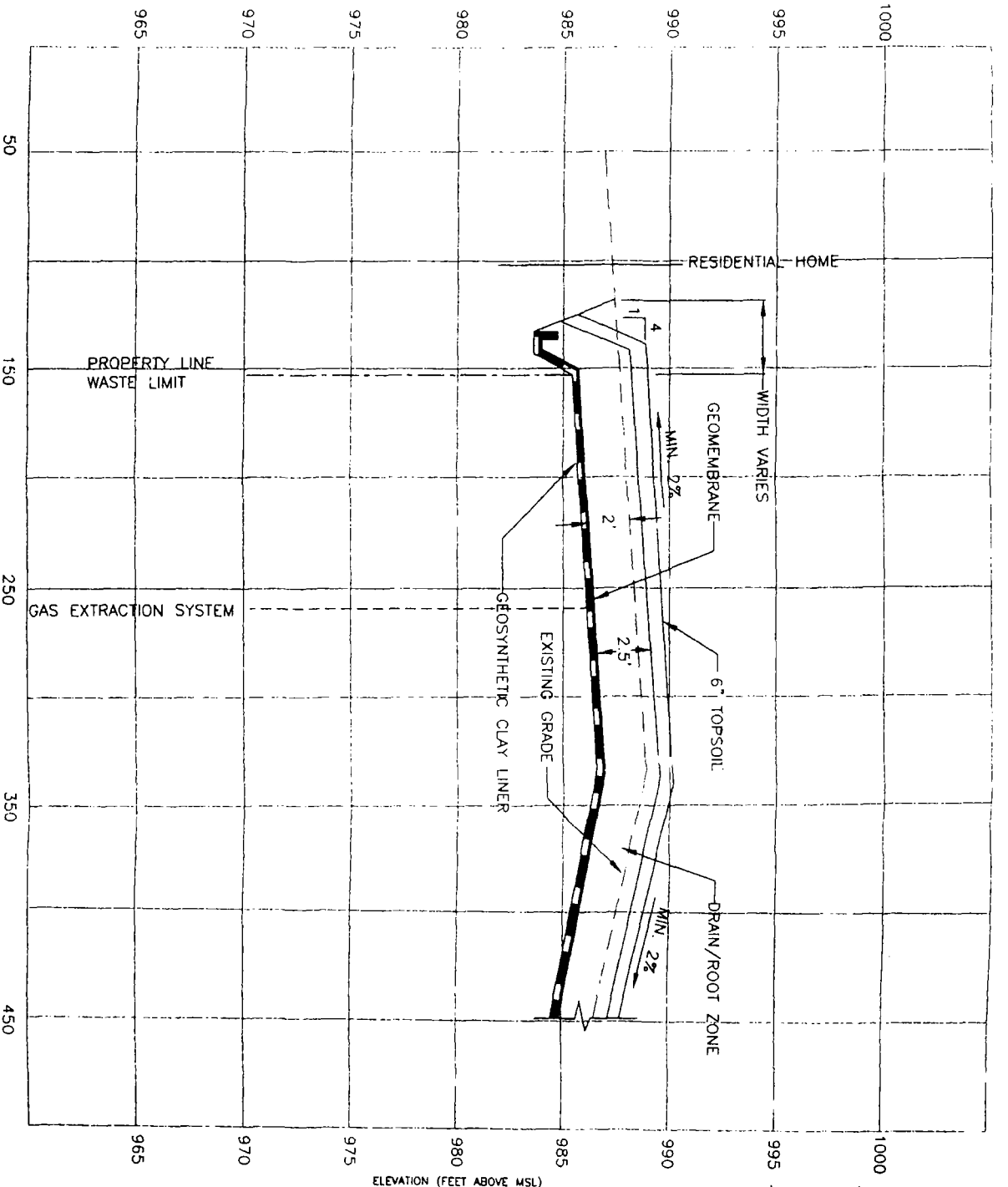


FIGURE 1  
**Site Location Map**  
Tomah Municipal Sanitary Landfill





ANCHOR TRENCH DETAIL  
NOT TO SCALE

TOMAH MUNICIPAL SANITARY LANDFILL TOMAH, WISCONSIN	
FIGURE 9 REMEDIAL ALTERNATIVE 4	
DRAWN BY: JAN	PROJECT NO. 27504-002
CHECKED BY: IJK	<b>D&amp;M</b> DAMES & MOORE AN ENGINEERING CORPORATION
SCALE: AS SHOWN	DATE: APRIL 1, 1997

FIGURE 3  
Cap Design for Alternative 4  
Tomah Municipal Sanitary Landfill  
CH2MHILL

Alternatives

Evaluation Criteria

	1	2	3	4	5	6	7	8	
1. Overall Protection of Human Health and Environment	<input type="radio"/>	*	●	●	●	●	●	●	
2. Compliance with ARARs *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	●	●	●	<input type="radio"/>	●	
3. Long-term Effectiveness and Permanence	<input type="radio"/>	*	*	●	●	●	*	●	
4. Reduction of Toxicity, Mobility, or Volume through Treatment	<input type="radio"/>	●	●	●	●	●	●	●	
5. Short-term Effectiveness	<input type="radio"/>	*	●	●	●	●	●	●	
6. Implementability	●	●	●	●	●	●	●	●	
7. Cost (\$ millions)	\$0	\$1.4	\$2.8	\$3.2	\$3.9	\$6.1	\$6.5	\$7.2	
8. Support Agency Acceptance		1	State of Wisconsin fully supports and accepts Alternative #4						
9. Community Acceptance	Community Acceptance of the recommended alternative will be evaluated at the public comment period								

● Fully meets criteria

\* Partially meets criteria

Does not meet criteria

\* Except For Groundwater ARARs

FIGURE 4  
**Comparison of Alternatives**  
 Tomah Municipal Sanitary Landfill

**TABLES**

**Table 1**  
**Summary of Contaminants**  
**Detected in Groundwater**

Parameter	Total Analyses	Positive Detections	Detection Frequency	Minimum Detected Value	Maximum Detected Value	Units
<b>Volatile Organic Compounds</b>						
1,1-Dichloroethane	8	4	50.0%	1	27	µg/L
1,2-Dichloroethane	8	2	25.0%	3	4	µg/L
1,2-Dichloropropane	8	2	25.0%	5	16	µg/L
2-Hexanone	8	1	12.5%	86	86	µg/L
Acetone	8	2	25.0%	2	320	µg/L
Benzene	8	5	62.5%	5	48	µg/L
Carbon Disulfide	8	3	37.5%	0	1	µg/L
Chlorobenzene	8	5	62.5%	1	8	µg/L
Chloroethane	8	5	62.5%	1	13	µg/L
cis-1,2-dichloroethene	8	4	50.0%	1	210	µg/L
Ethylbenzene	8	4	50.0%	1	48	µg/L
2-Butanone (MEK)	8	1	12.5%	280	280	µg/L
4-Methyl-2-pentanone (MIBK)	8	1	12.5%	32	32	µg/L
Styrene	8	1	12.5%	3	3	µg/L
Toluene	8	5	62.5%	1	550	µg/L
1,2-Dichloroethene (total)	8	5	62.5%	1	200	µg/L
trans-1,2-dichloroethene	8	1	12.5%	1	1	µg/L
Vinyl Chloride	8	8	100.0%	3	1,200	µg/L
Xylenes (total)	8	3	37.5%	59	180	µg/L
<b>Semivolatile Organic Compounds</b>						
1,2-Dichlorobenzene	8	2	25.0%	1	1	µg/L
1,4-Dichlorobenzene	8	5	62.5%	2	22	µg/L
2,4-Dimethylphenol	8	2	25.0%	5	16	µg/L
2-Methylnaphthalene	8	3	37.5%	2	5	µg/L
2-Methylphenol (o-cresol)	8	1	12.5%	18	18	µg/L
4-Chloro-3-methylphenol	8	2	25.0%	8	11	µg/L
4-Methylphenol (p-cresol)	8	1	12.5%	1,100	1,100	µg/L
bis(2-chloroethyl) ether	8	1	12.5%	7	7	µg/L
bis(2-ethylhexyl) phthalate	8	1	12.5%	27	27	µg/L
Di-n-butyl phthalate	8	1	12.5%	1	1	µg/L
Diethylphthalate	8	4	50.0%	4	110	µg/L
N-Nitrosodiphenylamine	8	1	12.5%	2	2	µg/L
Naphthalene	8	3	37.5%	5	16	µg/L
Phenol	8	1	12.5%	54	54	µg/L
<b>Pesticides/TCDDs</b>						
Endrin	3	1	33.3%	0	0	µg/L
Gamma-Chlordane	3	1	33.3%	0	0	µg/L
Octachlorodibenzo-p-dioxin	3	2	66.7%	63	380	pg/L
2,4,5-TP (Silvex)	3	1	33.3%	1	1	µg/L



**Table 1  
Summary of Contaminants  
Detected in Groundwater**

Parameter	Total Analyses	Positive Detections	Detection Frequency	Minimum Detected Value	Maximum Detected Value	Units
<b>Inorganics</b>						
Aluminum	8	8	100.0%	515	186,000	µg/L
Antimony	8	4	50.0%	2	53	µg/L
Arsenic	8	7	87.5%	4	112	µg/L
Barium	8	8	100.0%	117	1,730	µg/L
Beryllium	8	4	50.0%	2	11	µg/L
Cadmium	8	2	25.0%	8	12	µg/L
Calcium	8	8	100.0%	4,960	150,000	µg/L
Chromium, Total	8	7	87.5%	2	320	µg/L
Cobalt	8	8	100.0%	6	103	µg/L
Copper	8	6	75.0%	14	232	µg/L
Iron	8	8	100.0%	825	353,000	µg/L
Lead	8	8	100.0%	3	158	µg/L
Magnesium	8	8	100.0%	1,020	114,000	µg/L
Manganese	8	8	100.0%	811	19,000	µg/L
Mercury	8	6	75.0%	0	3	µg/L
Nickel	8	8	100.0%	8	143	µg/L
Potassium	8	8	100.0%	1,360	114,000	µg/L
Selenium	8	8	100.0%	3	24	µg/L
Silver	8	3	37.5%	11	22	µg/L
Sodium	8	8	100.0%	6,390	251,000	µg/L
Thallium	8	5	62.5%	3	21	µg/L
Vanadium	8	8	100.0%	1	233	µg/L
Zinc	8	7	87.5%	52	439	µg/L

**APPENDIX A**

**Responsiveness Summary**

RESPONSIVENESS SUMMARY  
TOMAH MUNICIPAL SANITARY LANDFILL  
TOMAH, MONROE COUNTY, WISCONSIN

PURPOSE

This responsiveness summary has been prepared to meet the requirements of Sections 113(k)(2)(B)(iv) and 117(b) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1986 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), which requires the United States Environmental Protection Agency (U.S. EPA) to respond to each of the significant comments, criticisms, and new data submitted in written and oral presentations on a proposed plan for remedial action. The responsiveness summary provides a summary of citizen's comments and concerns identified and received during the public comment period, and U.S. EPA's responses to those comments and concerns. All comments received by U.S. EPA during the public comment period were considered in the selection of the remedial alternative for the TMSL. The responsiveness summary serves two purposes: it summarizes community preferences and concerns regarding the remedial alternatives, and it shows members of the community how their comments were incorporated into the decision-making process.

This document summarizes written and oral comments received during the public comment period of August 7, 1997 to September 5, 1997. The comments have been paraphrased to efficiently summarize them in this document. The public meeting was held at 6:00 p.m. on August 18, 1997 at the Tomah City Hall Council Chambers, Tomah, Wisconsin. A full transcript of the public meeting, as well as all site related documents, are available for review at the Information Repository, located at the Tomah Public Library, 716 Superior Avenue, Tomah, Wisconsin. Comments and questions were received during the public meeting from several residents and/or city officials. Additionally, comments were mailed to U.S. EPA.

OVERVIEW

The proposed remedial alternative for the Tomah Municipal Sanitary Landfill was announced to the public just prior to the beginning of the public comment period. U.S. EPA proposed the installation of a low permeability geomembrane and a GCL over the landfill to reduce infiltration of water, with an active gas collection system.

### Community Comments

1. Comment: One commenter was concerned about the efficacy of the landfill cap to alleviate groundwater contamination.

Response: Groundwater conditions at the site will be monitored for approximately a year after implementation of the cap. At that time, or when the Agencies determine that sufficient time has passed to assess the impact of the cap, an evaluation will be made as to the ability of the cap as well as the gas extraction system to reduce levels of contamination in ground water. After this evaluation a risk assessment will be conducted to determine the risk posed by the levels of contamination in the ground water. If needed, a second feasibility study will be conducted to look at remedial alternatives for the ground water. A proposed plan and record of decision will be issued by the U.S. EPA proposing a groundwater clean-up alternative for the site.

2. Comment: This same commenter indicated that he had lived by the landfill property for almost fifty years and had seen landfilling in the northeastern portion of the property. This portion had not previously been identified as an area that accepted wastes.

Response: Based upon this comment and the lack of sufficient remedial investigation data from the area, U.S. EPA has determined that additional characterization is needed to determine if the landfill area extends into the northeastern portion of the property. The U.S. EPA recommends that additional characterization be conducted in this area during the remedial design. The design sampling will help determine if the recommended dual-barrier cap needs to be extended to cover the suspected area. The extent of design sampling will be determined during review of the remedial design project planning documents.

3. Comment: This same commenter, as well as other citizens who attended the public meeting, had concerns about surface water runoff from the new cap affecting their properties.

Response: As part of the design and implementation of the new landfill cap, engineering controls will be put in place to collect surface run-off and prevent it from impacting properties adjacent to the landfill. U.S. EPA will require operation and maintenance of the cap so as to ensure the integrity of the cap and associated engineering controls.

4. Comment: Another commenter had questions about the extent of sampling that occurred in the Sunnyvale subdivision. In particular, why was more sampling not performed?

Response: Groundwater and landfill gas monitoring were conducted south of the landfill in the Sunnyvale subdivision. Groundwater monitoring involved private well sampling as well as the installation and sampling of a monitoring well. Data collected from ground water indicated that the potential effects of the landfill on ground water to the south of the site was unlikely. This coupled with the facts that ground water appeared to moving to the east/northeast away from the subdivision and that the City of Tomah had extended municipal water services to the area provided reasonable assurances that the impact of the landfill on ground water to the south of the landfill was minimal. U.S. EPA then made the determination that an extended investigation of ground water south of the landfill was not warranted. Migration of landfill gas south of the landfill into the subdivision was also monitored. Sampling efforts concentrated on homes and yards adjacent to the landfill, since these homes appeared to be those that would affected first, until the responsible parties installed an active gas extraction system to remove the gas from the landfill. The in-home gas sampling was eventually discontinued after the gas extraction system effectively reduced the amount of gas migrating beyond the southern border of the landfill to safe levels. This system will be expanded and monitoring will continue as part of the remedy for the landfill. Capping will also increase the effectiveness of the extraction system. As part of the presumptive remedy, soil sampling was not conducted since it is assumed that the site will be capped. Some sediment and surface water sampling was conducted in Deer Creek, and the landfill was found not to have impacted the creek.

5. Comment: One commenter was concerned about the affects of the Superfund clean-up on property values near the landfill.

Response: U.S. EPA believes that, in general, a Superfund clean-up will increase property values not only on the Superfund site itself, but in areas adjacent to the site.

6. Comment: One commenter wondered how long is there going to be a guarantee that the cap is going to stay effective without changes from the EPA?

Response: After construction of the landfill cap, an operation and maintenance plan will go into effect, the purpose of which will be to ensure that the remedy continues to be effective in preventing infiltration into the landfill and removing gas. Part of the operation and maintenance will be monitoring. Should conditions arise resulting in questions about the integrity of the remedy, U.S. EPA and the WDNR reserve the right to propose changes to address the new conditions and secure the integrity of the remedy.

### Comment of the City of Tomah

1. **Comment:** The City requested that remedial Alternative 3, installation of a low permeability geomembrane cap over the landfill to minimize infiltration, and an active gas extraction system, as described in the Tomah Municipal Sanitary Landfill (TMSL) Feasibility Study (FS) for Source Control be selected in the Record of Decision.

**Response:** The U.S. EPA and the WDNR have reviewed and analyzed all the remedial alternatives presented in the TMSL FS for Source Control and have selected remedial Alternative 4 as the most appropriate remedy based upon an analysis of U.S. EPA's nine health, technical, and cost criteria as described in the Proposed Plan issued on August 7, 1997 and the attached Record of Decision. Alternative 4 included installation of a low permeability geomembrane and a geosynthetic clay liner over the landfill to minimize infiltration of water, and an active gas extraction system. Alternative 3 failed to meet the threshold criteria for compliance with applicable or relevant and appropriate requirements because it did not include a dual-barrier system and thus did not meet state requirements. The dual-barrier landfill cap provides a sufficient back-up system should one of the barrier layers fail.

### Comments of Union Camp Corporation

Union Camp Corporation, one the Potentially Responsible Parties at the Tomah Municipal Sanitary Landfill, submitted comments on the remedy, on the risk analysis, and on the allocation of responsibility for paying for the cleanup. Union Camp included in its submission the detailed comments of one of its contractors, TRC Environmental Solutions Inc., on the choice of the landfill cover and on the risk assessment. Union Camp also included copies of comments it submitted to EPA Headquarters concerning the Agency's Municipal Solid Waste Settlement Proposal.

With respect to Union Camp's comments on allocation of costs for the cleanup and on the Municipal Solid Waste Settlement Proposal, EPA declines to respond at this time. The purpose of the public comment period on the Proposed Plan for the Tomah Municipal Sanitary Landfill was to solicit comments on the remedy the Agency had tentatively chosen for the site. EPA will respond to Union Camp in due course concerning allocation and liability issues. But EPA believes it is important to keep technical questions concerning the adequacy of the selected remedy and legal/policy questions concerning allocation of responsibility separate.

Union Camp, by contrast, seems to want to blend the analysis of the proposed remedy with arguments about allocation of responsibility. There is an implication in Union Camp's comments that remedial decisions could differ depending on the number of viable PRPs at a site. Where a great many viable PRPs are present, one kind of remedy might be chosen; for an

identical site with only a few viable PRPs, a different, presumably cheaper, remedy should be selected. EPA rejects this way of proceeding as fundamentally inconsistent with the National Contingency Plan.

1. Comment: Union Camp and TRC advance various arguments why selection of a dual barrier cap is unwarranted at the TMSL. One argument is that the improvement in performance of a dual barrier cap over a single geomembrane is minimal, and not worth the additional \$469,000 it would cost. A second argument is that the choice of a dual barrier cap is a “policy” decision, not a technical/engineering decision. Finally, Union Camp asserts that single membrane liners have been selected at other sites in Wisconsin, implying that the selection of dual membrane for the TMSL is an arbitrary decision

Response: In 1996, the State of Wisconsin changed its regulations concerning the design of final cover systems for landfills to require two impermeable layers - a geomembrane and a clay layer - rather than one. The new requirement purposely built in a certain amount of redundancy in order to provide protection if the geomembrane layer failed. Hence, arguments about the minimal incremental reduction provided by a second layer are beside the point. Union Camp’s technical arguments assume that the main geomembrane layer would never fail. But what if it does? The Wisconsin regulation was not intended to reduce infiltration by another fraction of a percent, but rather, to provide basic impermeability if the geomembrane is breached. Union Camp does not explain how the system it favors offers any similar safeguard feature. It nowhere cites any figures regarding the reliability of single membrane covers. Rather, it terms a potential breach a “speculative” event and it implies that it should not have to subsidize safeguards designed to address such things. Suffice it to say that if a breach of the geomembrane were a sure thing, U.S. EPA and WDNR would not select a remedy that included a geomembrane as a component.

As for Union Camp’s argument that requiring dual barrier systems is a policy decision, U.S. EPA agrees, but questions why Union Camp finds fault with that. Most, if not all, environmental requirements - state and federal - are imposed as a result of policy decisions. We should be clear that by a “policy decision,” we mean here that, in order to guard against the failure of landfill cover systems, Wisconsin chose to impose by regulation a requirement for a dual barrier system. This was not a policy decision in the sense of a guidance document or policy paper that might or might not be followed. Since 1996, dual barriers have been legally required in Wisconsin.

U.S. EPA is not aware of any instances since the 1996 regulations were adopted of WDNR’s approving a single barrier cover for a landfill in Wisconsin. There may be instances prior to 1996, but the adoption of new standards makes those cases irrelevant.

2. Comment: Union Camp is concerned that because of the prospect “that the extreme nature of the risk assessment may precipitate unwarranted public concern,” the current risk assessment should not be published as a final administrative record document.

Response: U.S. EPA used the current risk assessment in selecting the source control remedy. It was therefore both proper and necessary for U.S. EPA to include the risk assessment in the administrative record. EPA made it available for public review together with the rest of the administrative record at the Tomah Public Library. To date, EPA has received no comments expressing unwarranted public concern about the risk assessment.

EPA disagrees with Union Camp that the risk assessment was extreme in nature. U.S. EPA’s contractor used standard U.S. EPA guidance documents and standard policy in developing reasonably conservative assumptions. U.S. EPA and the WDNR reviewed and approved it. Of course, the risk assessment may be superseded by further analysis. But that is no reason to suppress the current risk assessment.

3. Comment: TRC states that in the risk assessment “the exposure scenario is not an appropriate representation of potential current risks, as the concentrations of constituents of concern (COCs) are from a well located immediately downgradient and adjacent to the landfill boundary and are not representative of current exposure point concentrations”.

Response: Since the monitoring well network used to characterize impact to local groundwater conditions in the vicinity of the landfill contains only eight wells, a reasonable but conservative approach to assessing potential impacts to human health must take into account the possibility that parent chemicals and their products of degradation may exist at concentrations that are higher than what were observed. Ideally, the best way to provide a conservative estimate of a potential exposure is to provide the 95% upper confidence limit (UCL) of the mean concentration; however, this approach is a viable option only with a sample size large enough to provide a good estimate of the mean. This is suggested to be 10 samples at a *minimum*, preferably twenty or more (EPA 1992). In cases where the sample populations are small or where the data exhibits considerable variability, guidance suggests that the highest measured or modeled concentrations be used as the exposure concentrations. Since only eight monitoring wells were available to characterize groundwater conditions, the highest values detected were used in the risk assessment, in accordance with guidance.

4. Comment: TRC states that in the risk assessment “the future risk scenario cannot be completed until there is a determination regarding institutional controls, which could or will be imposed, regarding future well drilling in the area.”



**Response:** At the time the risk assessment was issued, institutional controls were not in place, and since the option still existed for not implementing this action, a reasonably conservative position of continuity with current conditions was taken. Due to the uncertainties associated with assessing future scenarios under these conditions, this position is still believed to be the most realistic and protective of human health since it covers what could occur in the event that no action is implemented and other conditions are allowed to remain the unchanged. In summary, a re-issue of the risk assessment based on alternative “future” scenarios is not warranted.

5. **Comment:** TRC states that in the risk assessment “the arithmetic mean is reported as 279 mg/L on page 2-18, when it should read 279 ug/L”.

**Response:** Page 2-18 of the text does state that the mean concentration for vinyl chloride is reported in *mg/L*, when in reality, the units should have been reported as *ug/L*. Mean values were discussed in the uncertainty section and were not used for assessing potential risks, therefore this text error has no bearing on the calculations. As shown in the risk assessment tables, the highest downgradient concentration for vinyl chloride is 1200 ug/L.

6. **Comment:** TRC states that in the risk assessment “it is unclear how the ‘volatilization factor’ was used and how the dimensions of the risk calculation balance.”

**Response:** The volatilization factor is a unitless number set at a default value of “0.0005 x 1000 L/m<sup>3</sup>” (or “0.5” as presented in the assumptions). This default value is an integral part of equations 1 and 2 presented in RAGS Part B (EPA 1991) and is based on the relationship between the concentration of a contaminant in household water and the average concentration of the volatilized contaminant in air. In the derivation of this number, all uses of household water were considered and a default air exchange rate and dwelling size was assumed. For more information on the volatilization factor used in these equations, RAGS directs the reader to the paper by J.B. Andelman (1990).

**APPENDIX B**

**Administrative Record**

U.S. EPA ADMINISTRATIVE RECORD  
 REMEDIAL ACTION  
 TOMAH SANITARY LANDFILL  
 TOMAH, WISCONSIN  
 ORIGINAL  
 08/30/95

AR

DOC#	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
----	----	-----	-----	-----	-----
1	12/16/83	Eigenbrodt, V., WDNR	U.S. EPA	Preliminary Assessment	5
2	06/27/84	Nolan, C., Ecology and Environment, Inc.	U.S. EPA	Site Inspection Report	14
3	12/05/84	Nolan, C., Ecology and Environment, Inc.	File	Memorandum re: June 19, 1984 Site Inspection	3
4	03/26/92	Ecology and Environment, Inc.	U.S. EPA	Letter Report	113
5	09/00/93	U.S. EPA/OSWER	U.S. EPA	Quick Reference Fact Sheet: "Presumptive Remedies: Policy and Procedures" (OSWER Directive 9355.0-47FS; EPA 540-F-93 047; PB 93-963345)	8
6	09/00/93	U.S. EPA/OSWER	U.S. EPA	Quick Reference Fact Sheet: "Presumptive Remedy for CERCLA Municipal Landfill Sites" (OSWER Directive 9355.0-49FS; EPA 540-F-93-035; PB 93-963339)	14
7	03/10/94	Dames & Moore	U.S. EPA	Work Plan (DRAFT): Volume 1 of 2 (Text and Attachments A-B)	265
8	03/10/94	Dames & Moore	U.S. EPA	Work Plan (DRAFT): Volume 2 of 2 (Attachments C-E)	342
9	06/18/94	Dames & Moore	U.S. EPA	Work Plan: Addendum I	154
10	07/13/94	Trainor, D. and Steiner, J., Dames & Moore	Mankowski, M., U.S. EPA	Letter re: D&M's Responses to U.S. EPA's Quality Assurance Section Comments to Addendum I of the Work Plan	9
11	02/21/95	Dames & Moore	U.S. EPA	Remedial Investigation Report (DRAFT): Volume 1 of 2 (Text)	146
12	02/21/95	Dames & Moore	U.S. EPA	Remedial Investigation Report (DRAFT): Volume 2 of 2 (Appendices A-F)	770

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMEDIAL ACTION

ADMINISTRATIVE RECORD  
FOR  
TOMAH SANITARY LANDFILL SITE  
TOMAH, MONROE COUNTY, WISCONSIN

UPDATE #1  
JULY 25, 1997

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	06/13/95	Dames & Moore	U.S. EPA	Work Plan for Phase II of the Remedial Investigation/Feasibility Study (RI/FS) at the Tomah Municipal Sanitary Landfill Site	242
2	06/14/95	Trainer, D., Dames & Moore	Mankowski, M., U.S. EPA	Letter: D&M's Responses to U.S. EPA Comments on Phase I Draft RI Report and the Phase II Work Plan	79
3	07/13/95	Mankowski, M., U.S. EPA	Patterson, K., City of Tomah	Letter re: U.S. EPA/WDNR Conditional Approval of the Phase II RI Work Plan for the Tomah Municipal Landfill Site w/Comments	9
4	12/20/95	Trainer, D., Dames & Moore	Mankowski, M., U.S. EPA	Letter: D&M's Responses to Conditional Approval of the RI Phase II Work Plan	24
5	04/00/96	Dames & Moore	U.S. EPA	LFG Migration Control Project Report for the Tomah Landfill Site	110
6	04/03/96	Kuhlman, W.; Boardman, Suhr, Curry & Field	Mankowski, M. and N. Zippay, U.S. EPA	Letter re: Outline of Measures Concerning the Methane Issue	5
7	04/24/96	Zippay, N. and M. Mankowski, U.S. EPA	Kuhlman, W.; Boardman, Suhr, Curry & Field	Letter re: U.S. EPA Approval of Proposed Short Term Measures as Outlined in the Design Specifications	2
8	06/12/96	Ch2M Hill	U.S. EPA	Final Risk Assessment for the Tomah Municipal Sanitary Landfill Site	177
9	06/13/96	Mankowski, M., U.S. EPA	Patterson, K., City of Tomah	Letter re: U.S. EPA/WDNR Conditional Approval of the Draft Final RI Report and the Responses to U.S. EPA Comments on the Draft Final RI Report	10

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
10	07/15/96	Dames & Moore	U.S. EPA	Remedial Investigation Report for Source Control: Volume I (Text, Tables and Figures) [FINAL]	284
11	07/15/96	Dames & Moore	U.S. EPA	Remedial Investigation Report for Source Control: Volume II (Appendices A-H) [FINAL]	1433
12	09/27/96	Dames & Moore	U.S. EPA	Response to U.S. EPA and WDNR Comments and Revised Future Activities Plan for the RI/FS of Groundwater and Source Control at the Tomah Municipal Sanitary Landfill Site	36
13	10/28/96	Mankowski, M., U.S. EPA	Patterson, K., City of Tomah	Letter re: U.S. EPA/WDNR Discussion and Comments Concerning the Remaining Issues on the Response to U.S. EPA/WDNR Comments and Revised Future Activities Plan	6
14	04/14/97	Dames & Moore	U.S. EPA	Feasibility Study for Source Control: Final (Revised) Draft Report	120
15	07/15/97	Mankowski, M., U.S. EPA	Patterson, K., City of Tomah; et al.	Letter re: U.S. EPA/WDNR Approval w/Modifications of the Feasibility Study for Source Control, Final (Revised) Draft Report w/Attachments	16

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMEDIAL ACTION

ADMINISTRATIVE RECORD  
FOR  
TOMAH MUNICIPAL SANITARY LANDFILL SITE  
TOMAH, WISCONSIN

UPDATE #2  
SEPTEMBER 12, 1997

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	08/18/97	Southwest Reporters, Inc.	U.S. EPA	Transcript of Proceedings: August 18, 1997 U.S. EPA Public Meeting re: the Tomah Armory Landfill and Tomah Municipal Sanitary Landfill Sites	102
2	09/04/97	Johnson, W., City of Tomah	Bill, B., U.S. EPA	Letter re: City of Tomah's Comments on the Proposed Plan for the Tomah Municipal Sanitary Landfill Site	2
3	09/04/97	Marshall, D., Union Camp Corporation	Bill, B., U.S. EPA	Letter re: Union Camp's Comments on the Proposed Plan for the Tomah Municipal Sanitary Landfill Site	31
4	09/05/97	Tomah Residents	U.S. EPA	Three Public Comment Sheets re: Citizens' Comments on the Proposed Plan for the Tomah Municipal Sanitary Landfill Site (PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED)	3

International Paper Company v. City of Tomah, United States v. International Paper  
Consent Decree for Operable Unit 2

## **APPENDIX B**

**RECORD OF DECISION**

**for the**

**TOMAH MUNICIPAL SANITARY LANDFILL  
GROUNDWATER OPERABLE UNIT  
OU-2**

**Tomah, Wisconsin**

Environmental Protection Agency  
Region 5  
Chicago, Illinois

{September 24, 2003}



**RECORD OF DECISION**

**for the**

**TOMAH MUNICIPAL SANITARY LANDFILL  
GROUNDWATER OPERABLE UNIT  
OU-2**

**Tomah, Wisconsin**

Environmental Protection Agency  
Region 5  
Chicago, Illinois

{September 2003}

## Table of Contents

<u>Section</u>	<u>Page</u>
<b>PART 1: THE DECLARATION</b>	<b>1</b>
1) <b>Site Name and Location</b>	<b>1</b>
1.2 <b>Statement of Basis and Purpose</b>	<b>1</b>
1.3 <b>Assessment of Site</b>	<b>1</b>
1.4 <b>Description of Selected Remedy</b>	<b>1</b>
1.5 <b>Statutory Determinations</b>	<b>2</b>
1.6 <b>ROD Data Certification Checklist</b>	<b>2</b>
1.7 <b>Authorizing Signature</b>	<b>3</b>
<b>PART 2: THE DECISION SUMMARY</b>	<b>4</b>
2.1 <b>Site Name, Location and Description</b>	<b>4</b>
2.2 <b>Site History and Enforcement Activities</b>	<b>4</b>
2.3 <b>Community Participation</b>	<b>6</b>
2.4 <b>Scope and Role of the Operable Unit or Response Action</b>	<b>6</b>
2.5 <b>Site Characteristics</b>	<b>6</b>
2.6 <b>Current and Potential Future Land and Resource Uses</b>	<b>10</b>
2.7 <b>Summary of Site Risks</b>	<b>10</b>
2.8 <b>Remedial Action Objectives</b>	<b>11</b>
2.9 <b>Description of Alternatives</b>	<b>12</b>
2.10 <b>Summary of Comparative Analysis of Remedy Alternatives</b>	<b>14</b>
2.11 <b>Principal Threat Wastes</b>	<b>15</b>
2.12 <b>Selected Remedy</b>	<b>15</b>

<b>2.13</b>	<b>Statutory Determinations</b>	<b>20</b>
<b>2.14</b>	<b>Documentation of Significant Changes</b>	<b>22</b>
	<b>PART 3: RESPONSIVENESS SUMMARY</b>	<b>23</b>
<b>3.1</b>	<b>Stakeholder Issues and EPA Responses</b>	<b>23</b>
<b>3.2</b>	<b>Technical and Legal Issues</b>	<b>23</b>

**List of Figures  
(Following Report)**

<b>Figure 2-1</b>	<b>Tomah Municipal Sanitary Landfill Site Map</b>
<b>Figure 2-2</b>	<b>Groundwater Operable Unit</b>
<b>Figure 2-3</b>	<b>Institutional Control Area</b>

**List of Tables  
(Following Report)**

<b>Table 2.1</b>	<b>Summary of Risk for Groundwater</b>
<b>Table 2.2</b>	<b>Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations</b>
<b>Table 2.3</b>	<b>Cancer and Non-Cancer Toxicity Data Summary - Ingestion Adult</b>
<b>Table 2.4</b>	<b>Cancer and Non-Cancer Toxicity Data Summary - Ingestion Child</b>
<b>Table 2.5</b>	<b>Cancer and Non-Cancer Toxicity Data Summary - Inhalation Adult</b>
<b>Table 2.6</b>	<b>Cancer and Non-Cancer Toxicity Data Summary - Inhalation Child</b>
<b>Table 2.7</b>	<b>Cancer and Non-Cancer Toxicity Data Summary - Dermal Adult</b>
<b>Table 2.8</b>	<b>Cancer and Non-Cancer Toxicity Data Summary - Dermal Child</b>
<b>Table 2.9</b>	<b>Summary of Detailed Analysis of Remedial Alternatives</b>
<b>Table 2.10</b>	<b>Cost Estimate - Alternative 2 Monitored Natural Attenuation</b>

- Table 2.11** Cost Estimate - Alternative 3 Oxygen Enhancement Using Oxygen Compound
- Table 2.12** Cost Estimate - Alternative 4 Oxygen Enhancement Using Biosparging
- Table 2.13** Cost Estimate - Alternative 5 Pump and Treat
- Table 2.14** Groundwater Cleanup Standards
- Table 2.15** Description of Applicable or Relevant and Appropriate Requirements

**Appendices**

**Appendix A - Responsiveness Summary**

**Appendix B - Administrative Record**

## **PART 1: THE DECLARATION**

**1.1 Site Name and Location** - Tomah Municipal Sanitary Landfill, Tomah, Monroe County, Wisconsin Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Identification Number WID980610307.

### **1.2 Statement of Basis and Purpose**

1.2.1 This decision document presents the United States Environmental Protection Agency's (U.S. EPA's) Selected Remedy for Groundwater Operable Unit 2 (OU-2) at the Tomah Municipal Sanitary Landfill, Tomah, Wisconsin, which 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 Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record for this action, an index for which is appended to this document as Appendix B.

1.2.2 The State of Wisconsin's concurrence with the selected remedy is anticipated. The concurrence letter will be added to the Administrative Record upon receipt.

**1.3 Assessment of Site** - The response action selected in this Record of Decision (ROD) is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment; and pollutants or contaminants from this site, which may present an imminent and substantial endangerment to the public health or welfare.

### **1.4 Description of Selected Remedy**

1.4.1 The major components of the selected remedial action for Groundwater Operable Unit 2 (OU-2) include monitored natural attenuation (MNA) with long-term monitoring and institutional controls.

1.4.2 Groundwater Operable Unit 2 (OU-2) is the second and last planned remedy for this site. The Source Control Operable Unit 1 (OU-1) was addressed in the September 1997 ROD, which included capping the 18-acre landfill, expanding the existing active gas collection system, and monitoring the effectiveness of the remedial action. The source control remedy has been effective in eliminating landfill gas migration and reducing volatile organic compound concentrations in groundwater.

1.4.3 There are no principal threat wastes for this operable unit. For an operable unit

comprising contaminated groundwater, there generally are no principal threat wastes unless non-aqueous phase liquids (NAPLs) have been identified within the boundaries of the operable unit. No NAPLs have been identified here.

## **1.5 Statutory Determinations**

- 1.5.1 The selected remedy attains the mandates of CERCLA Section 121 and to the extent practicable, the NCP. Specifically, the remedy is protective of human health and the environment, complies with federal and state applicable or relevant and appropriate requirements, and is cost effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.
- 1.5.2 This remedy does not satisfy the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element through treatment). However, MNA will break down hazardous substances and contaminants in the groundwater thereby reducing the toxicity and volume of contamination. This will achieve the same beneficial results that an engineered treatment system would accomplish.
- 1.5.3 Because this remedy will result in hazardous substances remaining on the site at levels preventing unlimited exposure and unrestricted use after the remedial action has taken place, the five-year review requirement set forth in section 121(c) of CERCLA, 42 U.S.C. § 9621(c), applies to the action.

## **1.6 ROD Data Certification Checklist** - The following information is in the *Decision Summary* section of this ROD. Additional information can be found in the Administrative Record file for this site.

- 1.6.1 Chemicals of concern (COCs) and their respective concentrations - Page 10
- 1.6.2 Baseline risk represented by the COCs - Page 10
- 1.6.3 Cleanup levels established for the COCs and the basis for these levels - Page 19
- 1.6.4 How source materials constituting principal threats are addressed - Page 15
- 1.6.5 Current and reasonable anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD - Page 10
- 1.6.6 Potential land and groundwater use that will be available at the site as a result of the

## **PART 2: THE DECISION SUMMARY**

### **2.1 Site Name, Location and Description**

- 2.1.1 The Tomah Municipal Sanitary Landfill (TMSL) is located north of the City of Tomah, Monroe County, Wisconsin (Figure 2-1). The landfill occupies approximately 18 acres within the 40-acre site (Figure 2-2). The site is bordered on the north by Deer Creek and its associated wetlands, on the east by Noth Avenue and agricultural property, on the south by the Sunnyvale Subdivision, and on the west by agricultural fields and wetlands.
- 2.1.2 The CERCLIS Identification Number is WID980610307.
- 2.1.3 The lead agency is the United States Environmental Protection Agency (U.S. EPA).

### **2.2 Site History and Enforcement Activities**

- 2.2.1 The City of Tomah ("City" or "Tomah") operated the TMSL as a disposal site from 1959 to 1979, disposing of municipal and industrial wastes on 18 acres located on the southern portion of the site. Wastes were placed in shallow (3 to 8 feet) unlined trenches, which were excavated in the sandy subsoils over the southern half of the site and covered with native soils.
- 2.2.2 In August 1975, the Wisconsin Department Natural Resources (WDNR) ordered the City to close the site because of potential degradation of local groundwater quality. The City closed the site in 1979, covered it with soil and topsoil, and planted grass and trees on the site.
- 2.2.3 In June 1981, Union Camp Corporation submitted a Notification of Hazardous Waste Activity for a facility in Tomah. The company reported that from 1960 to 1977, it had disposed of 75,700 gallons of solvent waste from plastics and printing operations at the TMSL. These wastes contained volatile organic compounds (VOCs) and heavy metals.
- 2.2.4 In December 1983, representatives of the WDNR conducted a Potential Hazardous Waste Site Preliminary Assessment for the TMSL. The WDNR assessment indicated that the landfill represented a potential hazard to groundwater and surface water, and that there could be other migration pathways.
- 2.2.5 In June 1984, the WDNR and the consulting firm Ecology and Environment, under authorization of the U.S. EPA, conducted a site inspection. A groundwater sample from a downgradient monitoring well contained organic contamination above the levels of health concern. Based on this and other findings, WDNR nominated the site for inclusion on U.S. EPA's National Priorities List (NPL) on April 3, 1985. The site was subsequently

## **2.3 Community Participation**

- 2.3.1 In June 1994, U.S. EPA hosted a “kick-off” public meeting at the Tomah City Hall Council Chambers. The purpose of the meeting was to inform local residents of the Superfund process and the work to be performed under the RI.
- 2.3.2 In 1993, U.S. EPA established an information repository at the Tomah Public Library, 716 Superior Avenue, Tomah, Wisconsin. U.S. EPA maintains a copy of the Administrative Record for the OU-1 and OU-2 remedy decisions in the information repository. The RI and FS for OU-1 were released to the public in July 1996 and April 1997, respectively. A Proposed Plan for OU-1 was made available on August 7, 1997. A public meeting was held on August 18, 1997, to discuss the RI/FS and Proposed Plan. The public generally supported the selected remedy. The OU-1 ROD was signed by the U.S. EPA on September 25, 1997.
- 2.3.3 The Proposed Plan for OU-2 was issued June 6, 2003. The public comment period for the Proposed Plan was initially set to run from June 10, 2003 to July 10, 2003, but was extended until July 24, 2003. A public meeting was held June 24, 2003.
- 2.3.4 The public participation requirements of section 113(k)(2)(B) and 117 of CERCLA, 42 U.S.C. §§ 9613 (k)(2)(B) and 9617, have been met in the remedy selection process. This decision document presents the selected remedy for OU-2, chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendment and Reauthorization Act (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The decision for this site is based on the Administrative Record.

## **2.4 Scope and Role of the Operable Unit or Response Action**

- 2.4.1 The 1997 ROD only addressed the source component at TMSL. The source control remedy has been effective in eliminating landfill gas migration and reducing the volume of volatile organic compound leaking into the groundwater.
- 2.4.2 This ROD addresses the off-site groundwater contamination. The concentration of contaminants in groundwater exceeds the U.S. EPA’s acceptable risk range. This final response action for groundwater addresses the principal remaining threat at the site through monitored natural attenuation (MNA) with long-term monitoring and institutional controls.

## **2.5 Site Characteristics**

- 2.5.1 *Conceptual Site Model:* The Conceptual Site Model (CSM) for the risk assessment and



may occur beneath Deer Creek.

The majority of the landfill appears to be unsaturated. However, investigations showed up to 2 feet of saturated waste at the base of the landfill in some areas. The total thickness of the waste is approximately 10 - 12 feet. Using the highest water levels measured at the site, U.S. EPA estimates that 19,000 out of the 300,000 cubic yards in the landfill may be saturated. However, seasonal fluctuations in the water table make it difficult to estimate the volume of saturated wastes with any reliability.

The City and the majority of the private well owners obtain their water supply from the Cambrian age sandstone aquifers. The City provides municipal water for all residential properties within the city limits. Residents living outside of the city limits obtain their water supply from private wells except for those persons living in the Sunnyvale Subdivision who are serviced by municipal water. The City has recently connected the subdivision northeast of Deer Creek on Flatter Avenue to municipal water. There remain seven private wells currently in use within one-half mile of the site. These are located northeast and east of the site. Well logs from the current property owners indicate that several of the wells are screened in the sandstone at depths of 50 to 80 feet.

2.5.2.4 *Ecology*: The TMSL site is zoned as conservancy. The areas to the north, east and west are classified as vacant or agricultural. Deer Creek flows northeast across the northwestern corner of the site. The WDNR has recently re-classified Deer Creek from a Class II to a Class I trout habitat. Adjacent woodlands, wetlands, and fields add to the diversity of wildlife habitat in the area. Wildlife species found at the site are typical of an urbanizing rural agriculture area or transients from adjacent habitats.

WDNR's Bureau of Endangered Resources reports no known occurrences of threatened, endangered, or special concern species; natural communities; or State Natural Areas that would be affected by remedial actions at the TMSL site. The U.S. Fish and Wildlife Service does report that two federally listed species occur in Monroe County (Karner Blue Butterfly and Northern Monkshood). However, the U.S. Fish and Wildlife Service concluded that due to the nature and locations of the proposed activities, the species identified would not be adversely affected.

2.5.2.5 *Groundwater Contamination*: The OU-1 quarterly groundwater monitoring program began in July 2000 to monitor the effectiveness of the OU-1 remedy. MNA parameter sampling was conducted over four quarterly sampling events beginning in November 2001 and a vertical aquifer sampling (VAS) study was conducted in the Fall of 2002. Seven hydrocarbon compounds have been detected in groundwater samples above their respective Wisconsin Enforcement Standard

(WES). These compounds include 1,1-dichloroethene, 1,2-dichloroethane, 1,2-dichloropropane, cis-1,2-dichloroethene, tetrachloroethene, vinyl chloride, and benzene. Vinyl chloride and benzene were the most frequently detected VOCs, but the benzene detected has not been as wide spread as vinyl chloride.

Based on the results of the long-term monitoring program, MNA parameter sampling, and the VAS study, the horizontal extent of VOCs extends from the landfill approximately 1,600 feet toward the northeast and encompasses an area of approximately 40 acres of unoccupied woodlands and wetlands. The plume extends vertically to depths near 140 feet below ground surface (bgs). There has been no observed change in the horizontal extent of the VOC plume since monitoring began in July 2000. The groundwater results are described under the framework of three horizons (A, B, and C).

Monitoring wells in the A-horizon represent the upper 10 to 30 feet bgs of the aquifer. The highest concentration of vinyl chloride was 180 ug/l and it was at the center of the plume. The extent of vinyl chloride is relatively small with the majority of "A" well samples exhibiting low to non-detectable levels of vinyl chloride.

Monitoring wells in the B-horizon represent the 30 to 40 feet bgs interval of the aquifer. The highest concentration of vinyl chloride was 630 ug/l and it was at the center of the plume. Only one off-site monitoring location has benzene above the WES at a concentration of 12 ug/l and it is at the front edge of the plume. The extent of VOCs is greater in the B-horizon than in the A-horizon.

The C-horizon represents the portion of the aquifer from 55 to 65 feet bgs. The extent of vinyl chloride in the C-horizon is comparable to the B-horizon. The highest concentration of vinyl chloride was 680 ug/l and it was at the center of the plume. The highest concentration of benzene is 61 ug/l and it is also at the center of the plume.

The impact of inorganic compounds to groundwater is primarily confined to on-site monitoring wells, with only one off-site well having concentrations above background levels. The one notable exception is chloride. Chloride plumes are commonly associated with landfills and they indicate that contaminants are degrading naturally.

The only metals detected above the Maximum Contaminant Level (MCL) and WES since July 2000 are arsenic, iron, manganese, and thallium. Iron and manganese were the most commonly detected inorganics. The elevated levels of these compounds have also been detected in background wells above their WES. One off-site well, which is less than 400 feet from the site boundary has elevated

levels of iron and manganese.

## **2.6 Current and Potential Future Land and Resource Uses.**

2.6.1 Currently, the TMSL site is zoned conservancy. The areas to the north, east, and west are classified as agricultural. The agricultural land located to the east is currently not used, but the land to the west of the landfill is used as pasture. Residential developments are located to the south of the landfill and east of Deer Creek. It is anticipated that the current land uses will continue into the future.

2.6.2 The City and the majority of the private well owners obtain their water supply from the Cambrian age sandstone aquifers. The City provides municipal water for all residential properties within the city limits. The City also provides municipal water to the Sunnysdale development, which is outside the city limits. The City obtains groundwater from high capacity wells located 1.2 to 3 miles from the site and the production zone for the wells is within the sandstone aquifer at depths greater than 100 feet. The City has recently connected Flatter Avenue residents to the City's municipal water supply system and their private wells will be abandoned in the near future. Approximately seven private wells are currently used within one-half mile of the site.

2.7 **Summary of Site Risks** U.S. EPA used data collected during the RI to assess human health and ecological risks. The Risk Assessment Report was completed in 1996. This assessment compared contamination levels at the site with U.S. EPA's standards. In addition, further assessment of conditions at the site compared contamination levels with Wisconsin Administrative Code Chapter NR 140 (1996), Groundwater Standards. The assessment considered ways in which people and wildlife could be exposed to site-related contaminants and whether such exposure could increase the incidence of cancer and non-carcinogenic diseases above the levels that normally occur in the study area.

2.7.1 *Summary of Human Health Risk Assessment:* The Risk Assessment assessed the human health risk from exposure to groundwater by current and future residential receptors if no action were taken. The risk is primarily due to the presence of vinyl chloride in the groundwater. Table 2.1 summarizes the risk associated with groundwater use.

2.7.1.1 *Identification of Chemicals of Concern (COCs):* Table 2.2 provides the list of COCs for groundwater. The list of COCs includes VOCs and metals.

2.7.1.2 *Exposure Assessment:* Exposure pathways include ingestion, dermal contact, and inhalation. Total metals results were used in the assessment and the maximum detected concentrations were used as the groundwater exposure point concentration. See Tables 2.3 through 2.8.

2.7.1.3 *Uncertainty*: Uncertainties associated with this risk assessment are due to uncertainties in the risk assessment process in general (i.e., the toxicological database), specific uncertainties in characterizing the site, and uncertainties associated with describing exposures. This risk assessment is subject to uncertainty associated with such sources as sampling and analysis, exposure estimation, and toxicological data. Site-specific uncertainties for the TMSL site include current and future land uses, exposure pathways, selection of substances (effect of not including chemicals in the quantitative risk estimate because of missing toxicological information or elimination due to low concentration or frequency of detection).

2.7.2 *Ecological Risk Assessment*: An ecological risk assessment was conducted to qualitatively and quantitatively evaluate the effects of site-related contamination on terrestrial and aquatic organisms. Groundwater was not addressed as a separate risk factor in the ecological risk assessment because shallow groundwater discharges to Deer Creek and its associated wetlands. Exposure to COCs in groundwater would occur through the surface water pathway, not directly from groundwater. Terrestrial organisms associated with the site were not considered at risk, based on benchmark values taken from technical literature. Exposure and risk to aquatic organisms was evaluated by directly comparing surface water and sediment exposure dose to National Ambient Water Quality Criteria, state standards, and benchmark values taken from technical literature. Based on this analysis, cobalt and manganese in surface water were the only metals found that would potentially pose a risk to aquatic organisms. Actual damage to the aquatic and terrestrial ecosystem of Deer Creek and the adjacent wetlands were not observed. However, there is a possibility that future impacts could occur from the discharges of contaminated groundwater into the surface water system. Therefore, based on this analysis, ecological effects from TMSL contaminants are considered insignificant.

2.8 **Remedial Action Objectives** The Remedial Action Objectives (RAOs) for OU-2 are:

- 1) Protect human health and the environment from exposure to contaminated groundwater;
- 2) Protect existing and future residential water supplies from potential migration of VOC impacted groundwater; and
- 3) Reduce contaminant concentrations in groundwater to meet state groundwater standards within the aquifer in a reasonable time frame.

These RAOs were selected in order to establish acceptable exposure levels that are protective of human health and the environment.

**2.9 Description of Alternatives** The alternatives for this remedial action are assembled from screened technologies. The FS presented the following five alternatives.

Alternative 1 - No Action

Alternative 2 - Monitored Natural Attenuation

Alternative 3 - Oxygen Enhancement Using Oxygen Compound

Alternative 4 - Oxygen Enhancement Using Biosparging

Alternative 5 - Groundwater Pump and Treat

*Description of Remedy Components:* Groundwater monitoring and deed restrictions will be used in conjunction with all of the alternatives except Alternative 1.

*Alternative 1 - No Further Action*, entails continued operation of the OU-1 source control remedy with no further site action regarding groundwater monitoring or remediation. Site risk may be reduced through natural attenuation processes. However, the effectiveness would not be evaluated. This alternative is developed to act as a baseline to compare against all other alternatives. It will not meet the groundwater remedial action objectives.

No capital or Operation and Maintenance (O&M) costs would be incurred since no treatment technologies would be implemented:

Estimated Capital Cost: \$ 0

Estimated Annual O&M Costs: \$0

Estimated Total Present Worth: \$0

*Alternative 2 - Monitored Natural Attenuation (MNA)*, relies on natural processes (i.e., biodegradation, dispersion, dilution, sorption, volatilization, transformation or destruction) to achieve the remediation objectives. VOCs and natural attenuation parameters would be analyzed and evaluated through monitoring. The purpose of the long-term groundwater monitoring program will be to determine the effectiveness and protectiveness of MNA. To be considered adequately effective, it will be necessary for the data to demonstrate that the MNA remedy is performing to reduce contaminant concentrations, that the plume is shrinking, and that standards will be achieved in a reasonable period of time. If expansion occurs, then contingency actions would be initiated to control and prevent additional plume expansion. The predicted cleanup time frame is 40 to 50 years.

The total present worth of this alternative includes the capital costs and 50 years of O&M at a discount rate of eight percent.

Estimated Capital Cost: \$165,000  
Estimated Annual O&M Costs (Year 1-2): \$188,000  
Estimated Annual O&M Costs (Year 3-5): \$117,000  
Estimated Annual O&M Costs (Year 6-50): \$219,000  
Estimated Total Present Worth: \$689,000

*Alternative 3 - Oxygen Enhancement Using Oxygen Compound*, involves creating an in-situ treatment zone across the leading edge of the plume and it incorporates the MNA alternative. In the treatment zone, a slow release oxygen compound is injected into the groundwater to enhance aerobic degradation of the VOCs. Approximately 50 to 55 permanent injection points would be installed. This alternative will prevent further migration. The predicted cleanup time frame is 40 to 50 years.

The total present worth of this alternative includes the capital costs and 50 years of O&M at a discount rate of eight percent.

Estimated Capital Cost: \$581,914  
Estimated Annual O&M Costs (Year 1-2): \$631,000  
Estimated Annual O&M Costs (Year 3-6): \$870,000  
Estimated Annual O&M Costs (Year 7-50): \$182,000  
Estimated Total Present Worth: \$2,265,000

*Alternative 4 - Oxygen Enhancement Using Biosparging*, also involves creating an in-situ treatment zone across the leading edge of the plume to prevent further plume expansion and it incorporates MNA. In the treatment zone, air is injected into the groundwater at low flow rates to enhance aerobic degradation of the VOCs. Approximately 40 permanent injection points would be installed and the injections would occur over a period of six years. The predicted cleanup time frame is 40 to 50 years.

The total present worth of this alternative includes the capital costs and 50 years of O&M at a discount rate of eight percent.

Estimated Capital Cost: \$894,758  
Estimated Annual O&M Costs (Year 1-2): \$303,000  
Estimated Annual O&M Costs (Year 3-6): \$347,000  
Estimated Annual O&M Costs (Year 7-50): \$182,000  
Estimated Total Present Worth: \$1,727,000

*Alternative 5 - Groundwater Pump and Treat*, involves the installation of a groundwater extraction and treatment system. Two to three extraction wells would be installed. These wells would provide hydraulic containment of impacted groundwater and remove VOCs. Extracted water would be routed to a treatment building located in the vicinity of the pumping wells for treatment prior to surface water discharge to Deer Creek. The

predicted cleanup time frame is 40 years.

The total present worth of this alternative includes the capital costs and 40 years of O&M at a discount rate of eight percent.

Estimated Capital Cost: \$895,755

Estimated Annual O&M Costs (Year 1-2): \$281,000

Estimated Annual O&M Costs (Year 3-6): \$449,000

Estimated Annual O&M Costs (Year 7-40): \$1,190,000

Estimated Total Present Worth: \$2,816,000

**2.10 Summary of Comparative Analysis of Remedy Alternatives** In accordance with the NCP, the alternatives were evaluated by the US. EPA using nine criteria. For an alternative to be an acceptable remedy it must pass the U.S. EPA's two threshold criteria: 1) Overall Protective of Human Health and the Environment and 2) Compliance with Applicable and Relevant and Appropriate Requirements (ARARs). See Table 2.9 for the Summary of Detailed Analysis of Remedial Alternatives.

2.10.1 *Overall Protection of Human Health and the Environment* - With the exception of Alternative 1, all of the alternatives would provide adequate protection of human health and the environment.

2.10.2 *Compliance with ARARs* - With the exception of Alternative 1, all of the alternatives would be compliant with ARARs. A more detailed discussion of the ARARs for each alternative can be found in Section 3.0 of the FS. The ARARs for Alternative 2 are summarized in Table 2.15.

2.10.3 *Long-Term Effectiveness* - With the exception of Alternative 1, all of the alternatives would provide long-term effectiveness by reducing groundwater concentrations to the PALs.

2.10.4 *Reduction of Toxicity, Mobility or Volume through Treatment* - With the exception of Alternatives 1 and 2, all of the other alternatives provide a reduction of toxicity, mobility, or volume of the groundwater contaminants through treatment. Alternatives 1 and 2 provide a reduction of toxicity, mobility, or volume of the groundwater contaminants through natural processes.

2.10.5 *Short-Term Effectiveness* - None of the alternatives are considered as short-term remedies. Alternatives 2, 3, 4, and 5 are estimated to continue for 40 to 50 years. Risks to the community would not increase due to implementation of any of the alternatives. Alternative 2 would result in minimal impact to residential properties. Alternatives 3, 4, and 5 would result in significant impact to residential properties and cause potential

access issues. In addition, implementation of Alternatives 3, 4, and 5 may result in adverse effects to the surrounding wetlands. Risks to workers for Alternative 2 would be less than for Alternatives 3, 4, and 5. Alternative 2 requires as few as 15 monitoring wells; Alternatives 3 and 4 require over 40 injection points; and for Alternative 5, three extraction wells and piping to the treatment plant would be required. Alternative 5 would also require maintenance for a significantly longer period of time.

- 2.10.6 *Implementability* - Alternative 1 requires no implementation. Alternative 2 could be readily implemented. Alternatives 3, 4, and 5 would be more difficult to implement. Alternatives 3, 4, and 5 would require significant clearing of residential properties to install extraction wells, to install injection points, and to construct buildings.
- 2.10.7 *Cost* - Alternative 1 requires no additional cost to implement. Of the remaining alternatives, Alternative 2 would be the least expensive alternative to implement. Due to the high capital costs and long term O & M associated with Alternatives 3, 4, and 5 the cost to implement these technologies would be approximately three to four times the cost of Alternative 2. The detailed cost estimates can be found in Tables 2.10 through 2.13.<sup>1</sup>
- 2.10.8 *State Acceptance* - The State of Wisconsin's concurrence with the U.S. EPA's analysis and recommendation presented in the Proposed Plan is anticipated. The concurrence letter will be added to the Administrative Record upon receipt.
- 2.10.9 *Community Acceptance* - U.S. EPA received oral and written comments regarding the Proposed Plan. Community reaction to the Proposed Plan was mixed. See Section 3.0 and Appendix A - Responsiveness Summary for more details.
- 2.11 Principal Threat Wastes** The "principal threat" concept is applied to the characterization of source material at a Superfund site. OU-2 applies only to the contaminated groundwater. Contaminated groundwater generally is not considered to be a source material, but non-aqueous phase liquid (NAPLs) may be viewed as source material. However, there are no source areas or NAPLs at OU-2 and as a result principal threat waste was not considered.
- 2.12 Selected Remedy** U.S. EPA is selecting Alternative 2- MNA with institutional controls and contingency actions.

2.12.1 *Summary of Rationale for the Selected Remedy:* U.S. EPA believes Alternative 2 meets

---

<sup>1</sup> The estimates are different from those in the Proposed Plan, but overall the differences do not amount to a significant change.



the threshold criteria and provides the best balance of tradeoff among the alternatives. U.S. EPA believes the selected remedy satisfies the following statutory requirements of CERCLA Section 121(b): (1) to be protective of human health and the environment; (2) to comply with ARARs; (3) to have long-term effectiveness and permanence; (4) to have short-term effectiveness; (5) to be implementable; and (6) to be cost effective.

U.S. EPA's conclusion that the TMSL site is a good candidate for monitored natural attenuation is supported by the Agency's guidance in this area, specifically: "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites" (OSWER Directive 9200.4-17P), a U.S. EPA guidance document issued on April 21, 1999. The guidance sets forth a number of factors to consider in determining whether natural attenuation is appropriate for a given site:

*Whether the contaminants present in soil or groundwater can be effectively remediated by natural attenuation processes.*

U.S. EPA believes that natural attenuation is occurring in groundwater because of the following indicators: (1) the absence of most of the other VOCs from the landfill, (2) the presence of natural break down products of VOCs, such as vinyl chloride, and (3) the presence of carbon dioxide and chloride, indicating the break down of vinyl chloride.

*Whether or not the contaminant plume is stable and the potential for the environmental conditions that influence plume stability to change over time.*

The plume has not changed since the long-term monitoring program began in July 2000. The OU-1 source control measures have been effective in reducing the amount of contamination migrating into the groundwater. U.S. EPA does not foresee any likely change in the environmental conditions that would alter this situation.

*Whether human health, drinking water supplies, other groundwaters, surface waters, ecosystems, sediments, air, or other environmental resources could be adversely impacted as a consequence of selecting MNA as the remedial option.*

U.S. EPA sees little possibility of an adverse impact on human health or drinking water supplies. Residents living south of the landfill and northeast of Deer Creek are connected to municipal water. Restrictive covenants to prohibit the installation of private wells are currently in-place on several properties adjacent to the landfill and similar restrictions will be placed on properties in the immediate area of the plume as part of the remedy. In the event of an unexpected, negative change in groundwater quality, U.S. EPA would have ample time to address it before contamination reached any potential receptors. Nor does U.S. EPA foresee an adverse impact on other groundwaters, surface waters,

ecosystems, sediments, air or other environmental resources as a result of choosing MNA. To date, U.S. EPA has not seen any impact of groundwater contamination at TMSL on surface waters, ecosystems, sediments, or other environmental resources. U.S. EPA sees no reason why this should change during the time natural attenuation continues to improve groundwater quality.

*Current and projected demand for the affected resource over the time period that the remedy will remain in effect.*

U.S. EPA is unaware of any demand for the groundwater within the 40-acre boundaries of TMSL and does not expect any change in demand over the time period that the remedy will remain in effect. The potential for future development in the plume area is unlikely because of the poor soil conditions, wetlands, accessibility issues, and current zoning ordinances.

*Whether the contamination, either by itself or as an accumulation with other nearby sources (on-site or off-site), will exert a long-term detrimental impact on available water supplies or other environmental resources.*

U.S. EPA sees little possibility of this. Currently, no private wells are used in the affected areas and homes adjacent to the landfill are on municipal water. U.S. EPA therefore expects no long-term detrimental impact on available water supplies or other environmental resources.

*Whether the estimated time frame of remediation is reasonable compared to time frames required for other more active methods.*

MNA will be used to break down hazardous substances and contaminants in the groundwater thereby reducing the toxicity and volume of contamination. This will achieve the same beneficial results that an engineered treatment system would accomplish and in about the same time frame.

*The nature and distribution of sources of contamination and whether these sources have been or can be adequately controlled.*

The Source Control OU-1 remedy included capping the landfill, expanding the existing active gas collection system, and monitoring the effectiveness of the remedial action. The construction was completed in 2001. Based on data collected from gas probes and groundwater analytical data, the source control measures have been effective in eliminating landfill gas migration and reducing the volume of VOCs in groundwater. The groundwater data also shows that the relative dimensions of the plume have remained unchanged.

*Whether the resulting transformation products present a greater risk due to increased toxicity and/or mobility than do the parent contaminants.*

Vinyl chloride and benzene were the most frequently detected VOCs, but the benzene detected has not been as widespread as vinyl chloride. Vinyl chloride is indeed more toxic than any of the other VOC compounds, but the presence of carbon dioxide and chloride indicate that vinyl chloride is breaking down.

*The impact of existing and proposed active remediation measures upon the monitored natural attenuation component of the remedy or the impact of remediation measures or other operations/activities in close proximity to the site.*

The sole active component of the OU-1 remedy is the gas collection system. The system operates to remove VOCs from the unsaturated zone by extracting and venting landfill gases. U.S. EPA sees no negative effects on natural attenuation. U.S. EPA knows of no other operations/activities in close proximity to the site that might have an impact on natural attenuation.

*Whether reliable site-specific mechanisms for implementing institutional controls (i.e., zoning ordinances) are available, and if an institution responsible for their monitoring and enforcement can be identified.*

The types of institutional controls that have been and can be imposed include governmental controls, proprietary controls, and information devices:

Governmental controls have included eliminating private well use on property that has been connected to the City of Tomah's municipal water supply system. The City of Tomah, with assistance from the Township of LaGrange, intends to develop zoning restrictions or other ordinance measures that would limit or restrict the use of private residential wells in the affected areas.

Proprietary controls in the form of restrictive covenants are currently in place on the northern portion of the landfill property and two privately owned properties in the plume areas. The restrictions prohibit the installation of private wells. The City monitors and enforces these land use restrictions.

Information devices are currently in place insofar as the State of Wisconsin requires a variance for Wisconsin's well construction standards for the installation of private wells within a 1200 foot buffer zone around the TMSL. Under this requirement, a licensed Wisconsin well driller must determine if a new well installation is within the 1200 foot buffer zone. If the proposed area is within this zone, then the well driller would require

special approval from the WDNR to install a well in this area.

2.12.2 *Description of the Selected Remedy:* Groundwater would be monitored for VOCs, metals, and MNA indicator parameters. Newly installed and existing wells will be monitored. The groundwater parameters specified in the revised monitoring program approved by U.S. EPA and WDNR (July 2, 2001) will continue to be monitored. The purpose of the groundwater monitoring program will be to determine the effectiveness and protectiveness of MNA. To be considered adequately effective, it will be necessary for the data to demonstrate that the MNA remedy is performing to reduce contaminant concentrations, that the plume is shrinking, and that drinking water standards will be achieved in a reasonable period of time, projected to be 40 to 50 years. The time frame for evaluation of data to demonstrate the efficacy of MNA will be established in the remedial design. MNA as the OU-2 remedy would require contingency actions should an evaluation of the data demonstrate that MNA is not performing adequately.

Possible contingency actions could include:

- Collecting groundwater samples more frequently;
- Installing additional monitoring wells; and
- Implementing additional response actions, such as, a groundwater containment or treatment system.

The final cleanup levels are outlined in Table 2.14. These levels are based on the Wisconsin Preventive Action Limits (PALs) Ch. NR 140. The final list of contaminants is based on COCs identified in the risk assessment and data collected from the long-term monitoring program. Tetrachloroethene was not identified in the risk assessment, but it has been detected during the long-term monitoring and VAS study at levels above the Wisconsin PALs.

Deer Creek will also be monitored for VOCs and metals to determine if there is any impact from groundwater discharge. Future monitoring of environmental media (including surface water and groundwater from existing and new monitoring wells) and data evaluation will address potential impact on Deer Creek and the nearby wetlands and attainment of Water Quality Standards.

Institutional controls will be implemented to minimize future human exposure to impacted groundwater. The types of institutional controls that have been and can be imposed include governmental controls, proprietary controls, and information devices. The institutional control area is outlined in Figure 2-3.

At a minimum, institutional controls in the form of restrictive covenants will be implemented to minimize future human exposure to impacted groundwater. Restrictive covenants prohibiting groundwater from being used as a drinking water source and

prohibiting the installation of new wells will be recorded on deeds for property overlying the plume of contamination. Property owners could petition to have the restrictions removed once the groundwater meets Wisconsin standards. Other institutional controls such as zoning restrictions, easements giving regulators the right to enforce property restrictions, etc. will be considered during the Remedial Design process.

2.12.3 *Cost Estimate for the Selected Remedy:* The cost estimate for MNA was developed in the 2003 FS and is shown below. The total present worth of this potential alternative, including capital cost and assuming 50 years of O&M at a discount rate of eight percent is estimated at \$689,000. A detailed break down of the cost can be found in Table 2.10.

2.12.4 *Estimated Outcomes of the Selected Remedy:* The estimated outcome of the selected remedy is to restore groundwater to drinking water standards in approximately 40 to 50 years.

The selected remedy will prevent people from drinking the contaminated groundwater until the cleanup levels are attained. The monitoring and contingency actions will also ensure that contaminant concentrations in the groundwater are decreasing and that the groundwater contamination does not expand significantly. The monitoring will also ensure that any increases in the levels of contaminants are not adversely affecting Deer Creek as the groundwater flows into the creek.

**2.13 Statutory Determinations** Under CERCLA 121 and the National Contingency Plan, 40 CFR Part 300, U.S. EPA must select remedies that: protect human health and the environment; comply with applicable or relevant and appropriate requirements, unless a statutory waiver is justified; are cost-effective; and utilize permanent solutions and alternatives treatment technologies or resources recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes as a principal element. CERCLA also has a bias against off-site disposal of untreated wastes. This section discusses how the selected remedy meets these statutory requirements.

2.13.1 *Protection of Human Health and the Environment:* U.S. EPA believes that the selected remedy will protect human health and the environment through natural attenuation processes, institutional controls, monitoring, and if necessary, contingency actions.

The monitoring and contingency actions will ensure that contaminant concentrations in the groundwater are decreasing and that the groundwater contamination does not expand significantly. The monitoring will also ensure that any increases in the levels of contaminants are not adversely affecting Deer Creek as the groundwater flows into the creek.

- 2.13.2 *Compliance with Applicable and Relevant and Appropriate Requirements (ARARs):* U.S. EPA believes that the selected remedy will comply with ARARs. The ARARs are presented in more detail in Table 2.15.
- 2.13.3 *Other Criteria, Advisories, or Guidance To Be Considered (TBCs) for this Remedial Action:* In implementing remedies, U.S. EPA and the state often consider a number of non-binding criteria as criteria “to be considered” (TBCs). There were no TBCs at this site.
- 2.13.4 *Cost-Effectiveness:* In U.S. EPA’s judgement, the selected remedy is cost-effective. Section 300.401(f)(1)(ii)(D) of the National Contingency Plan (NCP) requires U.S. EPA to determine cost-effectiveness by evaluating the cost of an alternative relative to its overall effectiveness. Alternative 2 would be the least expensive alternative to implement. Alternatives 3, 4, and 5 are more costly to implement, three to four times the cost of Alternative 2.
- 2.13.5 *Utilization of Permanent Solutions and Alternative Treatment Technologies (or Resource Recovery Technologies) to the Maximum Extent Practicable:* U.S. EPA believes that the selected remedy utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In this case, alternative treatment technologies were not practicable in that they were much more expensive than monitored natural attenuation, but they could not restore groundwater any faster.
- 2.13.6 *Preference for Treatment as a Principal Element:* The selected remedy will not satisfy the preference for remedial actions in which treatment permanently and significantly reduces the volume, toxicity, or mobility of hazardous substances, pollutants, and contaminants is a principal element since U.S. EPA does not consider natural attenuation to be “treatment.” Nevertheless, MNA does break down hazardous substances and contaminants in the groundwater thereby reducing the toxicity and volume of contamination. This will achieve the same beneficial results that an engineered treatment system would accomplish in about the same time frame.
- 2.13.7 *Five-Year Review Requirements:* This remedy will result in hazardous substances remaining in the groundwater above levels that allow for unlimited use and unrestricted exposure. Therefore, U.S. EPA will conduct a review within five years after the initiation of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.
- 2.13.7 *Construction Completion Listing:* U.S. EPA’s selected remedy at this site does not require physical construction. Therefore, this site now qualifies for inclusion on the construction completion list.

**2.14 Documentation of Significant Changes** The Proposed Plan for TMSL was issued for public comment on June 6, 2003. The Proposed Plan identified Alternative 2- MNA with institutional controls and contingency actions, as the preferred alternative for groundwater remediation. U.S. EPA reviewed all written and verbal comments submitted during the public comment period. It was determined that no significant changes to the remedy, as originally identified in the Proposed Plan, were necessary or appropriate.

## **PART 3: RESPONSIVENESS SUMMARY**

- 3.1 Stakeholder Issues and EPA Responses** The United States Environmental Protection Agency (U.S. EPA) received eleven written comments during the comment period and two verbal comments during the public meeting. The comments and U.S. EPA's responses are included in the Responsiveness Summary as Appendix A of this document. The City of Tomah and many of the citizens agreed with our selected remedy. Others expressed a preference for a more active treatment such as Alternatives 3, 4, or 5 because they felt these remedies would contain the contamination and reduce the threat to Deer Creek.
- 3.2 Technical and Legal Issues** There are no technical or legal issues.

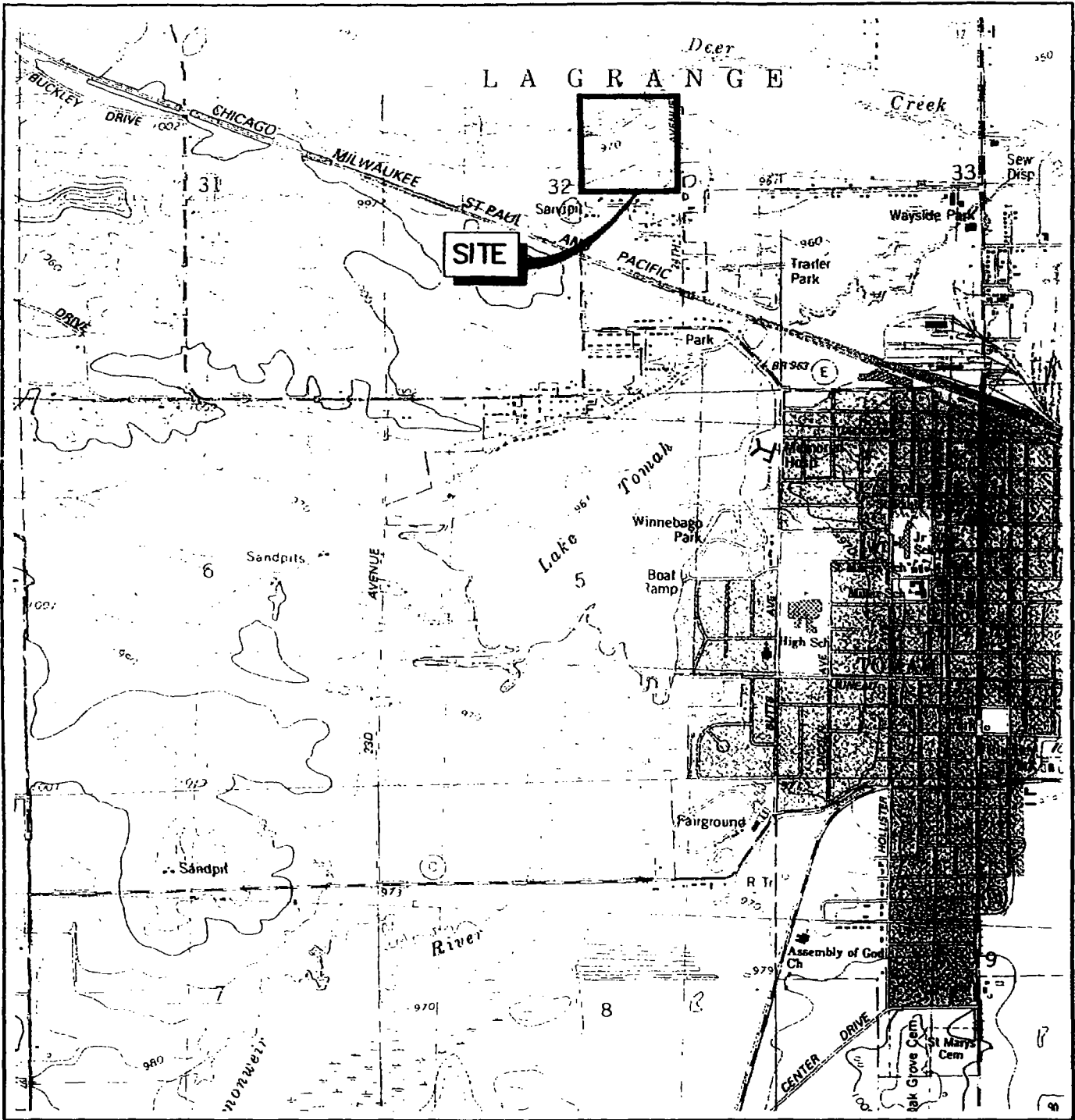


## **List of Figures**

**Figure 2-1 Tomah Municipal Sanitary Landfill Site Map**

**Figure 2-2 Groundwater Operable Unit**

**Figure 2-3 Institutional Control Area**



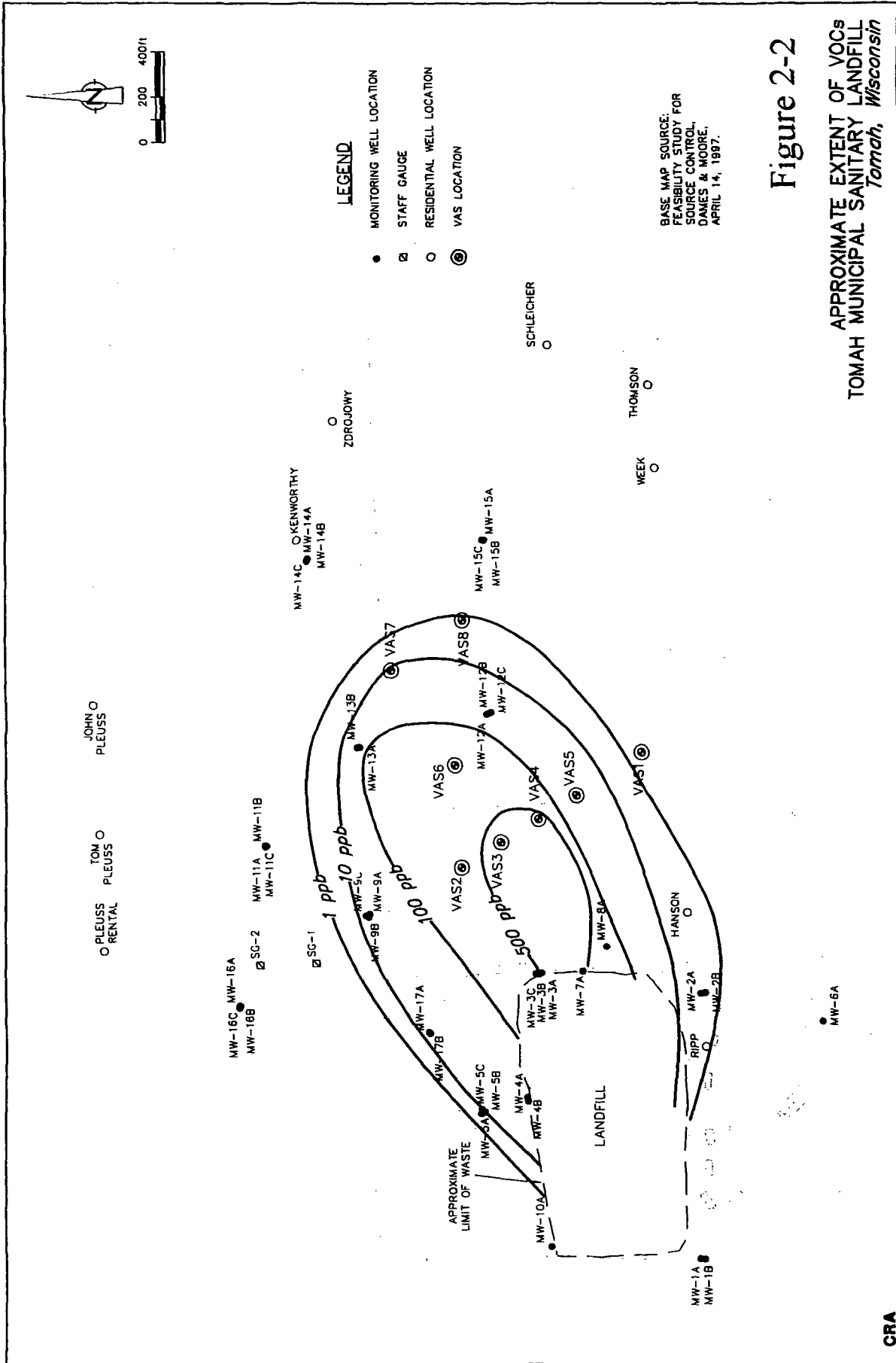
SOURCE: USGS TOPOGRAPHIC MAP  
TOMAH, WIS. QUADRANGLE



Figure 2-1

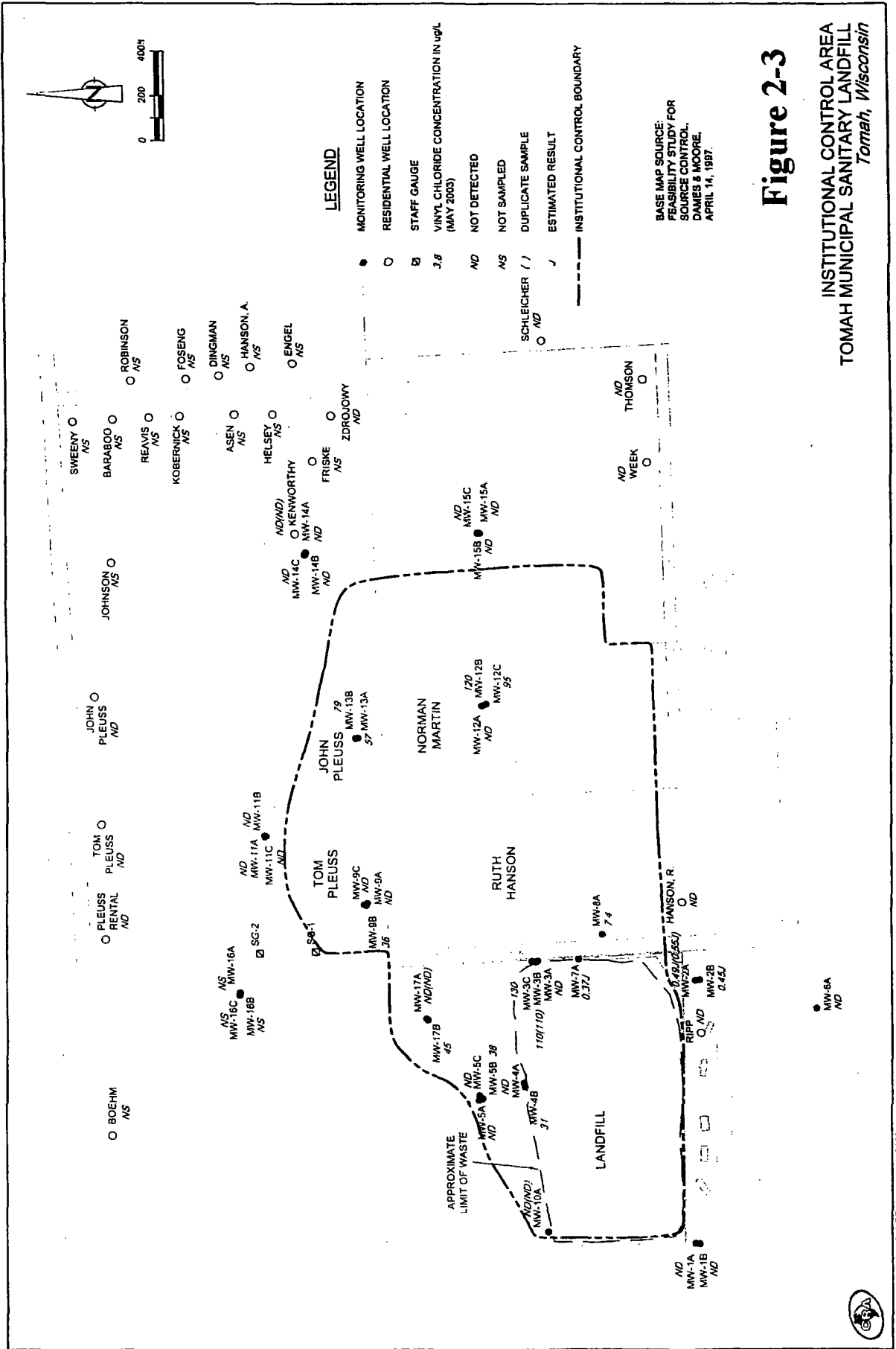
**SITE LOCATION**  
TOMAH MUNICIPAL SANITARY LANDFILL  
*Tomah, Wisconsin*





CRA

12865-80(PRES005)GN-SP001 APR 22/2003



## **List of Tables**

<b>Table 2.1</b>	<b>Summary of Risk for Groundwater</b>
<b>Table 2.2</b>	<b>Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations</b>
<b>Table 2.3</b>	<b>Cancer and Non-Cancer Toxicity Data Summary - Ingestion Adult</b>
<b>Table 2.4</b>	<b>Cancer and Non-Cancer Toxicity Data Summary - Ingestion Child</b>
<b>Table 2.5</b>	<b>Cancer and Non-Cancer Toxicity Data Summary - Inhalation Adult</b>
<b>Table 2.6</b>	<b>Cancer and Non-Cancer Toxicity Data Summary - Inhalation Child</b>
<b>Table 2.7</b>	<b>Cancer and Non-Cancer Toxicity Data Summary - Dermal Adult</b>
<b>Table 2.8</b>	<b>Cancer and Non-Cancer Toxicity Data Summary - Dermal Child</b>
<b>Table 2.9</b>	<b>Summary of Detailed Analysis of Remedial Alternatives</b>
<b>Table 2.10</b>	<b>Cost Estimate - Alternative 2 Monitored Natural Attenuation</b>
<b>Table 2.11</b>	<b>Cost Estimate - Alternative 3 Oxygen Enhancement Using Oxygen Compound</b>
<b>Table 2.12</b>	<b>Cost Estimate - Alternative 4 Oxygen Enhancement Using Biosparging</b>
<b>Table 2.13</b>	<b>Cost Estimate - Alternative 5 Pump and Treat</b>
<b>Table 2.14</b>	<b>Groundwater Cleanup Standards</b>
<b>Table 2.15</b>	<b>Description of Applicable or Relevant and Appropriate Requirements</b>

**Table 2.1**  
**Summary of Risk for Groundwater**

<b>Receptor</b>	<b>Cancer Risk</b>	<b>Hazard Risk</b>
Adult	$3 \times 10^{-2}$	139
Child	$1 \times 10^{-2}$	325

**Table 2.2**  
**Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations**

Chemical of Concern	Minimum Detected	Maximum Detected	Units	Frequency of Detection %	Exposure Point Concentration	Exposure Point Concentration Units
1,2-Dichloroethane	3.00	4.00	ug/l	25	4.00	ug/l
1,2-Dichloropropane	5.00	16.0	-	25	16.0	-
Benzene	5.00	48.0	-	62.5	48.0	-
Styrene	3.00	3.00	-	12.5	3.00	-
1,2-Dichloroethene. Total	0.50	200	-	62.5	200	-
Vinyl Chloride	3.00	1200	-	100	1200	-
Arsenic	3.70	112	-	87.5	112	-
Cadmium	7.70	11.5	-	25	11.5	-
Chromium	2.0	320	-	87.5	320	-
Manganese	811	19000	-	100	19000	-
Thallium	3.1	20.7	-	62.5	20.7	-
Vanadium	1	233	-	100	233	-

**Table 2.3  
Cancer and Non-Cancer Toxicity Data Summary**

Land Use: Residential  
Exposure Route: Ingestion  
Receptor: Residential Adult

Chemical of Concern	Cancer Risk	Non-Cancer Hazard Index	Oral Slope Factor (mg/kg/day)	Oral RfD (mg/kg/day)
1,2-Dichloroethane	4.3E-06	-	0.091	-
1,2-Dichloropropane	1.3E-05	-	0.068	-
Benzene	1.6E-05	-	0.029	-
Styrene	8.7E-05	0.00041	2.47	0.2
1,2-Dichloroethene. Total	-	0.60883	-	0.009
Vinyl Chloride	2.7E-02	-	1.9	-
Arsenic	2.0E-03	10.22831	1.5	0.0003
Cadmium	-	0.63014	-	0.0005
Chromium	-	1.75342	-	0.005
Manganese	-	104.10959	-	0.005
Thallium	-	7.08904	-	0.00008
Vanadium	-	0.91194	-	0.007



**Table 2.4  
Cancer and Non-Cancer Toxicity Data Summary**

Land Use: Residential  
Exposure Route: Ingestion  
Receptor: Residential Child

Chemical of Concern	Cancer Risk	Non-Cancer Hazard Index	Oral Slope Factor (mg/kg/day)	Oral RfD (mg/kg/day)
1,2-Dichloroethane	2.0E-06	-	0.091	-
1,2-Dichloropropane	6.0E-06	-	0.68	-
Benzene	7.6E-06	-	0.029	-
Styrene	4.1E-05	-	2.47	0.2
1,2-Dichloroethene. Total	-	1.42060	-	0.009
Vinyl Chloride	1.2E-02	-	1.9	-
Arsenic	9.2E-04	23.86606	1.5	0.0003
Cadmium	-	1.47032	-	0.0005
Chromium	-	4.09132	-	0.005
Manganese	-	242.92237	-	0.005
Thallium	-	16.541110	-	0.00008
Vanadium	-	2.12785	-	0.007

**Table 2.5  
Cancer and Non-Cancer Toxicity Data Summary**

Land Use: Residential  
 Exposure Route: Inhalation  
 Receptor: Residential Adult

Chemical of Concern	Cancer Risk	Non-Cancer Hazard Index	Inhalation Slope Factor (mg/kg/day)	Inhalation RfD (mg/kg/day)
1,2-Dichloroethane	1.6E-07	-	0.091	-
1,2-Dichloropropane	-	0.01438	-	0.0011
Benzene	6.1E-07	-	0.02905	-
Styrene	-	0.00001	-	0.2857
Vinyl Chloride	1.6E-04		0.294	

**Table 2.6  
Cancer and Non-Cancer Toxicity Data Summary**

Land Use: Residential  
Exposure Route: Inhalation  
Receptor: Residential Child

Chemical of Concern	Cancer Risk	Non-Cancer Hazard Index	Inhalation Slope Factor (mg/kg/day)	Inhalation RfD (mg/kg/day)
1,2-Dichloroethane	1.5E-07	-	0.091	-
1,2-Dichloropropane	-	0.06712	-	0.0011
Benzene	5.7E-07	-	0.02905	-
Styrene	-	0.00005	-	0.2857
Vinyl Chloride	1.4E-04	-	0.294	-

**Table 2.7  
Cancer and Non-Cancer Toxicity Data Summary**

Land Use: Residential  
Exposure Route: Dermal  
Receptor: Residential Adult

Chemical of Concern	Cancer Risk	Non-Cancer Hazard Index	Oral Slope Factor (mg/kg/day)	Oral RfD (mg/kg/day)	Adjusted Oral Slope Factor (mg/kg/day)	Adjusted Oral RfD (mg/kg/day)
1,2-Dichloroethane	6.5E-08	-	0.091	-	0.0910	-
1,2-Dichloropropane	5.9E-07	-	0.068	-	0.0680	-
Benzene	1.0E-06	-	0.029	-	0.0299	-
Styrene	6.0E-06	0.00003	2.47	0.2	2.4700	0.2
1,2-Dichloroethene. Total	-	0.01750	-	0.009	-	0.0090
Vinyl Chloride	5.8E-04	-	1.9	-	1.9000	-
Arsenic	6.0E-06	0.03095	1.5	0.0003	1.5789	0.0003
Cadmium	-	0.00181	-	0.0005	-	0.0005
Chromium	-	0.40329	-	0.005	-	0.0001
Manganese	-	0.29932	-	0.005	-	0.0050
Thallium	-	0.02038	-	0.00008	-	0.0001
Vanadium	-	0.00262	-	0.007	-	0.0070

**Table 2.8  
Cancer and Non-Cancer Toxicity Data Summary**

Land Use: Residential  
Exposure Route: Dermal  
Receptor: Residential Child

Chemical of Concern	Cancer Risk	Non-Cancer Hazard Index	Oral Slope Factor (mg/kg/day)	Oral RfD (mg/kg/day)	Adjusted Oral Slope Factor (mg/kg/day)	Adjusted Oral RfD (mg/kg/day)
1,2-Dichloroethane	2.8E-08	-	0.091	-	0.091	-
1,2-Dichloropropane	2.5E-07	-	0.068	-	0.068	-
Benzene	4.4E-07	-	0.029	-	0.030	-
Styrene	2.6E-06	0.00006	2.47	0.2	2.470	0.2000
1,2-Dichloroethene. Total	-	0.03765	-	0.009	-	0.009
Vinyl Chloride	2.5E-04	-	1.9	-	1.900	-
Arsenic	2.60E-06	0.06657	1.5	0.0003	1.579	0.000285
Cadmium	-	0.00390	-	0.0005	-	0.0005
Chromium	-	0.86736	-	0.005	-	0.0000625
Manganese	-	0.64374	-	0.005	-	0.005
Thallium	-	0.04383	-	0.00008	-	0.00008
Vanadium	-	0.00564	-	0.007	-	0.007

TABLE 2.9  
SUMMARY OF DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES

Criteria	Alternative 1 No Action	Alternative 2 Monitored Natural Attenuation	Alternative 3 Oxygen Enhancement Using Oxygen Compound	Alternative 4 Oxygen Enhancement Using Biosparging	Alternative 5 Groundwater Pump and Treat
Overall Protection of Human Health and the Environment	Not Applicable	Protective of human health and the environment. Effective in reducing contaminant toxicity and the risks of exposure. Institutional controls and additional monitoring wells upgradient of existing residential wells would eliminate exposure risks.	Protective of human health and the environment. Effective in reducing contaminant toxicity and the risks of exposure. Institutional controls and additional monitoring wells upgradient of existing residential wells would eliminate exposure risks.	Protective of human health and the environment. Effective in reducing contaminant toxicity and the risks of exposure. Institutional controls and additional monitoring wells upgradient of existing residential wells would eliminate exposure risks.	Protective of human health and the environment. Effective in reducing contaminant toxicity and the risks of exposure. Institutional controls and additional monitoring wells upgradient of existing residential wells would eliminate exposure risks.
Compliance with ARARs	Not compliant with action-specific ARARs. Groundwater concentrations above standards would not be monitored. May be compliant with chemical specific ARARs although effectiveness would not be monitored. Compliant with location specific ARARs.	Compliant with action-, location-, and chemical-specific ARARs. Compliance is expected to be achieved in 40-50 years.	Compliant with action-, location-, and chemical-specific ARARs. Compliance is expected to be achieved in 40-50 years.	Compliant with action-, location-, and chemical-specific ARARs. Compliance is expected to be achieved in 40-50 years.	Compliant with action-, location-, and chemical-specific ARARs. Compliance is expected to be achieved in 30-40 years.
Long-Term Effectiveness	Natural processes would be effective in reducing contaminant toxicity. Effectiveness would not be evaluated through monitoring.	Long-term risk would be reduced through natural degradation of contaminants to remedial objectives.	Long-term risk would be reduced through natural degradation of contaminants to remedial objectives.	Long-term risk would be reduced through natural degradation of contaminants to remedial objectives.	Long-term risk would be reduced through natural degradation of contaminants to remedial objectives.
Reduction of Toxicity, Mobility, or Volume through Treatment	Natural processes would be effective in reducing contaminant toxicity, mobility and volume, but not through treatment through monitoring.	Effectively reduces toxicity, mobility and volume over time through natural processes, but not through treatment	Effectively reduces toxicity, mobility and volume over time through enhanced natural processes.	Effectively reduces toxicity, mobility and volume over time through enhanced natural processes.	Effectively reduces toxicity, mobility and volume over time through hydraulic capture and extraction and treatment of impacted groundwater.
Short-Term Effectiveness	No increase in short-term risk would be realized.	Minimal risk incurred during installation of additional monitoring wells.	Minimal risk incurred during installation of additional monitoring wells and injection points. Active remedy which may reduce remediation time frame. Groundwater monitoring will evaluate the effectiveness.	Minimal risk incurred during installation of additional monitoring wells and injection points. Active remedy which may reduce remediation time frame. Groundwater monitoring will evaluate the effectiveness.	Minimal risk incurred during installation of additional monitoring wells, extraction wells, and treatment system construction. Active remedy which will reduce remediation time frame. Groundwater monitoring will evaluate the effectiveness.
Implementability	No implementation required.	Monitoring wells are readily implementable. Some tree removal may be required to gain access. Some concern with property access issues.	Difficult to implement due to terrain and number of injection points (50 - 55). Tree removal will be required. Property access issues would be of high concern.	Difficult to implement due to terrain and number of injection points (40). Tree removal will be required. Property access issues would be of high concern.	Moderately difficult to implement due to terrain. Tree removal is likely. Property access issues would be of high concern.
Cost	Present Worth - \$0	Present Worth - \$689,000	Present Worth - \$2,265,000	Present Worth - \$1,727,000	Present Worth - \$2,816,000

Table 2.10

**COST ESTIMATE**  
**ALTERNATIVE 2 - MONITORED NATURAL ATTENUATION**  
**TOMAH MUNICIPAL SANITARY LANDFILL**  
**TOMAH, WISCONSIN**

<i>Description</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Total</i>
<b><u>Part I: Capital</u></b>				
<b>Direct Costs</b>				
Site Preparation/Clearing	LS	1	\$ 20,000	\$ 20,000
Install Additional Groundwater Monitoring Wells (Assume an average depth of 70 ft)	EA	15	\$ 5,000	\$ 75,000
<b>Indirect Costs</b>				
Implement Deed Restrictions	LS	1	\$ 12,000	\$ 12,000
Health & Safety	LS	1	\$ 3,000	\$ 3,000
Monitoring Well Installation Oversight	HR	300	\$ 75	\$ 22,500
Engineering & Reporting	LS	1	\$ 5,000	\$ 5,000
			Subtotal	\$ 137,500
Contingencies	20%			\$ 27,500
			<b>Total Capital Cost Estimate</b>	<b>\$ 165,000</b>
<b><u>Part II: Annual Operations and Maintenance</u></b>				
<b>Groundwater Monitoring (Quarterly Sampling): Year 1-2</b>				
Field Personnel (4 events/yr)	HR	360	\$ 75	\$ 27,000
Vehicles and Field Equipment (4 events/yr)	EA	4	\$ 1,000	\$ 4,000
Groundwater Analysis (VOCs)	EA	140	\$ 150	\$ 21,000
Groundwater Analysis (Metals, CI)	EA	108	\$ 35	\$ 3,780
Monitoring for Natural Attenuation Parameters (2/ Quarterly Reporting)	EA	40	\$ 300	\$ 12,000
	EA	4	\$ 5,000	\$ 20,000
			Subtotal	\$ 87,780
Contingencies	20%			\$ 17,556
			<b>Total Annual O &amp; M Cost Estimate</b>	<b>\$ 105,336</b>
			Present Value (8% over 2 years)	\$187,842
			<b>Present Worth (Rounded)</b>	<b>\$188,000</b>

# Table 2.10

## COST ESTIMATE ALTERNATIVE 2 - MONITORED NATURAL ATTENUATION TOMAH MUNICIPAL SANITARY LANDFILL TOMAH, WISCONSIN

### Groundwater Monitoring (Semi-Annual Sampling): Year 3-5

Field Personnel (2 events/yr)	HR	180	\$ 75	\$ 13,500
Vehicles and Field Equipment (2 events/yr)	EA	2	\$ 1,000	\$ 2,000
Groundwater Analysis (VOCs)	EA	71	\$ 150	\$ 10,650
Groundwater Analysis (Metals, Cl)	EA	55	\$ 35	\$ 1,925
Monitoring for Natural Attenuation Parameters	EA	20	\$ 300	\$ 6,000
Semi-Annual Reporting	EA	2	\$ 5,000	\$ 10,000
			Subtotal	<u>\$ 44,075</u>
Contingencies	20%			\$ 8,815
			Total Annual O & M Cost Estimate	<u>\$ 52,890</u>
			Present Value (8% over 3 years)	\$116,852
			<b>Present Worth (Rounded)</b>	<u><b>\$117,000</b></u>

### Groundwater Monitoring (Annual Sampling): Year 6-50

Field Personnel (1 event/yr)	HR	90	\$ 75	\$ 6,750
Vehicles and Field Equipment (1 events/yr)	EA	1	\$ 1,000	\$ 1,000
Groundwater Analysis (VOCs)	EA	36	\$ 150	\$ 5,400
Groundwater Analysis (Metals, Cl)	EA	28	\$ 35	\$ 980
Monitoring for Natural Attenuation Parameters	EA	10	\$ 300	\$ 3,000
Annual Reporting	EA	1	\$ 5,000	\$ 5,000
			Subtotal	<u>\$ 22,130</u>
Contingencies	20%			\$ 4,426
			Total Annual O & M Cost Estimate	<u>\$ 26,556</u>
			Present Value (8% over 45 years)	\$218,847
			<b>Present Worth (Rounded)</b>	<u><b>\$219,000</b></u>
			<b>Total Present Worth (Rounded)</b>	<u><b>\$689,000</b></u>



# Table 2.11

## COST ESTIMATE ALTERNATIVE 3 - OXYGEN ENHANCEMENT USING OXYGEN COMPOUND TOMAH MUNICIPAL SANITARY LANDFILL TOMAH, WISCONSIN

<i>Description</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Total</i>
<b><u>Part I: Capital</u></b>				
<b>Direct Costs</b>				
Site Preparation/Clearing	LS	1	\$ 60,000	\$ 60,000
Install Additional Groundwater Monitoring Wells (Assume an average depth of 70 ft)	EA	15	\$ 5,000	\$ 75,000
<sup>1</sup> Injection Points/Oxygen Compound	LS	1	\$199,620	\$ 199,620
<b>Indirect Costs</b>				
Implement Deed Restrictions	LS	1	\$ 12,000	\$ 12,000
Health and Safety	LS	1	\$ 3,000	\$ 3,000
Monitoring Well Installation Oversight	HR	300	\$ 75	\$ 22,500
Injection Point Installation Oversight	HR	300	\$ 75	\$ 22,500
Pilot Testing	LS	1	\$ 50,000	\$ 50,000
Reimbursement to property owners	LS	1	\$ 10,000	\$ 10,000
			Subtotal	<u>\$ 454,620</u>
Contingencies	20%			\$ 90,924
Design	8%			\$ 36,370
			<b>Total Capital Cost Estimate</b>	<b><u>\$ 581,914</u></b>
<b><u>Part II: Annual Operations and Maintenance</u></b>				
<b>Groundwater Monitoring &amp; Injection (Quarterly Sampling/Semi-Annual Injection): Year 1-2</b>				
Field Personnel (4 events/yr)	HR	400	\$ 75	\$ 30,000
Vehicles and Field Equipment (4 events/yr)	EA	4	\$ 1,000	\$ 4,000
Groundwater Analysis (VOCs)	EA	142	\$ 150	\$ 21,300
Groundwater Analysis (Metals, Cl)	EA	110	\$ 35	\$ 3,850
Oxygen Compound (Semi-Annual Re-Injection)	EA	2	\$ 82,620	\$ 165,240
Injection Subcontractor	HR	440	\$ 115	\$ 50,600
Quarterly Reporting	EA	4	\$ 5,000	\$ 20,000
			Subtotal	<u>\$ 294,990</u>
Contingencies	20%			\$ 58,998
			<b>Total Annual O &amp; M Cost Estimate</b>	<b><u>\$ 353,988</u></b>
			Present Value (8% over 2 years)	\$ 631,254
			<b>Present Worth (Rounded)</b>	<b><u>\$ 631,000</u></b>

# Table 2.11

**COST ESTIMATE  
ALTERNATIVE 3 - OXYGEN ENHANCEMENT USING OXYGEN COMPOUND  
TOMAH MUNICIPAL SANITARY LANDFILL  
TOMAH, WISCONSIN**

**Groundwater Monitoring & Injection (Semi-Annual Sampling/Semi-Annual Injection): Year 3-6**

Field Personnel (2 events/yr)	HR	200	\$ 75	\$ 15,000
Vehicles and Field Equipment (2 events/yr)	EA	2	\$ 1,000	\$ 2,000
Groundwater Analysis (VOCs)	EA	71	\$ 150	\$ 10,650
Groundwater Analysis (Metals, Cl)	EA	55	\$ 35	\$ 1,925
Oxygen Compound (Semi-Annual Re-Injection)	EA	2	\$ 82,620	\$ 165,240
Injection Subcontractor	HR	440	\$ 115	\$ 50,600
Semi-Annual Reporting	LS	2	\$ 5,000	\$ 10,000
			Subtotal	\$ 255,415
Contingencies	20%			\$ 51,083
			Total Annual O & M Cost Estimate	\$ 306,498
			Present Value (8% over 4 years)	\$ 870,297
			Present Worth (Rounded)	\$ 870,000

**Groundwater Monitoring & Injection (Annual Sampling/Annual Injection): Year 7-50**

Field Personnel (1 event/yr)	HR	100	\$ 75	\$ 7,500
Vehicles and Field Equipment (1 event/yr)	EA	1	\$ 1,000	\$ 1,000
Groundwater Analysis (VOCs)	EA	36	\$ 150	\$ 5,400
Groundwater Analysis (Metals, Cl)	EA	28	\$ 35	\$ 980
Oxygen Compound (Annual Re-Injection)	EA	0	\$ 82,620	\$ -
Injection Subcontractor	HR	0	\$ 115	\$ -
Annual Reporting	LS	1	\$ 5,000	\$ 5,000
			Subtotal	\$ 19,880
Contingencies	20%			\$ 3,976
			Total Annual O & M Cost Estimate	\$ 23,856
			Present Value (8% over 44 years)	\$ 181,567
			Present Worth (Rounded)	\$ 182,000
			Total Present Worth (Rounded)	\$ 2,265,000

Notes:

<sup>1</sup> Based on ORC Design Software for Barriers Using Slurry Injection, Regensis Software Version 3.1 (See Attachment)

# Table 2.12

**COST ESTIMATE  
ALTERNATIVE 4 - OXYGEN ENHANCEMENT USING BIOSPARGING  
TOMAH MUNICIPAL SANITARY LANDFILL  
TOMAH, WISCONSIN**

<i>Description</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Total</i>
<b><u>Part I: Capital</u></b>				
<b>Direct Costs</b>				
Site Preparation/Clearing	LS	1	\$ 60,000	\$ 60,000
Install Additional Groundwater Monitoring Wells (Assume an average depth of 70 ft)	EA	15	\$ 5,000	\$ 75,000
Install Nested Injection Points (one borehole with two screen intervals)	EA	40	\$ 5,000	\$ 200,000
Building Construction	LS	1	\$100,000	\$ 100,000
Trenching	LS	1	\$ 30,000	\$ 30,000
Electrical (power service, wiring, lighting, grounding)	LS	1	\$ 30,000	\$ 30,000
Mechanical (piping, hvac, insulation)	LS	1	\$ 5,000	\$ 5,000
Equipment (2 Compressors)	LS	1	\$ 6,000	\$ 6,000
Instruments (flow, pressure)	LS	1	\$ 3,000	\$ 3,000
PLC/SCADA	LS	1	\$ 15,000	\$ 15,000
<b>Indirect Costs</b>				
Implement Deed Restrictions	LS	1	\$ 12,000	\$ 12,000
Startup and Commissioning	LS	1	\$ 10,000	\$ 10,000
Health and Safety	LS	1	\$ 3,000	\$ 3,000
Monitoring Well Installation Oversight	HR	300	\$ 75	\$ 22,500
Injection Point Installation Oversight	HR	400	\$ 75	\$ 30,000
Construction Oversight	HR	150	\$ 75	\$ 11,250
Pilot Testing	LS	1	\$ 50,000	\$ 50,000
Reimbursement to property owners	LS	1	\$ 10,000	\$ 10,000
			Subtotal	<u>\$ 672,750</u>
Contingencies	20%			\$ 134,550
Design	8%			\$ 53,820
Construction Inspection & Reporting	5%			\$ 33,638
<b>Total Capital Cost Estimate</b>				<b><u>\$ 894,758</u></b>

# Table 2.12

**COST ESTIMATE  
ALTERNATIVE 4 - OXYGEN ENHANCEMENT USING BIOSPARGING  
TOMAH MUNICIPAL SANITARY LANDFILL  
TOMAH, WISCONSIN**

**Part II: Annual Operations and Maintenance**

**Groundwater Monitoring & Biosparging (Quarterly Sampling): Year 1-2**

Field Personnel (4 events/yr)	HR	400	\$ 75	\$ 30,000
Vehicles and Field Equipment (4 events/yr)	EA	4	\$ 1,000	\$ 4,000
Groundwater Analysis (VOCs)	EA	142	\$ 150	\$ 21,300
Groundwater Analysis (Metals, Cl)	EA	110	\$ 35	\$ 3,850
Electricity (2 compressors) (40 hp x 0.75 kw/hp x 8760 hr/yr)	KWHR	262,800	\$ 0.10	\$ 26,280
System Operation & Maintenance	Monthly	12	\$ 3,000	\$ 36,000
Quarterly Reporting	EA	4	\$ 5,000	\$ 20,000
			Subtotal	\$ 141,430
Contingencies	20%			\$ 28,286
			Total Annual O & M Cost Estimate	\$ 169,716
			Present Value (8% over 2 years)	\$ 302,649
			Total Present Worth (Rounded)	\$ 303,000

**Groundwater Monitoring & Biosparging (Semi-Annual Sampling): Year 3-6**

Field Personnel (2 events/yr)	HR	200	\$ 75	\$ 15,000
Vehicles and Field Equipment (2 events/yr)	EA	2	\$ 1,000	\$ 2,000
Groundwater Analysis (VOCs)	EA	71	\$ 150	\$ 10,650
Groundwater Analysis (Metals, Cl)	EA	55	\$ 35	\$ 1,925
Electricity (2 compressors) (40 hp x 0.75 kw/hp x 8760 hr/yr)	KWHR	262,800	\$ 0.10	\$ 26,280
System Operation & Maintenance	Monthly	12	\$ 3,000	\$ 36,000
Semi-Annual Reporting	LS	2	\$ 5,000	\$ 10,000
			Subtotal	\$ 101,855
Contingencies	20%			\$ 20,371
			Total Annual O & M Cost Estimate	\$ 122,226
			Present Value (8% over 4 years)	\$ 347,059
			Present Worth (Rounded)	\$ 347,000

**Groundwater Monitoring & Biosparging (Annual Sampling): Year 7-50**

Field Personnel (1 event/yr)	HR	100	\$ 75	\$ 7,500
Vehicles and Field Equipment (1 event/yr)	EA	1	\$ 1,000	\$ 1,000
Groundwater Analysis (VOCs)	EA	36	\$ 150	\$ 5,400
Groundwater Analysis (Metals, Cl)	EA	28	\$ 35	\$ 980
Electricity (2 compressors) (40 hp x 0.75 kw/hp x 8760 hr/yr)	KWHR	0	\$ 0.10	\$ -
System Operation & Maintenance	Monthly	0	\$ 3,000	\$ -
Annual Reporting	LS	1	\$ 5,000	\$ 5,000
			Subtotal	\$ 19,880
Contingencies	20%			\$ 3,976
			Total Annual O & M Cost Estimate	\$ 23,856
			Present Value (8% over 44 years)	\$ 181,567
			Present Worth (Rounded)	\$ 182,000
			Total Present Worth (Rounded)	\$ 1,727,000

# Table 2.13

**COST ESTIMATE  
ALTERNATIVE 5 - PUMP AND TREAT  
TOMAH MUNICIPAL SANITARY LANDFILL  
TOMAH, WISCONSIN**

<i>Description</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Total</i>
<b><u>Part I: Capital</u></b>				
<b>Direct Costs</b>				
Site Preparation/Clearing	LS	1	\$ 80,000	\$ 80,000
Install Additional Groundwater Monitoring Wells (Assume an average depth of 70 ft)	EA	15	\$ 5,000	\$ 75,000
Extraction Wells	EA	2	\$ 20,000	\$ 40,000
Building Construction	LS	1	\$100,000	\$ 100,000
Trenching/Discharge Piping	LS	1	\$ 50,000	\$ 50,000
Electrical (power service, wiring, lighting, grounding)	LS	1	\$ 50,000	\$ 50,000
Mechanical (piping, hvac, insulation)	LS	1	\$ 40,000	\$ 40,000
Pumps and blowers	LS	1	\$ 7,000	\$ 7,000
Tanks (Equalization)	LS	1	\$ 5,000	\$ 5,000
Process Equipment (air stripper, bag filter)	LS	1	\$ 52,000	\$ 52,000
Instruments (flow, level, pressure)	LS	1	\$ 10,000	\$ 10,000
PLC/SCADA	LS	1	\$ 30,000	\$ 30,000
<b>Indirect Costs</b>				
Implement Deed Restrictions	LS	1	\$ 12,000	\$ 12,000
Startup and Commissioning	LS	1	\$ 10,000	\$ 10,000
Health and Safety	LS	1	\$ 5,000	\$ 5,000
Monitoring Well Installation Oversight	HR	300	\$ 75	\$ 22,500
Construction Oversight	HR	200	\$ 75	\$ 15,000
Pumping Test	LS	1	\$ 50,000	\$ 50,000
Permitting	LS	1	\$ 10,000	\$ 10,000
Reimbursement to property owners	LS	1	\$ 10,000	\$ 10,000
			<b>Subtotal</b>	<b>\$ 673,500</b>
Contingencies	20%			\$ 134,700
Design	8%			\$ 53,880
Construction Inspection & Reporting	5%			\$ 33,675
			<b>Total Capital Cost Estimate</b>	<b>\$ 895,755</b>

# Table 2.13

**COST ESTIMATE  
ALTERNATIVE 5 - PUMP AND TREAT  
TOMAH MUNICIPAL SANITARY LANDFILL  
TOMAH, WISCONSIN**

Part II: Annual Operations and Maintenance

**Groundwater Monitoring & Pump & Treat (Quarterly Sampling): Year 1-2**

Field Personnel (4 events/yr)	HR	400	\$ 75	\$ 30,000
Vehicles and Field Equipment (4 events/yr)	EA	4	\$ 1,000	\$ 4,000
Groundwater Analysis (VOCs)	EA	144	\$ 150	\$ 21,600
Groundwater Analysis (Metals, Cl)	EA	110	\$ 35	\$ 3,850
Electricity (2 well pumps, 2 transfer pumps, 1 blower (45 hp x 0.75 kw/hp x 8760 hr/yr))	KWHR	295,650	\$ 0.10	\$ 29,565
Influent/Effluent Sampling (VOCs & Metals)	Monthly	12	\$ 200.00	\$ 2,400
Operation and Maintenance	Monthly	4	\$ 5,000	\$ 20,000
Quarterly Reporting	EA	4	\$ 5,000	\$ 20,000
			Subtotal	<u>\$ 131,415</u>
Contingencies	20%			\$ 26,283
			<b>Total Annual O &amp; M Cost Estimate</b>	<u>\$ 157,698</u>
			Present Value (8% over 2 years)	\$ 281,217
			<b>Present Worth (Rounded)</b>	<u>\$ 281,000</u>

**Groundwater Monitoring & Pump & Treat (Semi-Annual Sampling): Year 3-6**

Field Personnel (2 events/yr)	HR	200	\$ 75	\$ 15,000
Vehicles and Field Equipment (2 events/yr)	EA	2	\$ 1,000	\$ 2,000
Groundwater Analysis (VOCs)	EA	72	\$ 150	\$ 10,800
Groundwater Analysis (Metals, Cl)	EA	55	\$ 35	\$ 1,925
Electricity (2 well pumps, 2 transfer pumps, 1 blower (45 hp x 0.75 kw/hp x 8760 hr/yr))	KWHR	295,650	\$ 0.10	\$ 29,565
Influent/Effluent Sampling (VOCs & Metals)	Monthly	12	\$ 200.00	\$ 2,400
System Operation & Maintenance	Monthly	12	\$ 5,000	\$ 60,000
Semi-Annual Reporting	LS	2	\$ 5,000	\$ 10,000
			Subtotal	<u>\$ 131,690</u>
Contingencies	20%			\$ 26,338
			<b>Total Annual O &amp; M Cost Estimate</b>	<u>\$ 158,028</u>
			Present Value (8% over 4 years)	\$ 448,718
			<b>Present Worth (Rounded)</b>	<u>\$ 449,000</u>

**Groundwater Monitoring & Pump & Treat (Annual Sampling): Year 7-40**

Field Personnel (1 event/yr)	HR	100	\$ 75	\$ 7,500
Vehicles and Field Equipment (1 event/yr)	EA	1	\$ 1,000	\$ 1,000
Groundwater Analysis (VOCs)	EA	36	\$ 150	\$ 5,400
Groundwater Analysis (Metals, Cl)	EA	28	\$ 35	\$ 980
Electricity (2 well pumps, 2 transfer pumps, 1 blower (45 hp x 0.75 kw/hp x 8760 hr/yr))	KWHR	295,650	\$ 0.10	\$ 29,565
Influent/Effluent Sampling (VOCs & Metals)	Monthly	12	\$ 200.00	\$ 2,400
System Operation & Maintenance	Monthly	12	\$ 7,000	\$ 84,000
Annual Reporting	LS	1	\$ 5,000	\$ 5,000
			Subtotal	<u>\$ 135,845</u>
Contingencies	20%			\$ 27,169
			<b>Total Annual O &amp; M Cost Estimate</b>	<u>\$ 163,014</u>
			Present Value (8% over 34 years)	\$ 1,190,342
			<b>Present Worth (Rounded)</b>	<u>\$ 1,190,000</u>
			<b>Total Present Worth (Rounded)</b>	<u>\$ 2,816,000</u>

**Table 2.14  
Groundwater Cleanup Standards  
Tomah Municipal Sanitary Landfill**

Compound	Standard <sup>1</sup> (parts per billion)
1,2-Dichloroethane	0.5
1,2-Dichloropropane	0.5
Benzene	0.5
Styrene	10
Cis-1,2-Dichloroethene	7.0
Tetrachloroethene	0.5
Vinyl Chloride	0.02
Arsenic	5.0
Cadmium	0.5
Chromium	10
Manganese	25
Thallium	0.4
Vanadium	6.0

Notes: ppb: "parts per billion" or ug/L

<sup>1</sup> Preventive Action Limits (PALs) under Ch. NR 140.

The State has also promulgated ground-water quality standards in Ch. NR 140, which the WDNR is consistently applying to all facilities, practices, and activities which are regulated by the WDNR and which may affect ground-water in the State.

TABLE 2.15

SUMMARY OF ARARS FOR ALTERNATIVE 2  
TOMAH MUNICIPAL SANITARY LANDEFILL  
TOMAH, WISCONSIN

ARAR	REQUIREMENT/PURPOSE	ALTERNATIVE 2
<b>CHEMICAL SPECIFIC</b>		
<i>Federal</i>		
Federal Safe Drinking Water Maximum Contaminant Levels (MCLs); 40 CFR Part 141	Maximum contaminant Levels for Public Water Systems.	Relevant and appropriate to ground water that is or could be used for drinking water.
<i>State</i>		
Ch. NR 105	Establishes surface water quality criteria and secondary values for toxic substances.	Applicable to surface waters of the state.
Ch. NR 809	Establishes surface water quality criteria and secondary values for toxic substances.	Relevant and appropriate to groundwater that is or could be used for drinking water.
Groundwater Quality; NR 140	Establishes groundwater quality standards for substances detected in groundwater.	Applicable to facility practices and activities which may effect groundwater quality.
<b>LOCATION SPECIFIC</b>		
<i>Federal</i>		
Executive Order Protecting Wetlands; Executive Order 11990, Section 2; 40 CFR 6.302 (a)	Requires federal agencies to minimize the destruction, loss, or degradation of wetlands.	Relevant and appropriate to remediation activities taking place in and around wetlands.
Statement of Procedures on Floodplain Management and Wetlands Protection; 40 CFR Part 6, Appendix A	Procedures for USEPA to avoid impacts associated with the destruction of wetlands and the occupancy and modification of floodplains and wetlands.	Relevant and appropriate to remediation activities taking place in and around wetlands and within floodplain.
<i>State</i>		
Ch. NR 103 (This could also be chemical specific)	Established water quality standards for wetlands.	Applicable to all determinations that affect wetlands.
<b>ACTION SPECIFIC</b>		
<i>State</i>		
Ch. NR 605.08 (This could also be chemical specific)	Identification & listing of hazardous waste. Provides standards for identifying waste as hazardous based on characteristics.	Applicable to wastes generated during remedial action.
Ch. NR 610	Specifies the requirements that apply to small quantity and very small quantity generators of hazardous waste.	Potentially applicable if remedial action generates hazardous waste.
Ch. NR 615	Specifies the requirements that apply to the generators of large quantities of hazardous waste.	Potentially applicable if remedial action generates hazardous waste.



SUMMARY OF ARARS FOR ALTERNATIVE 2  
TOMAH MUNICIPAL SANITARY LANDFILL  
TOMAH, WISCONSIN

ARAR	REQUIREMENT/PURPOSE	ALTERNATIVE 2
Ch. NR 630	Specifies the general requirements that apply to the storage, treatment and disposal of hazardous waste.	Potentially applicable if remedial action generates hazardous waste, which is treated on-site.
Ch. NR 630.04(1.8)	Exemption to allow generators to treat own waste on-site.	Potentially applicable if remedial action generates hazardous waste that is treated on-site
Ch. NR 630.04(2)	Exemption from NR 630 for POTW which accepts hazardous wastes for treatment or recycling.	Potentially applicable if remedial action generates hazardous waste that is sent to POTW.
Ch. NR 724	Specifies the requirement for the design, implementation, operation, maintenance and monitoring of the remedial action.	Applicable to the remedial action.
Groundwater Monitoring Well Requirements; NR 141	Provides standards for design, construction, installation, abandonment, and documentation of groundwater monitoring wells.	Applicable to modifications and maintenance of the monitoring well network.

## **APPENDIX A**

### **Responsiveness Summary**

## **Appendix A**

### **United States Environmental Protection Agency's Responsiveness Summary**

The purpose of the Responsiveness Summary is to provide a summary of the comments the United States Environmental Protection Agency (U.S. EPA) received from the public on the Proposed Plan and Administrative Record for the Tomah Municipal Sanitary Landfill (TMSL) Superfund Site, Tomah, Wisconsin, and to present U.S. EPA's responses to the comments. This Proposed Plan was issued June 6, 2003. The public comment period for the Proposed Plan was initially set to run from June 10, 2003 to July 10, 2003, but was extended until July 24, 2003. A public meeting was held June 24, 2003 at Tomah's City Hall. The meeting was divided into two parts. In the first part of the meeting, U.S. EPA explained its proposed remedial action and answered questions. In the second part of the meeting, U.S. EPA received formal public comments that are addressed in this responsiveness summary. The entire proceedings of the meeting were transcribed by a court reporter and are being included in the final Administrative Record.

U.S. EPA received two kinds of comments: 1) written comments received during the public comment period and 2) formal oral comments received at the public meeting. U.S. EPA is required by law to consider and address only those comments that are pertinent and significant to the remedial action being selected. U.S. EPA is not required to address comments which pertain to the allocation of liability for the remedial action, nor potential enforcement actions to implement the remedial action, as these are independent of the selection of the remedial action and U.S. EPA's Proposed Plan.

U.S. EPA is not required to reprint the comments of the commenter verbatim and may paraphrase where appropriate. However, in this case, U.S. EPA has created general categories to group related comments. Persons wishing to see the full text of all comments should refer to the commenter's submittal to U.S. EPA which has been included in the Administrative Record.

Specific responses by U.S. EPA are indexed for convenient reference. These indices run consecutively throughout the entire Response Summary. Comments are shown in normal text and U.S. EPA's responses are shown in an italicized type style.

***U.S. EPA's recommended alternative, monitored natural attenuation, is the best choice.*** Seven of twelve commenters expressed support for the remedy. Those who stated a reason noted the precautions the City had taken to hook up potentially vulnerable residential wells to city water and that the facts supported this choice.

***Response:*** *U.S. EPA notes the support for the monitored natural attenuation option.*

***Oxygen enhancement with biosparging is a better choice.*** Two of twelve commenters preferred this alternative over U.S. EPA's recommended option. One commenter who lives on Jefferson Street expressed concern that a spreading plume will reduce his property values and could cause health problems. He also thought it was important not to wait and do nothing to prevent contamination of the City's water supply. The other commenter noted that contrary to

U.S. EPA's evaluation of the alternatives against the nine criteria, all options are implementable because all materials can be purchased.

**Response:** *The cleanup of contamination should raise property values in and around the cleanup area above what they would be if no such cleanup took place. People are not being exposed to contaminated groundwater because no one is drinking water in the impacted area: residents are on municipal water and are restricted from using the groundwater. The City of Tomah's wells are located in areas that are northwest, south, and southeast of the site. The contaminated groundwater will never move toward the City's wells because the direction of groundwater flow is toward the northeast.*

*Natural attenuation is breaking down the contaminants in the groundwater, resulting in a reduction of toxicity and volume of contamination. Monitored natural attenuation will achieve the same beneficial results that an engineered treatment system, such as, biosparging would accomplish. The predicted cleanup time frame for both alternatives is 40 to 50 years.*

*Implementability addresses the technical and administrative feasibility of implementing an alternative, the availability of the necessary services, and materials required during its implementation. We evaluated each alternative for the following: ability to construct the technology and reliability of its operation; ease of undertaking the operation; and availability of services and materials. The problem is not the availability of services and material but the ease of undertaking the operation. Monitored natural attenuation could be readily implemented even though some clearing may be necessary to install the 15 new wells. However, biosparging would be more difficult to implement because of the rough terrain and the significant clearing of properties that would be necessary to install approximately 40 injection points.*

**Monitored natural attenuation is a bad choice; a more aggressive plan is needed as with Sparta landfill or other municipal landfills.** One additional commenter is opposed to monitored natural attenuation and wants a more aggressive cleanup. He views monitored natural attenuation as favorable to the responsible parties as it is the least costly option with no environmental benefit. He is concerned that the fox is being able to guard the henhouse.

**Response:** *Monitored natural attenuation is breaking down the contaminants in the groundwater resulting in a reduction of toxicity and volume of contamination. Monitored natural attenuation will achieve the same beneficial results that an engineered treatment system. Additionally, the predicted cleanup time frames for each of the alternatives are about the same, 40 to 50 years.*

*Cost is one of the factors the National Contingency Plan (NCP) - the Superfund regulations governing remedy selection - requires the Agency to consider. Where, as here, we have several remedial alternatives which achieve the same cleanup results but*

*one is cheaper than the others, it would be against the NCP guidelines to choose a more expensive remedy. That may indeed benefit the parties responsible for paying for the cleanup - but that is not the reason U.S. EPA chose it.*

**Deed restrictions.** A number of commenters had questions about how the deed restrictions would be implemented. Questions covered the legal mechanism and authority for applying deed restrictions on private property, nature of the restrictions, effects on property values, reimbursement due to alleged loss of value and length of time restrictions would be in place.

***Response:** Institutional controls in the form of restrictive covenants will be implemented to minimize future human exposure to impacted groundwater. Restrictive covenants prohibiting groundwater from being used as a drinking water source and prohibiting the installation of new wells will be recorded on deeds for property overlying the plume of contamination. Property owners could petition to have the restrictions removed once the groundwater meets Wisconsin standards.*

*It is too soon to say what procedures will be necessary to bring about the necessary restrictive covenants. That depends in part on who implements the remedy - U.S. EPA or the Potentially Responsible Parties (PRPs). Currently, the remedy for Operable Unit 1 (OU-1) - the landfill cap - is being implemented by the PRPs. U.S. EPA hopes that the Operable Unit 2 (OU-2) remedy will be implemented by the PRPs as well, but that is not a certainty. U.S. EPA's model consent decree, a document used to conclude settlements for remedial action at Superfund Sites, calls for the settling defendants to use "best efforts" to obtain an easement from property owners to enforce land/water use restrictions. "Best efforts" sometimes involves paying property owners in order to obtain their cooperation. However, it should be emphasized that U.S. EPA's goal here is to secure implementation of restrictions in order to protect human health and the environment. It is not U.S. EPA's job to secure compensation for property owners. In some cases, e.g., in the "best efforts" example referred to above, compensation takes place. But U.S. EPA has no stake in securing such compensation.*

*All things being equal, a piece of property with restrictions on it would be worth less than the same piece of property with no restrictions on it. But one should also keep in mind the effect on property values of a Superfund cleanup - the cleanup of contamination should raise property values in and around the cleanup area above what they would be if no such cleanup took place.*

**Risk too high to do nothing.** One commenter alleges that U.S. EPA Unilateral Administrative Order for OU-1 Remedial Action indicated an imminent and substantial endangerment to public health and the environment and questions "why has the EPA now taken a position that the risks associated with the landfill are now menial [sic] compared to your previous assessment and operable units." He further asserts that "it is evident through the documentation and comments made by all parties held responsible for the pollutants and contaminants leaching from the TMSL

that their personal objectives of stature [sic], associated risks, and maximizing closure to this environmental hazard is their only concern.”

*Response: U.S. EPA may indeed conclude there would be an imminent and substantial threat to human health and the environment if no action is taken, even though, at the moment, there is no immediate danger. Where, as at the TMSL, there is vinyl chloride in groundwater in excess of federal drinking water standard, that condition could pose an imminent and substantial threat to human health if people were to use that groundwater as a drinking water source. The fact that the area at risk is now connected to municipal water is one of the conditions that has enabled U.S. EPA to select a remedy that may require a substantial amount of time to clean up the groundwater to drinking water standards. Additionally, residents in the immediate area of the landfill were at risk from exposure to landfill gases, but the source control measures have been effective in eliminating landfill gas migration.*

**Compensation for polluted/devalued property.** One commenter asked questions related to the compensation of citizens for pollution on private property and their legal standing and rights against those responsible for the pollution.

*Response: It would not be appropriate for U.S. EPA to offer advice regarding what are essentially private legal matters. U.S. EPA’s role at the TMSL Superfund Site is to protect human health and the environment by selecting an appropriate remedy and making sure that the remedy is implemented. To that end, U.S. EPA tries to have those responsible for the contamination do the work necessary and reimburse U.S. EPA for its response costs. But compensating individuals who may have claims for damages or injuries due to contamination coming from the Site is not part of the Superfund law or Agency practice. Those sorts of claims must be worked out the same way as any other damage or injury claim - through private lawsuits or agreement on fair compensation between the parties.*

**Monitored natural attenuation not appropriate because waste has not been removed from the landfill first.** One commenter, referring to U.S. EPA’s Citizen Guide to Monitored Natural Attenuation, questions the appropriateness of monitored natural attenuation when the landfill waste has not been removed first as suggested in the guide.

*Response: The source control remedy which includes installation of a low permeability geo-membrane, a geo-synthetic clay liner, and an active gas extraction system has contained the contamination. For purposes of promoting natural attenuation, this serves essentially the same purpose as removing the contamination.*

**Effect of contamination on Deer Creek, wild life, and fruit.** Two commenters expressed concern that U.S. EPA does not know the effect of the landfill on Deer Creek or surrounding wetlands or the wildlife that depends on these systems. Another concern is about the safety of

wild fruits that people and animals are eating.

**Response:** *The Ecological Risk Assessment assessed the risk posed to the aquatic organisms and terrestrial animals by contaminants. The assessment included evaluating site-related stressors and nonsite-related stressors. Animals consuming plants and predators consuming animals are evaluated as nonsite-related stressors. The groundwater pathway was not addressed in the risk assessment because there was no direct route for biological receptors to be exposed to contaminated groundwater. However, because the shallow groundwater discharges to Deer Creek and its associated wetlands, the effects of the contaminated groundwater on the environment was assessed through the surface water and sediment pathway. It was determined that the principal ecosystem components at risk were the organisms directly exposed to contaminated surface water and sediment in Deer Creek and adjacent wetlands. Terrestrial organisms associated with the site were not considered at risk, based on benchmark values taken from technical literature. Exposure and risk to aquatic organisms was evaluated by directly comparing surface water and sediment exposure dose to National Ambient Water Quality Criteria, state standards, and benchmark values taken from technical literature. Based on this analysis, cobalt and manganese in surface water were the only metals found that would potentially pose a risk to aquatic organisms. Actual damage to the aquatic and terrestrial ecosystem of Deer Creek and the adjacent wetlands were not observed. The Wisconsin Department of Natural Resources has recently re-classified Deer Creek from a Class II to a Class I trout habitat. However, there is a possibility that future impacts could occur from the discharges of contaminated groundwater into the surface water system. Therefore, Deer Creek will be monitored as part of the cleanup plan to determine if there is any impact from groundwater discharge.*

*The human health risk assessment evaluated the risk due to exposure to surface water, sediment, and groundwater. The risk to people eating wild fruit was not considered a likely exposure pathway because the trees are not in contact with contaminated soil and the trees would probably have no contact with contaminated groundwater.*

**What happens if the remedy doesn't work?** One commenter asked what would happen if the cleanup remedy didn't work? He also posed several questions about what would happen if private wells became contaminated that aren't contaminated now such as who would cover the costs of putting in a new well and if private citizens could be required to hook up to the city water system and would they be able to return to private water once contamination was gone?

**Response:** *Contingency actions will be implemented if the monitoring identifies the need for modification or changes in the remedy. Possible contingency actions could include: collecting groundwater samples more frequently; installing additional monitoring wells; and implementing additional response actions, such as, a groundwater containment or treatment system.*

*Because the new landfill cap is effectively containing contamination with the TMSL, U.S. EPA thinks that the likelihood of additional drinking water wells becoming contaminated is low. However, if additional private wells do become contaminated in the future as a result of the movement of contamination from the landfill, U.S. EPA would expand the remedy to include provision of safe drinking water to the affected area. In all likelihood, this would be done by the same method and under the same terms as has been used to date - via the extension of Tomah's municipal water system. If at some point ground water returns to safe levels, the Superfund remedy would not require continued restrictions on well use. However, such restrictions might still be required under state or local ordinances.*

***Jurisdictional issues related to the use of groundwater by private parties.*** One commenter asked a number of questions related to the jurisdiction of various parties – particularly the City of Tomah – to regulate the use of private wells and associated equipment, to require connection to city water, to not allow disconnection when contamination is no longer an issue, to require payment for city water when the city is legally responsible for the contamination.

***Response:*** *These questions should be addressed to the City of Tomah. In making its remedy decision, U.S. EPA was aware of the fact that the City had extended the municipal water system to a number of residents affected by the TMSL, and that the City planned additional extensions to residents living along Flatter Avenue. But extension of the municipal water supply is not currently a part of the remedy U.S. EPA selected. As noted in response to a previous comment, provision of municipal water might be something that is added to the remedy in the event that additional drinking water wells are contaminated by the migration of contaminants from the landfill. Extension of municipal water would most likely take place in the same manner and on the same terms as it has to date.*

***Why were residents along Flatter Avenue required to sign-up for city water before the U.S. EPA public meeting where they would be informed about U.S. EPA's proposed cleanup option?*** Two commenters were concerned about the test results that justify the need for hook up? Another commenter expressed their concern about bottle water being too expensive to supply for drinking and bathing purposes.

***Response:*** *These questions should be addressed to the City of Tomah since U.S. EPA was not involved in arranging for extension of municipal water to Flatter Avenue. As noted above, U.S. EPA was aware of the City's plans, but the provision of additional hook-ups to municipal water is not a requirement of the remedy U.S. EPA proposed.*

***U.S. EPA's oversight role.*** One commenter posed questions regarding U.S. EPA's role in overseeing the City of Tomah as it carries out the water line extension project on Flatter Avenue and other projects related to the contaminated groundwater. The commenter is concerned that U.S. EPA ensures all the public's questions are answered. Related questions from this



commenter pertained to communication about the project to the public.

**Response:** *As noted above, the extension of municipal water to Flatter Avenue is not part of the remedy U.S. EPA proposed. U.S. EPA has no oversight role with respect to that project. Questions about the project should be addressed to the City of Tomah.*

*The U.S. EPA performs oversight of activities relating to investigations/cleanup and these questions should be directed to the U.S. EPA. In the past, U.S. EPA has held public meetings to inform local residents about the Superfund process and proposed cleanup plans for the TMSL. Additionally, fact sheets were distributed to inform residents about both proposed cleanup plans. U.S. EPA has responded to all telephone calls. U.S. EPA has answered questions during the question and answer period of the public meeting. The formal oral public comments given during the public meeting and written comments received during the public comment period are being addressed in this responsiveness summary.*

**Monitoring plan.** One resident asked whether wells at homes on Flatter Avenue not hooked to city water would be monitored or used as sentinel wells. In addition, he asked when additional monitoring wells would be added to the network and where they would be placed.

**Response:** *Some of the residential wells along Flatter Avenue may remain in the monitoring program and new ones may be added. The details of the new groundwater monitoring plan will be worked out after the Record of Decision has been finalized.*

**Request for independent testing by private parties.** One commenter indicates that tests conducted of Deer Creek and adjacent property confirm “levels in excess of the limits.” He requests that an independent consultant hired by private parties test and monitor properties to verify the levels against those taken by the responsible parties’ consultant. The commenter also wants the U.S. EPA to have the responsible parties reimburse the private parties.

**Response:** *Deer Creek will be monitored as part of the cleanup plan to determine if there is any impact from groundwater discharge. The groundwater monitoring program will evaluate the effectiveness and protectiveness of monitored natural attenuation. The monitoring data will tell us how monitored natural attenuation is working and whether the plume is shrinking or expanding. The locations where the independent test samples were collected will be useful for designing the sampling program for Deer Creek, but U.S. EPA needs more information about the other results to determine if there is a groundwater problem.*

*U.S. EPA cannot pay for independent testing by private parties, nor can it force the responsible parties to pay. However, private parties can make a request to the responsible parties on their own behalf. U.S. EPA performs oversight of all activities related to the investigation and cleanup at this site, which can also include sampling*

*verification. U.S. EPA may analyze the responsible parties' duplicate samples in the future if warranted.*

***Request for Environmental Impact Statement.*** One commenter requested an Environmental Impact Statement since he hadn't heard anything other than expense as to the reason for the recommendation of monitored natural attenuation.

***Response:*** *Environmental impact statements under the National Environmental Policy Act (NEPA) are not required for Superfund cleanup projects. The objectives served by environmental impact statements are met under Superfund via completion of a RI/FS, and the selection of a remedy using the criteria and the procedures provided in the National Contingency Plan, 40 C.F.R. 300 et seq. The RI/FS and remedy decision documents for the TMSL Site are available for public inspection at Tomah Public Library.*

**APPENDIX B**

**Administrative Record**

U.S. EPA ADMINISTRATIVE RECORD  
 REMEDIAL ACTION  
 TOMAH SANITARY LANDFILL  
 TOMAH, WISCONSIN  
 ORIGINAL -  
 08/30/95

AR

DOC# =====	DATE =====	AUTHOR =====	RECIPIENT =====	TITLE/DESCRIPTION =====	PAGES =====
1	12/16/83	Eigenbrodt, V., WDNR	U.S. EPA	Preliminary Assessment	5
2	06/27/84	Nolan, C., Ecology and Environment, Inc.	U.S. EPA	Site Inspection Report	14
3	12/05/84	Nolan, C., Ecology and Environment, Inc.	File	Memorandum re: June 19, 1984 Site Inspection	3
4	03/26/92	Ecology and Environment, Inc.	U.S. EPA	Letter Report	113
5	09/00/93	U.S. EPA/OSWER	U.S. EPA	Quick Reference Fact Sheet: "Presumptive Remedies: Policy and Procedures" (OSWER Directive 9355.0-47FS; EPA 540-F-93 047; PB 93-963345)	8
6	09/00/93	U.S. EPA/OSWER	U.S. EPA	Quick Reference Fact Sheet: "Presumptive Remedy for CERCLA Municipal Landfill Sites" (OSWER Directive 9355.0-49FS; EPA 540-F-93-035; PB 93-963339)	14
7	03/10/94	Dames & Moore	U.S. EPA	Work Plan (DRAFT): Volume 1 of 2 (Text and Attachments A-B)	265
8	03/10/94	Dames & Moore	U.S. EPA	Work Plan (DRAFT): Volume 2 of 2 (Attachments C-E)	342
9	06/18/94	Dames & Moore	U.S. EPA	Work Plan: Addendum I	154
10	07/13/94	Trainor, D. and Steiner, J., Dames & Moore	Mankowski, M., U.S. EPA	Letter re: D&M's Responses to U.S. EPA's Quality Assurance Section Comments to Addendum I of the Work Plan	9
11	02/21/95	Dames & Moore	U.S. EPA	Remedial Investigation Report (DRAFT): Volume 1 of 2 (Text)	146
12	02/21/95	Dames & Moore	U.S. EPA	Remedial Investigation Report (DRAFT): Volume 2 of 2 (Appendices A-F)	770

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMEDIAL ACTION

ADMINISTRATIVE RECORD  
FOR  
TOMAH SANITARY LANDFILL SITE  
TOMAH, MONROE COUNTY, WISCONSIN

UPDATE #1  
JULY 25, 1997

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	06/13/95	Dames & Moore	U.S. EPA	Work Plan for Phase II of the Remedial Investigation/Feasibility Study (RI/FS) at the Tomah Municipal Sanitary Landfill Site	242
2	06/14/95	Trainor, D., Dames & Moore	Mankowski, M., U.S. EPA	Letter: D&M's Responses to U.S. EPA Comments on Phase I Draft RI Report and the Phase II Work Plan	79
3	07/13/95	Mankowski, M., U.S. EPA	Patterson, K., City of Tomah	Letter re: U.S. EPA/WDNR Conditional Approval of the Phase II RI Work Plan for the Tomah Municipal Landfill Site w/Comments	9
4	12/20/95	Trainor, D., Dames & Moore	Mankowski, M., U.S. EPA	Letter: D&M's Responses to Conditional Approval of the RI Phase II Work Plan	24
5	04/00/96	Dames & Moore	U.S. EPA	LFG Migration Control Project Report for the Tomah Landfill Site	110
6	04/03/96	Kuhlman, W.; Boardman, Suhr, Curry & Field	Mankowski, M. and N. Zippay, U.S. EPA	Letter re: Outline of Measures Concerning the Methane Issue	5
7	04/24/96	Zippay, N. and M. Mankowski, U.S. EPA	Kuhlman, W.; Boardman, Suhr, Curry & Field	Letter re: U.S. EPA Approval of Proposed Short Term Measures as Outlined in the Design Specifications	2
8	06/12/96	Ch2M Hill	U.S. EPA	Final Risk Assessment for the Tomah Municipal Sanitary Landfill Site	177
9	06/13/96	Mankowski, M., U.S. EPA	Patterson, K., City of Tomah	Letter re: U.S. EPA/WDNR Conditional Approval of the Draft Final RI Report and the Responses to U.S. EPA Comments on the Draft Final RI Report	10

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
10	07/15/96	Dames & Moore	U.S. EPA	Remedial Investigation Report for Source Control: Volume I (Text, Tables and Figures) [FINAL]	284
11	07/15/96	Dames & Moore	U.S. EPA	Remedial Investigation Report for Source Control: Volume II (Appendices A-H) [FINAL]	1433
12	09/27/96	Dames & Moore	U.S. EPA	Response to U.S. EPA and WDNR Comments and Revised Future Activities Plan for the RI/FS of Groundwater and Source Control at the Tomah Municipal Sanitary Landfill Site	36
13	10/28/96	Mankowski, M., U.S. EPA	Patterson, K., City of Tomah	Letter re: U.S. EPA/WDNR Discussion and Comments Concerning the Remaining Issues on the Response to U.S. EPA/WDNR Comments and Revised Future Activities Plan	6
14	04/14/97	Dames & Moore	U.S. EPA	Feasibility Study for Source Control: Final (Revised) Draft Report	120
15	07/15/97	Mankowski, M., U.S. EPA	Patterson, K., City of Tomah; et al.	Letter re: U.S. EPA/WDNR Approval w/Modifications of the Feasibility Study for Source Control, Final (Revised) Draft Report w/Attachments	16

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMEDIAL ACTION

ADMINISTRATIVE RECORD  
FOR  
TOMAH MUNICIPAL SANITARY LANDFILL SITE  
TOMAH, WISCONSIN

UPDATE #2  
SEPTEMBER 12, 1997

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	08/18/97	Southwest Reporters, Inc.	U.S. EPA	Transcript of Proceedings: August 18, 1997 U.S. EPA Public Meeting re: the Tomah Armory Landfill and Tomah Municipal Sanitary Landfill Sites	102
2	09/04/97	Johnson, W., City of Tomah	Bill, B., U.S. EPA	Letter re: City of Tomah's Comments on the Proposed Plan for the Tomah Municipal Sanitary Landfill Site	2
3	09/04/97	Marshall, D., Union Camp Corporation	Bill, B., U.S. EPA	Letter re: Union Camp's Comments on the Proposed Plan for the Tomah Municipal Sanitary Landfill Site	31
4	09/05/97	Tomah Residents	U.S. EPA	Three Public Comment Sheets re: Citizens' Comments on the Proposed Plan for the Tomah Municipal Sanitary Landfill Site (PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED)	3

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMEDIAL ACTION

ADMINISTRATIVE RECORD  
FOR  
TOMAH MUNICIPAL SANITARY LANDFILL SITE  
TOMAH, WISCONSIN

UPDATE #3  
OCTOBER 8, 1997

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	09/30/96	Mankowski, M., U.S. EPA	Patterson, K., City of Tomah	Letter re: Potential Federal and State ARARs for the Tomah Municipal Sanitary Landfill Site	19
2	09/25/97	U.S. EPA	Public	Record of Decision for the Tomah Municipal Sanitary Landfill Site	44
3	09/26/97	Meyer, G., WDNR	Muno, W., U.S. EPA	Letter re: WDNR's Concurrence on the Selected Interim Source Control Remedy for the Tomah Municipal Sanitary Landfill Site	2



U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMEDIAL ACTION

ADMINISTRATIVE RECORD  
FOR  
TOMAH MUNICIPAL SANITARY LANDFILL SITE  
TOMAH, WISCONSIN

UPDATE #4  
MAY 20, 2003

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	04/00/99	U.S. EPA/ OSWER	U.S. EPA	OSWER Directive: Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites w/ Attachments	41
2	05/10/00	ARCADIS Geraghty & Miller, Inc.	Remington, F., Wisconsin Office of the Attorney General & L. Laszewski, WDNR	Results of 1999 Semi-Annual Groundwater Sampling Activities at the Tomah Municipal Sanitary Landfill Site	21
3	09/27/00	Muno, W., U.S. EPA	U.S. EPA	Region 5 Framework for Monitored Natural Attenuation Decisions for Ground Water w/Cover Letter	24
4	05/00/01	Conestoga-Rovers & Associates	U.S. EPA	Quarterly Monitoring Report February-April 2001 for the Tomah Municipal Sanitary Landfill Superfund Site	528
5	06/19/01	Schumer, R., International Paper	Mankowski, M., U.S. EPA & W. Anderson, WDNR	Letter re: Revised Monitoring Plan for the Tomah Municipal Sanitary Landfill Site w/ Attachments	4
6	06/22/01	Anderson, W., WDNR	Mankowski, M., U.S. EPA	Letter re: WDNR Comments on the Revised Monitoring Plan for the Tomah Municipal Sanitary Landfill Site	1
7	07/02/01	Mankowski, M., U.S. EPA	Schumer, R., International Paper	Letter re: International Paper's June 19, 2001 Letter Proposing a Revised Monitoring Plan for the Groundwater Monitoring and Gas Extraction Systems at Tomah Municipal Sanitary Landfill Site	2

TOMAH MUNICIPAL SANITARY LANDFILL  
PAGE 2

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
8	08/00/01	Conestoga-Rovers & Associates	U.S. EPA	Quarterly Monitoring Report May-July 2001 for the Tomah Municipal Sanitary Landfill Superfund Site	372
9	08/29/01	Mankowski, M., U.S. EPA	Schumer, S., International Paper	Letter re: Approval of the O&M Plan and Completion of the Construction Report for the Tomah Municipal Sanitary Landfill Site	1
10	09/24/01	Kamm, K., Conestoga-Rovers & Associates	Residents, Tomah, WI	Letters re: Groundwater Sampling Results of Residential Properties	11
11	11/00/01	Conestoga-Rovers & Associates	U.S. EPA	Quarterly Monitoring Report August-October 2001 for the Tomah Municipal Sanitary Landfill Site	219
12	02/00/20	Conestoga-Rovers & Associates	U.S. EPA	Quarterly Monitoring Report November 2001-January 2002 for the Tomah Municipal Sanitary Landfill Site	277
13	02/20/02	Sandburg, B., Conestoga-Rovers & Associates	Mankowski, M., U.S. EPA	Letter re: Modifications to the Groundwater Sampling Program at the Tomah Municipal Sanitary Landfill Site	2
14	05/00/02	Conestoga-Rovers & Associates	U.S. EPA	Quarterly Monitoring Report February-April 2002 for the Tomah Municipal Sanitary Landfill Site	436
15	05/00/02	Conestoga-Rovers & Associates	U.S. EPA	Natural Attenuation Sampling Plan for the Tomah Municipal Sanitary Landfill Site	36
16	07/11/02	Kamm, K., Conestoga-Rovers & Associates	Boone, D., U.S. EPA	Letter re: Response to U.S. EPA's Comments on the Natural Attenuation Sampling Plan for the Tomah Municipal Sanitary Landfill Site	4
17	07/11/02	Kamm, K., Conestoga-Rovers & Associates	Boone, D., U.S. EPA	Letter re: Response to U.S. EPA's Comments on the Groundwater QAPP Addendum for the Tomah Municipal Sanitary Landfill Site w/Attachment	77

TOMAH MUNICIPAL SANITARY LANDFILL  
PAGE 3

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
18	08/00/02	Conestoga-Rovers & Associates	U.S. EPA	Quarterly Monitoring Report May-July 2002 for the Tomah Municipal Sanitary Landfill Site	69
19	08/05/02	Boone, D., U.S. EPA	Schumer, R., International Paper	Letter re: Conditional Approval for the Revised Groundwater QAPP Addendum and Natural Attenuation Sampling Plan for the Tomah Municipal Sanitary Landfill Site	2
20	11/00/02	Conestoga-Rovers & Associates	U.S. EPA	Quarterly Monitoring Report August-October 2002 for the Tomah Municipal Sanitary Landfill Site w/Transmittal Letter	66
21	04/00/03	Conestoga-Rovers & Associates	U.S. EPA	Operable Unit 2 Feasibility Study for the Tomah Municipal Sanitary Landfill Site	308
22	05/19/03	Boone, D., U.S. EPA	Schumer, R., International Paper	Letter re: Approval with Modifications of the Feasibility Study for Operable Unit 2 for the Tomah Municipal Sanitary Landfill Site	3

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMEDIAL ACTION

ADMINISTRATIVE RECORD  
FOR  
TOMAH MUNICIPAL SANITARY LANDFILL (OU2) SITE  
TOMAH, WISCONSIN

UPDATE #5  
SEPTEMBER 23, 2003

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	00/00/00	Friske, L., Tomah Resident	U.S. EPA	Letter re: Response to the June 24, 2003 Public Meeting on the Proposed Plan for the Tomah Muni- cipal Sanitary Landfill Site	15
2	06/00/03	U.S. EPA	Public	Fact Sheet: EPA Proposes Plan for Contaminated Ground Water at the Tomah Municipal Sanitary Landfill	8
3	06/10/03	Rusch, J., City Administrator, City of Tomah	Bill, B., U.S. EPA	Letter re: Proposed Plan for the Tomah Municipal Sanitary Landfill Site	1
4	06/11/03	Ludiking, C., Mayor, City of Tomah	Bill, B., U.S. EPA	Letter re: Proposed Plan for the Tomah Municipal Sanitary Landfill Site	1
5	06/11/03	Schliecher, T., Alderman, City of Tomah	Bill, B., U.S. EPA	Letter re: Proposed Plan for the Tomah Municipal Sanitary Landfill Site	1
6	06/24/03	U.S. EPA	Public	News Release: Public Meet- ing to Discuss Proposed Plan for Contaminated Ground Water at the Tomah Municipal Sanitary Landfill Site	1
7	06/24/03	Benchmark Reporting Agency	U.S. EPA	Transcript of June 24, 2003 Public Meeting on the Proposed Plan for Contam- inated Ground Water at the Tomah Municipal Sanitary Landfill Site	77
8	07/10/03	Tomah Residents	U.S. EPA	Public Comment Sheets: Comments on U.S. EPA's Proposed Plan for the Tomah Municipal Sanitary Landfill Site	6
9	07/23/03	Thorson, P., Managed Investments, Inc.	Bill, B., U.S. EPA	Letter re: Public Comment on the Tomah Municipal Sanitary Landfill Site w/Attachments	8

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
10	07/24/03	U.S. EPA	Public	News Release: U.S. EPA is Extending the Public Comment Period for the Tomah Municipal Sanitary Landfill Site for Contaminated Ground Water	1
11	09/08/03	Sandberg, B., Conestoga- Rovers & Associates	Boone, D., U.S. EPA	Letter re: Institutional Controls Associated with the Groundwater Operable Unit of the Tomah Municipal Sanitary Landfill Site w/Attached Map	4



International Paper Company v. City of Tomah, United States v. International Paper  
Consent Decree for Operable Unit 2

## **APPENDIX C**

**STATEMENT OF WORK FOR  
REMEDIAL DESIGN/REMEDIAL ACTION FOR OU2  
AT  
TOMAH MUNICIPAL SANITARY LANDFILL  
MONROE COUNTY, TOMAH, WISCONSIN**

**I. PURPOSE**

The purpose of this Statement of Work (SOW) is to set forth requirements for the design and implementation of the remedial action set forth in the OU2 ROD, which was signed by the Superfund Division Director, U.S. EPA, Region 5, on September 24, 2003. International Paper shall follow the OU2 ROD, this SOW, the approved RD/RA Work Plan, U.S. EPA Superfund Remedial Action Guidance and any additional guidance provided by U.S. EPA in submitting deliverables for designing and implementing the OU2 remedial action at the Site.

**II. DESCRIPTION OF THE REMEDIAL ACTION/PERFORMANCE STANDARDS**

International Paper shall implement the RA to meet the performance standards and specifications set forth in the OU2 ROD and this SOW. Performance standards shall include, standards of control, quality criteria and other substantive requirements, criteria or limitations including all Applicable or Relevant and Appropriate Requirements (ARARs) set forth in the OU2 ROD, this SOW and/or the OU2 Consent Decree.

1. Installation and Operation of Monitoring Program for Remedial Action - OU2

A. Groundwater Monitoring

International Paper shall design and implement a groundwater monitoring program as identified in the OU2 RD/RA Work Plan to actuate the Monitored Natural Attenuation (MNA) remedy. International Paper shall utilize the groundwater monitoring program to determine the effectiveness and protectiveness of MNA. To be considered adequately effective, the data must demonstrate that the MNA remedy is reducing contaminant concentrations, that the plume is shrinking, and that groundwater standards will be achieved in a reasonable period of time. If expansion occurs, then contingency actions would be initiated to control and prevent additional plume expansion.

If additional information indicates that the groundwater monitoring program is inadequate, U.S. EPA may require collecting groundwater samples more frequently, installing additional monitoring wells, and implementing additional response actions, such as a groundwater containment or treatment system.



## B. Surface Water and Sediment

International Paper shall design and implement a surface water and sediment monitoring program as identified in the RD/RA Work Plan. The surface water and sediment in Deer Creek will be monitored to determine if there is any impact from groundwater discharge. At all times during the performance of the RA, International Paper shall ensure that the surface water and sediment at and adjacent to the Site are not adversely affected by the RA.

If information indicates that the surface water and sediment are being adversely affected by the RA activities, U.S. EPA may require additional response actions.

## 2. Deed Restrictions

The City of Tomah shall execute and record deed restrictions and covenants as set forth in Paragraph 26 of the OU2 Consent Decree. International Paper shall execute and record deed restrictions and covenants as set forth in Paragraph 27 of the OU2 Consent Decree. The deed restrictions shall prohibit drilling of new wells on land overlying the plume of contamination and using existing wells on land overlying the plume of contamination. International Paper shall use its best efforts to secure the deed restrictions required.

## III. SCOPE OF REMEDIAL ACTION - OU2

The OU2 RA shall consist of the following tasks. All plans are subject to EPA approval.

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

### **Task 2: Remedial Design Phases**

- A. Preliminary Design
- B. Prefinal Design/Final Design

### **Task 3: Remedial Action Construction**

- A. Preconstruction Meeting
- B. Prefinal Inspection
- C. Final Inspection
- D. Reports
  - 1. Construction Completion Report
  - 2. Completion of Remedial Action Report
  - 3. Completion of Work Report

**Task 4: Performance Monitoring****Task 5: Operation and Maintenance****Task 1: Remedial Design/Remedial Action Work Plan**

International Paper shall prepare construction plans and specifications to implement the OU2 Remedial Action at the Site as described in the OU2 ROD and this SOW. Plans and specifications shall be submitted in accordance with the schedule set forth in Section IV below. Subject to approval by U.S. EPA, International Paper may submit more than one set of design submittals reflecting different components of the OU2 Remedial Action. All plans and specifications shall be developed in accordance with U.S. EPA's Superfund Remedial Design and Remedial Action Guidance (OSWER Directive No. 9355.0-4A) and shall demonstrate that the OU2 Remedial Action shall meet all objectives of the OU2 ROD, the OU2 CD and this SOW, including all Performance Standards. International Paper shall meet regularly with U.S. EPA to discuss design issues.

**Task 2: Remedial Design Phases****A. Preliminary Design**

International Paper shall submit the Preliminary Design when the design effort is approximately 30 % complete. The Preliminary Design submittal shall include or discuss, at a minimum, the following:

- Preliminary plans, drawings, and sketches, including design calculations;
- Results of additional field sampling;
- Design assumptions and parameters, including design restrictions and process performance criteria;
- Proposed cleanup verification methods, including compliance with Applicable or Relevant and Appropriate Requirements (ARARs);
- Outline of required specifications;
- Proposed siting/locations of processes/construction activity;
- Expected long-term monitoring and operation requirements;
- Real estate, easement, and permit requirements;

- Preliminary construction schedule, including contracting strategy.

## **B. Prefinal Design/Final Design**

International Paper shall submit the Prefinal Design when the design effort is 95% complete and shall submit the Final Design when the design effort is 100% complete. The Prefinal Design shall fully address all comments made to the preceding design submittal. The Final Design shall fully address all comments made to the Prefinal Design and shall include reproducible drawings and specifications suitable for bid advertisement. The Prefinal Design shall serve as the Final Design if USEPA has no further comments and issues the notice to proceed.

The Prefinal and Final Design submittals shall include those elements listed for the Preliminary Design, as well as, the following:

- Final Performance Standard Verification Plan;
- Final Construction Quality Assurance Plan;
- Final QAPP/Final H & S Plan/Final FSP/Final Contingency Plan;
- Draft OU2 Operation and Maintenance Plan;
- Capital and Operation and Maintenance Cost Estimate. This cost estimate shall refine the FS cost estimate to reflect the detail presented in the Final Design;
- Final Project Schedule for the construction and implementation of the Remedial Action which identifies timing for initiation and completion of all critical path tasks. The final project schedule submitted as part of the Final Design shall include specific dates for completion of the project and major milestones.

### **Task 3: Remedial Action Construction**

International Paper shall implement the OU2 RA as detailed in the approved OU2 Final Design. The following activities shall be completed in constructing the OU2 RA.

#### **A. Preconstruction inspection and meeting:**

International Paper shall participate with the U.S. EPA and the State 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 of the construction quality assurance plan to ensure that site-specific considerations are addressed; and,
- e. Conduct a Site walk-around to verify that the design criteria, plans, and specifications are understood and to review material and equipment storage locations.

The preconstruction inspection and meeting shall be documented by a designated person and minutes shall be transmitted to all parties.

B. Prefinal inspection:

Within fifteen (15) days after International Paper makes a preliminary determination that OU2 RA construction is complete, International Paper shall notify the U.S. EPA and the State for the purposes of conducting a prefinal inspection. The prefinal inspection shall consist of a walk-through inspection of the entire Site with U.S. EPA. The inspection is to determine whether the project is complete and consistent with the contract documents and the OU2 RA. Any outstanding construction items discovered during the inspection shall be identified and noted. Additionally, treatment equipment shall be operationally tested by International Paper. International Paper shall certify that the equipment as tested has performed to meet the purpose and intent of the specifications. Retesting shall be completed where deficiencies are revealed. The prefinal 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 and can be in the form of a punch list or letter.

C. Final inspection:

Within fifteen (15) days after completion of any work identified in the prefinal inspection report, International Paper shall notify the U.S. EPA and the State for the purposes of conducting a final inspection. The final inspection shall consist of a walk-through inspection of the Site by U.S. EPA and International Paper. The prefinal inspection report shall be used as a checklist with the final inspection focusing on the outstanding construction items identified in the prefinal inspection. Confirmation shall be made that outstanding items have been resolved.

D. Reports

1. Construction Completion Report - OU2

Within thirty (30) days of a successful final inspection, International Paper shall submit a Construction Completion Report. In the report, a registered professional engineer and International Paper's Project Coordinator shall state that the OU2 RA has been constructed in accordance with the design and specifications. The written report shall include as-built drawings signed and stamped by a professional engineer. The report shall contain the following statement, signed by International Paper'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 fine and imprisonment for knowing violations."

## 2. Completion of Remedial Action Report - OU1 and OU2

Within 30 days of completion of all Remedial Action (both OU1 RA and OU2 RA), including attainment of all performance standards, International Paper shall submit a Completion of Remedial Action Report. In the report, a registered professional engineer and International Paper's Project Coordinator shall state the Remedial Action has been completed in full satisfaction of the requirements of the OU1 and OU2 Consent Decrees. The written report shall include as-built drawings signed and stamped by a professional engineer not previously submitted. The report shall contain the following statement, signed by a responsible corporate official of International Paper or International Paper'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 fine and imprisonment for knowing violations."

## 3. Completion of Work Report - OU2

Within 30 days of completion of the Work, including operation and maintenance, International Paper shall submit a Completion of Work Report. In the report, a registered professional engineer and International Paper's Project Coordinator shall state the Work has been completed in full satisfaction of the requirements of the OU2 Consent Decree. The written report shall include as-built drawings signed and stamped by a professional engineer not previously submitted. The report shall contain the following statement, signed by a responsible corporate official of International Paper or International Paper'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 fine and imprisonment for knowing violations."

#### **Task 4: Performance Monitoring**

Performance monitoring shall be conducted to ensure that all OU2 Performance Standards are met.

##### Performance Standard Verification Plan

The purpose of the Performance Standard Verification Plan is to provide a mechanism to ensure that both short-term and long-term Performance Standards for the OU2 RA are met. The approved Performance Standards Verification Plan shall be implemented on the approved schedule. The Performance Standards Verification Plan shall include:

1. Quality Assurance Project Plan
2. Health and Safety Plan
3. Field Sampling Plan

#### **Task 5: Operation and Maintenance**

International Paper shall prepare an Operation and Maintenance (O&M) Plan to cover both implementation and long term maintenance of the OU2 RA. An initial Draft O&M Plan shall be submitted as a final Design Document submission. The final O&M Plan shall be submitted to U.S. EPA prior to the pre-final construction inspection, in accordance with the approved construction schedule. The plan shall be composed of the following elements, as necessary:

1. Description of normal operation and maintenance ;
  - a. Description of tasks for operation;
  - b. Description of tasks for maintenance;
  - c. Description of prescribed treatment or operation conditions; and
  - d. Schedule showing frequency of each O&M task.
2. Description of potential operating problems;
  - a. Description and analysis of potential operation problems;
  - b. Sources of information regarding problems; and

- c. Common and/or anticipated remedies.
3. Description of routine monitoring and laboratory testing;
  - a. Description of monitoring tasks;
  - b. Description of required data collection; laboratory tests and their interpretation;
  - c. Required quality assurance, and quality control;
  - d. Schedule of monitoring frequency and procedures for a petition to U.S. EPA to reduce the frequency of or discontinue monitoring; and
  - e. Description of verification sampling procedures if Cleanup or Performance Standards are exceeded in routine monitoring.
4. Description of alternate O&M;
  - a. Should systems fail, alternate procedures to prevent release or threatened releases of hazardous substances, pollutants or contaminants which may endanger public health and the environment or exceed performance standards; and
  - b. Analysis of vulnerability and additional resource requirement should a failure occur.
5. Corrective Action;
  - a. Description of corrective action to be implemented in the event that cleanup or performance standards are exceeded; and
  - b. Schedule for implementing these corrective actions.
6. Safety plan;
  - a. Description of precautions, of necessary equipment, etc., for Site personnel; and
  - b. Safety tasks required in event of systems failure.
7. Description of equipment; and
  - a. Equipment identification;
  - b. Installation of monitoring components;
  - c. Maintenance of Site equipment; and
  - d. Replacement schedule for equipment and installed components.
8. Records and reporting mechanisms required.

- a. Daily operating logs;
- b. Laboratory records;
- c. Records for operating costs;
- d. Mechanism for reporting emergencies;
- e. Personnel and maintenance records; and
- f. Monthly/annual reports to State agencies.

#### IV. MAJOR MILESTONES /SCHEDULE

International Paper shall adhere to the following schedule for performing tasks and submitting reports required by this SOW:

<u>Submission or Tasks</u>	<u>Due Date</u>
1. Remedial Design/Remedial Action Work Plan	Thirty (30) days after entry of the OU2 Consent Decree
2. Preliminary Design (30%)	Sixty (60) days after U.S. EPA's approval of the Final RD/RA Work Plan
3. Draft Performance Monitoring	Thirty (30) after submittal of Preliminary Design
4. Prefinal Design (95%)	Sixty (60) days after receipt of U.S. EPA's comments on the Preliminary Design.
5. Final Design (100%)	Thirty (30) days after receipt of U.S. EPA's comments on the Prefinal Design.
6. OU2 RA Construction	Thirty (30) days after approval of the Final Design.
7. Prefinal Inspection	No later than fifteen (15) days after completion of construction.
8. Prefinal Inspection Report	Fifteen (15) days after completion of prefinal inspection.
9. Final Inspection	Fifteen (15) days after completion of



- |   |  |
|---|--|
|   | work identified in prefinal inspection report.           |
| 10. Final O&M Plan                                  | No later than prefinal inspection.                       |
| 11. Construction Completion Report - OU2            | Sixty (60) days after final inspection.                  |
| 12. Remedial Action Completion Report - OU1 and OU2 | Thirty (30) days after completion of all Remedial Action |
| 13. Completion of Work Report - OU2                 | Thirty (30) days after completion of the Work.           |



International Paper Company v. City of Tomah, United States v. International Paper  
Consent Decree for Operable Unit 2

## **APPENDIX D**

## **Appendix D: Description and Map of the Site**

See Record of Decision, dated 9/25/97, Figure 1, and Record of Decision for OU2, dated 9/24/03, Figure 2-1.

International Paper Company v. City of Tomah, United States v. International Paper  
Consent Decree for Operable Unit 2

## **APPENDIX E**

**ENVIRONMENTAL PROTECTION EASEMENT  
AND  
DECLARATION OF RESTRICTIVE COVENANTS**

1. This Environmental Protection Easement and Declaration of Restrictive Covenants is made this \_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, by and between \_\_\_\_\_, ("Grantor"), having an address of \_\_\_\_\_, and, \_\_\_\_\_ ("Grantee"), having an address of \_\_\_\_\_

**WITNESSETH:**

2. WHEREAS, Grantor is the owner of a parcel of land located in the county of \_\_\_\_\_, State of \_\_\_\_\_, more particularly described on Exhibit A attached hereto and made a part hereof (the "Property"); and

3. WHEREAS, the Property is part of the \_\_\_\_\_ Superfund Site ("Site"), which the U.S. Environmental Protection Agency ("EPA"), pursuant to Section 105 of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. § 9605, placed on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on \_\_\_\_\_, 19\_\_\_\_; and

4. WHEREAS, in a Record of Decision dated \_\_\_\_\_, 19\_\_\_\_ (the "ROD"), the EPA Region \_\_\_\_ Regional Administrator selected a "remedial action" for the Site, which provides, in part, for the following actions:

~~Model Environmental Protection Agreement  
Appendix B~~

and

5. WHEREAS, with the exception of \_\_\_\_\_  
\_\_\_\_\_, the remedial action has been implemented at the Site; and

6. WHEREAS, the parties hereto have agreed 1) to grant a permanent right of access over the Property to the Grantee for purposes of implementing, facilitating and monitoring the remedial action; and 2) to impose on the Property use restrictions as covenants that will run with the land for the purpose of protecting human health and the environment; and

7. WHEREAS, Grantor wishes to cooperate fully with the Grantee in the implementation of all response actions at the Site;

NOW, THEREFORE:

8. Grant: Grantor, on behalf of itself, its successors and assigns, in consideration of [the terms of the Consent Decree in the case of \_\_\_\_ v. \_\_\_\_, etc.], does hereby covenant and declare that the Property shall be subject to the restrictions on use set forth below, and does give, grant and convey to the Grantee, and its assigns, with general warranties of title, 1) the perpetual right to enforce said use restrictions, and 2) an environmental protection easement of the nature and character, and for the purposes hereinafter set forth, with respect to the Property.

9. Purpose: It is the purpose of this instrument to convey to the Grantee real property rights, which will run with the land, to facilitate the remediation of past environmental contamination and to protect human health and the environment by reducing the risk of exposure to contaminants.

10. Restrictions on use: The following covenants, conditions, and restrictions apply to the use of the Property, run with the land and are binding on the Grantor:

11. Modification of restrictions: The above restrictions may be modified, or terminated in whole or in part, in writing, by the Grantee. If requested by the Grantor, such writing will be executed by Grantee in recordable form.

12. Environmental Protection Easement: Grantor hereby grants to the Grantee an irrevocable, permanent and continuing right of access at all reasonable times to the Property for purposes of:

- a) Implementing the response actions in the ROD, including but not limited to \_\_\_\_\_
- b) Verifying any data or information submitted to EPA.
- c) Verifying that no action is being taken on the Property in violation of the terms of this instrument or of any federal or state environmental laws or regulations;
- d) Monitoring response actions on the Site and conducting investigations relating to contamination on or near the Site, including, without limitation, sampling of air, water, sediments, soils, and specifically, without limitation, obtaining split or duplicate samples;
- e) Conducting periodic reviews of the remedial action, including but not limited to, reviews required by applicable statutes and/or regulations; and
- f) Implementing additional or new response actions if the Grantee, in its sole discretion, determines i) that such actions are necessary to protect the environment because either the original remedial action has proven to be ineffective or because new technology has been developed which will accomplish the purposes of the remedial action in a significantly more efficient or cost effective manner; and, ii) that the additional or new response actions will not impose any significantly greater burden on the Property or unduly interfere with the then existing uses of the Property.

13. Reserved rights of Grantor: Grantor hereby reserves unto itself, its successors, and assigns, all rights and privileges in and to the use of the Property which are not incompatible with the restrictions, rights and easements granted herein.

14. Nothing in this document shall limit or otherwise affect EPA's rights of entry and access or EPA's authority to take response actions under CERCLA, the NCP, or other federal law.





~~Redacted text block~~

good and lawful right and power to sell and convey it or any interest therein, that the Property is free and clear of encumbrances, except those noted on Exhibit D attached hereto, and that the Grantor will forever warrant and defend the title thereto and the quiet possession thereof.

22. **Notices:** Any notice, demand, request, consent, approval, or communication that either party desires or is required to give to the other shall be in writing and shall either be served personally or sent by first class mail, postage prepaid, addressed as follows:

To Grantor:

To Grantee:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

23. **General provisions:**

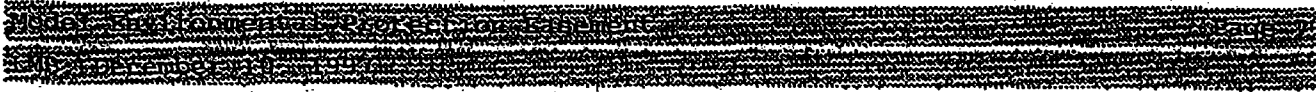
a) **Controlling law:** The interpretation and performance of this instrument shall be governed by the laws of the United States or, if there are no applicable federal laws, by the law of the state where the Property is located.

b) **Liberal construction:** Any general rule of construction to the contrary notwithstanding, this instrument shall be liberally construed in favor of the grant to effect the purpose of this instrument and the policy and purpose of CERCLA. If any provision of this instrument is found to be ambiguous, an interpretation consistent with the purpose of this instrument that would render the provision valid shall be favored over any interpretation that would render it invalid.

c) **Severability:** If any provision of this instrument, or the application of it to any person or circumstance, is found to be invalid, the remainder of the provisions of this instrument, or the application of such provisions to persons or circumstances other than those to which it is found to be invalid, as the case may be, shall not be affected thereby.

d) **Entire Agreement:** This instrument sets forth the entire agreement of the parties with respect to rights and restrictions created hereby, and supersedes all prior discussions, negotiations, understandings, or agreements relating thereto, all of which are merged herein.





By: \_\_\_\_\_

Its: \_\_\_\_\_

STATE OF \_\_\_\_\_ )

) ss

COUNTY OF \_\_\_\_\_ )

On this \_\_ day of \_\_\_\_\_, 19\_\_, before me, the undersigned, a Notary Public in and for the State of \_\_\_\_\_, duly commissioned and sworn, personally appeared \_\_\_\_\_, known to be the \_\_\_\_\_ of \_\_\_\_\_, the corporation that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute said instrument.

Witness my hand and official seal hereto affixed the day and year written above.

\_\_\_\_\_  
Notary Public in and for the  
State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

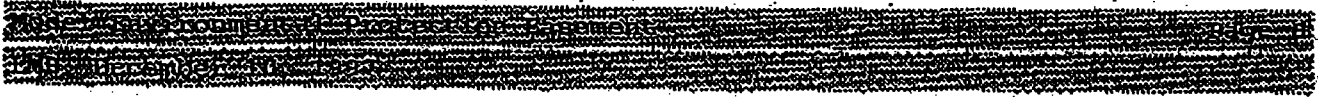
This easement is accepted this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_.

UNITED STATES OF AMERICA  
the persons and/or entities named at the beginning of this document, identified as "Grantor"  
and their personal representatives, heirs, successors, and assigns.

U.S. ENVIRONMENTAL PROTECTION  
AGENCY

By: \_\_\_\_\_

\_\_\_\_\_



- Attachments:**
- Exhibit A** - legal description of the Property
  - Exhibit B** - identification of proposed uses and construction plans, for the Property
  - Exhibit C** - identification of existing uses of the Property
  - Exhibit D** - list of permitted title encumbrances