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IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF INDIANA
HAMMOND DIVISION

UNITED STATES OF AMERICA, Plaintiff, v. MIDWEST SOLVENT RECOVERY, INC., et al. Defendants. AMERICAN CAN COMPANY, INC., et al. Third-Party Plaintiffs, v. ACCUTRONICS, et al., Third-Party Defendants.	Civil Action No. H 79-556 Judge Moody

CONSENT DECREE

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CONSENT DECREE

WHEREAS, The United States Environmental Protection Agency ("U.S. EPA"), pursuant to Section 105 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA"), 42 U.S.C. § 9605, placed the Midco I and Midco II Facilities in Gary, Indiana (the "Facilities" as specifically defined in Paragraph 4 of this Consent Decree) on the National Priorities List, which is set forth at 40 CFR Part 300, Appendix B, by publication in the Federal Register on September 8, 1983 and June 10, 1986;

In response to a release or a substantial threat of a release of a hazardous substance at or from each Facility, the Settling Defendants in May 1985 commenced a Remedial Investigation and Feasibility Study ("RI/FS") pursuant to 40 CFR 300.68 (1985) for each Facility;

Settling Defendants and certain Settling Third Party Defendants completed a Remedial Investigation ("RI") Report for Midco I in December 1987 and completed a Feasibility Study ("FS") Report for Midco I on February 10, 1989;

Settling Defendants and certain Settling Third Party Defendants completed an RI Report for Midco II in March 1988 and completed a FS Report for Midco II on February 10, 1989;

Each FS Report contained information upon which U.S. EPA prepared a proposed plan for remedial action at the Facilities;

On or about April 20, 1989, U.S. EPA, pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, published notice of the completion of the RI/FSs and of the proposed plans for remedial

action, in a major local newspaper of general circulation and provided opportunity for public comment to be submitted in writing to U.S. EPA by May 19, 1989, or orally at a public meeting held in the City of Hammond, Indiana, on April 27, 1989. U.S. EPA, pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, has kept a transcript of the public meeting and has made this transcript available to the public as part of the administrative records located at U.S. EPA, Region V, 230 South Dearborn Street, Chicago, Illinois and at the City of Gary Public Library, 220 W. 5th Avenue, Gary, Indiana;

Pursuant to CERCLA, U.S. EPA notified certain persons and entities, including but not limited to Settling Defendants, Class 1 and Class 2 Defendants, and certain Settling Third Party Defendants, that U.S. EPA determined each party to be a potentially responsible party ("PRP") regarding the proposed remedial actions at one or both of the Facilities;

In accordance with Section 121(f)(1)(F) of CERCLA, 42 U.S.C. § 9621(f)(1)(F), U.S. EPA notified the State of Indiana on May 9, 1989 of negotiations with PRPs regarding the scope of the remedial design and remedial action for the Facilities, and U.S. EPA has provided the State with an opportunity to participate in such negotiations and be a party to any settlement;

Pursuant to Section 122(j) of CERCLA, 42 U.S.C. § 9622(j), on May 9, 1989, U.S. EPA notified the Federal natural resource trustee of negotiations with PRPs on the subject of addressing the release or threatened release of hazardous substances at the Facilities;

Certain persons have provided comments on U.S. EPA's proposed plans for remedial action, and to such comments U.S. EPA provided a summary of responses, all of which have been included in the administrative records referred to above;

Considering the proposed plan for remedial action at each Facility and the public comments received, U.S. EPA reached decisions on a final remedial action plan for each Facility, which are embodied in documents called Records of Decision ("RODs") signed by the Regional Administrator on June 30, 1989, to which the State gave its concurrence, and which include a discussion of U.S. EPA's reasons for the RODs;

The June 30, 1989 RODs selected remedial action for the Midco Facilities that included groundwater treatment and extraction, soil solidification/stabilization, soil vapor extraction, deep well injection, sediment remediation, and operations and maintenance activities;

In December 1989, U.S. EPA issued unilateral administrative orders (UAOs) requiring the Settling Defendants to implement the remedial actions selected by U.S. EPA in the Midco I and Midco II RODs;

In December 1989, U.S. EPA issued a UAO requiring Class 3 Defendants V & E Corporation, Charles Licht, and Industrial Tectonics, Inc. to implement the remedial actions for Midco I selected by U.S. EPA in the Midco I ROD;

On January 8, 1990, the United States filed an amended complaint in this matter seeking to enforce U.S. EPA's UAOs and seeking recovery of CERCLA Response Costs and civil fines;

The Settling Defendants have filed a third party complaint against Settling Third Party Defendants, Settling State Agency, and others and have filed a counterclaim against the United States;

Thereafter, the Settling Defendants, the United States, and the State resumed settlement negotiations for the purpose, inter alia, of reaching a settlement under which the remedy for the Midco Facilities would be implemented by the Settling Defendants. Principal aspects of the settlement that was reached, as incorporated in this Consent Decree, include a change in the method of determining how much soil at the Midco Facilities will be solidified/stabilized that takes into account new information about aluminum interference on arsenic sampling data for the Midco Facilities and at the same time applies new Agency regulations, e.g., 40 C.F.R. § 300.430(a)(iii)(A), (B), dealing with the extent of soil treatment at Superfund sites; and additional definition of the standards to be met for groundwater prior to deep well injection, including the delisting of extracted groundwater under CERCLA guidance (provided that the extracted groundwater meets specified maximum allowable concentrations prior to disposing of the extracted groundwater by deep well injection). These changes, and other refinements or details on the remedy selected in the RODs, are included in this Decree and/or the Statement of Work ("SOW") that is attached as Appendix 1 to this Consent Decree, and are reflected in and would implement the proposed ROD Amendments ("ROD Amendments") that are attached as Appendices 2A and 2B to this Decree and that will be

submitted for public comment concurrently with this Consent Decree;

The Consent Decree will be subject to public comment pursuant to Section 122(i) of CERCLA. The U.S. Department of Justice may withdraw or withhold consent to the proposed settlement if such comments disclose facts or considerations which indicate that the proposed settlement is inappropriate, improper, or inadequate;

U.S. EPA and the State have reviewed this Decree and the SOW and U.S. EPA believes, and the State concurs, that the supplemented administrative records support amending the RODs to correspond with this Decree and the SOW;

Pursuant to Section 121(d)(1) of CERCLA, 42 U.S.C. § 9621(d)(1), the Parties believe that the remedial actions specified in this Decree and the SOW will attain a degree of cleanup of hazardous substances, pollutants and contaminants released into the environment and of control of further release which if properly and successfully carried out at a minimum assures protection of human health and the environment at the Facilities and which if properly and successfully carried out will abate any known threat of imminent and substantial endangerment at the Facilities;

The Parties believe the remedial actions specified in this Decree and the SOW will provide a level or standard of control for such hazardous substances, pollutants, or contaminants which at least attains legally applicable or relevant and appropriate standards, requirements, criteria, or limitations under Federal

environmental law or State environmental or facility siting law in accordance with Section 121(d)(2) of CERCLA, 42 U.S.C. § 9621(d)(2), and that these remedial actions are in accordance with Section 121 of CERCLA, 42 U.S.C. § 9621, with the National Contingency Plan ("NCP"), 40 CFR Part 300, and the proposed ROD Amendments;

Subject to adoption of ROD Amendments the same as the proposed ROD Amendments, the Settling Defendants agree to implement the remedial actions specified in this Decree and the SOW, and U.S. EPA and the State have determined that the Work required under the Consent Decree and SOW will be done properly by Settling Defendants and that Settling Defendants are qualified to implement the remedial actions specified in this Decree and the SOW;

Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, U.S. EPA will provide public notice of the proposed ROD Amendments at the same locations as the administrative record referred to above. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, notice will be published in a major local newspaper of general circulation and will include an explanation of any significant changes from the remedies selected in the June 30, 1989 RODs, and the reasons for such changes;

If after public comment, U.S. EPA adopts ROD Amendments which differ from the proposed ROD Amendments (attached as Appendices 2A and 2B), the United States will so notify Settling Defendants, Class 1, 2, and 3 Defendants, Settling Federal and State Agencies and the addressees listed for Settling Class A, B,

C, and D Third Parties in Section XXI, in writing, prior to moving to enter the Decree, and the Parties shall have thirty (30) days following adoption of the ROD Amendments in which to agree to modifications to the Decree and SOW in accordance with the ROD Amendments. The Parties may mutually agree to extend the 30-day time period;

If the Parties fail to reach agreement regarding modification of the Decree and/or SOW within the time specified above or an alternative time agreed to by the Parties, any Party may withdraw from the Consent Decree, in which case the Decree shall be without any force or effect for any purpose as to such Party. A Party may withdraw from this Consent Decree under the provisions of this Paragraph by filing with the Court and serving on the Parties a notice that sets forth such Party's decision to withdraw within fifteen (15) days after termination of the period for agreeing to modifications referred to above. If any Party serves a timely notice of withdrawal, other Parties shall have an additional ten (10) days from receipt of service of such notice to provide a notice of withdrawal in the manner described above;

The State on behalf of the Indiana Department of Environmental Management has filed concurrently with this Consent Decree a Complaint relating to the Facilities against Settling Defendants pursuant to Section 107 of CERCLA and Ind. Code 13-7-8.7 and 13-7-12, which Complaint is being addressed in this Consent Decree. Settling Defendants hereby waive service of the State's summons and Complaint;

The Parties recognize, and intend to further hereby, the public interest in the expedition of the cleanup of the Facilities and in avoiding prolonged and complicated litigation between the Parties.

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

I. PURPOSE OF DECREE

1. The purpose of this Consent Decree is to provide for implementation by Settling Defendants of the remedial design and remedial action for the Facilities as set forth in this Decree and the SOW attached as Appendix 1, to provide for payment of certain Response Costs incurred and to be incurred by the United States and the State for the Facilities, to provide for the payment of civil fines to the United States, and to provide for certain settlements with Class 1, 2, and 3 Defendants and Settling Third Party Defendants, Settling Federal Agencies, and Settling State Agency.

II. JURISDICTION

2. This Court has jurisdiction over the subject matter herein pursuant to 28 U.S.C. §§ 1331(a) and 1345, and 42 U.S.C. §§ 9613(b) and 9622(d)(1)(A), and over the parties consenting hereto.

III. PARTIES BOUND

3. This Consent Decree applies to and is binding upon the undersigned parties and their successors and assigns. The

undersigned representative of each party to this Consent Decree certifies that he or she is fully authorized by the party or parties whom she or he represents to enter into the terms and conditions of the Consent Decree and to execute and legally bind that party to it. Settling Defendants shall provide a copy of this Consent Decree to the contractor(s) hired to perform the work required by this Consent Decree and shall require the contractor(s) to provide written notice of the Decree to any subcontractor retained to perform any part of the work.

IV. DEFINITIONS

4. Whenever the following terms are used in this Consent Decree and the Appendices attached hereto, the following definitions shall apply:

"Class 1 Defendants" means V&E Corporation and Robert J. Dawson.

"Class 2 Defendants" means Penn Central Corporation.

"Class 3 Defendants" means Charles Licht, Dolores Licht, David Licht, Industrial Tectonics, Inc., By-Products Management, Inc., and Alfred M. Tenney.

"Cleanup Action Levels" or "CALs" mean the requirements respecting the degree of cleanup of groundwater, soil, or other environmental media that are listed at page 6 and pages 10-11 of the SOW.

"Consent Decree" or "Decree" means this Decree and all appendices hereto. In the event of perceived conflict between

this Decree and any appendix, or this Decree and the 1985 Partial Consent Decree entered by this Court, this Decree shall control.

"Contractor" means the company or companies retained by or on behalf of Settling Defendants to undertake and complete the work required by this Consent Decree. Each contractor and subcontractor shall be qualified to do those portions of the work for which it is retained. Each contractor and subcontractor shall be deemed to be a party with a contractual relationship to each Settling Defendant within the meaning of 42 U.S.C. § 9607(b).

"Facility" or "Facilities" refers to two CERCLA locations where hazardous substances have been deposited, stored, disposed of, or placed, or otherwise come to be located, which Facilities are respectively denominated "Midco I," located at or near 7400 West Fifteenth Avenue in the southwest quarter of the northwestern quarter of Section 11, Township 36 North, Range 9 West, in the southwest portion of Gary, Lake County, Indiana, and "Midco II," which is located at or near 5900 Industrial Highway (U.S. Route 12) in the northwest quarter of Section 36, Township 37 North, Range 9 West, in the western portion of Gary, Lake County, Indiana, including all of the areas shown more particularly on the maps attached as Appendices 3A and 3B.

"Hazardous substance" shall have the meaning provided in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

"INDOT Settlement Agreement" means the proposed settlement agreement between Settling Defendants and Settling State Agency which is attached as Appendix 10.

"National Contingency Plan" or "NCP" means the term used in Section 105 of CERCLA, 42 U.S.C. § 9605 and is promulgated at 40 CFR Part 300.

"Natural Resources" shall have the meaning provided in Section 101(16) of CERCLA, 42 U.S.C. § 9601(16).

"Natural Resource Trustees" means the Secretary of U.S. DOI; Greta Hawvermale, Assistant Commissioner, Office of Environmental Response, IDEM; and Gary Doxtater, Deputy Director of the Indiana Department of Natural Resources or their legal successors.

"Oversight Costs" means any costs not inconsistent with the National Contingency Plan incurred by U.S. EPA, or the State in monitoring the compliance of the Settling Defendants with this Consent Decree, including but not limited to payroll and other direct costs, indirect and overhead costs, sampling and laboratory costs, travel, contractor costs and costs of review of the work performed pursuant to this Consent Decree.

"Parties" means the United States of America, the State of Indiana, the Settling Defendants, Class 1, 2, and 3 Defendants, Settling Third Parties, and Settling State Agency.

"Penn Central Consent Decree" means the Consent Decree between the United States and Class 2 Defendant Penn Central Corporation lodged with this Court on or about March 22, 1991.

"Performance Standards" means the standards of control and other substantive requirements, criteria or limitations for the performance of the Work described in subparagraph 12b of this Decree and the SOW.

"RCRA" means the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901 et. seq. (also known as the Resource Conservation and Recovery Act).

"RD/RA Project Plan" means the plan for implementation of the remedial design, remedial action, and operation and maintenance of the remedial action for the Facilities required by this Consent Decree and the SOW, as submitted by Settling Defendants and approved by U.S. EPA pursuant to paragraph 13 of this Decree.

"Record of Decision(s)" or "ROD(s)" means the administrative Records of Decision issued by U.S. EPA for the Midco Facilities on June 30, 1989.

"ROD Amendments" means the administrative Record of Decision Amendments issued by U.S. EPA after public comment on the proposed ROD Amendments attached in Appendices 2A and 2B.

"Remedial Project Manager" or "RPM" means the person designated by U.S. EPA to coordinate, monitor or direct remedial activities at the Facilities pursuant to the NCP and Section XII hereof.

"Response Costs" of the United States or the State means any costs not inconsistent with the National Contingency Plan incurred by the United States or the State pursuant to 42 U.S.C. §§ 9601 et seq. in connection with the Facilities, including but not limited to direct and indirect costs.

"Settling Class A Third Parties" means the third party defendants sued by Settling Defendants that are listed in Appendix 5.

"Settling Class B Third Parties" means the third party defendants sued by Settling Defendants that are listed in Appendix 6.

"Settling Class C Third Party" means Scholle Corporation.

"Settling Class D Third Parties" means the parties listed in Appendix 9A.

"Settling Class E Third Parties" means the parties listed in Appendix 9B.

"Settling Defendants" means the defendants listed in Appendix 4.

"Settling Federal Agencies" means the Department of Defense, the United States Army, and the United States Air Force.

"Settling State Agency" or "INDOT" means the Indiana Department of Transportation, formerly known as the Indiana Department of Highways.

Settling Third Parties" means Settling Class A Third Parties, Settling Class B Third Parties, Settling Class C Third Party, Settling Class D Third Parties, and Settling Class E Third Parties.

"Soil Treatment Action Levels" or "STALs" means the requirements for determining the areas of soil treatment as described in subparagraph 12a of this Decree and Section II.D of the SOW beyond the minimum areas of soil treatment described in the SOW.

"State" means the State of Indiana; "IDEM" means the Indiana Department of Environmental Management, the State's environmental protection agency.

"Statement of Work" or "Scope of Work" or "SOW" means the statement of work, set forth as Appendix 1 to this Decree, for implementation of the remedial design and remedial action at the Facilities, and any subsequent amendments of Appendix 1 pursuant to the provisions of this Decree.

"Third Party Agreement" means the proposed settlement agreement among the Settling Defendants, Settling Class A Third Parties, and Settling Class B Third Parties, which is attached as Appendix 7.

"UAO" means the Unilateral Administrative Orders for the Midco Facilities issued by U.S. EPA in December 1989.

"United States" means the United States of America, including its agencies, departments, and instrumentalities.

"U.S. EPA" means the United States Environmental Protection Agency.

"U.S. DOI" means the United States Department of Interior.

"U.S. DOJ" means the United States Department of Justice.

"Work" or "Remedial Design and Remedial Action" or "RD/RA" means the design, construction and implementation, including operation and maintenance, in accordance with this Consent Decree, of the tasks described in this Decree and the Statement of Work, as implemented by the RD/RA Project Plan and any other plans or schedules submitted to and approved by U.S. EPA after consultation with the State pursuant to this Decree or the SOW.

V. GENERAL PROVISIONS

5. Commitment of Settling Defendants to Perform RD/RA.

a. Settling Defendants agree jointly and severally to perform the Work as defined in paragraph 4 hereof. Settling Defendants may utilize a Trust Fund or other business entity as a mechanism for carrying out their obligations under this Consent Decree. However, utilization of a Trust Fund or other business entity for this purpose shall not in any way relieve Settling Defendants of their joint and several obligations under this Decree.

b. The Work shall be completed in accordance with all requirements of this Decree, the SOW, and all other plans or schedules submitted and approved by U.S. EPA after consultation with the State under this Decree. The procedures for submission and approval of plans are set forth in Section VI below.

6. Compliance with Applicable Laws; Permits and Approvals

a. All activities undertaken by the Settling Defendants pursuant to this Consent Decree shall be undertaken in accordance with the requirements of all applicable federal, state and local laws, regulations and permits, as required by CERCLA.

b. Pursuant to Section 121(e)(1) of CERCLA, no federal, state, or local permits are required for work conducted entirely on the Facilities. In accordance with Section II.C of the SOW, the excavation of sediments and soils beneath sediments pursuant to Section II.B of the SOW; all Work performed in the areas shown on Figures 1 and 2 of the SOW; and any treatment and injection of groundwater on property in very close proximity to

the Facilities, combined treatment or injection of the groundwater between the Facilities, or work relating to any pipe constructed to transport the extracted groundwater from one Facility to the other Facility or to property in very close proximity to the Facilities shall be considered work conducted on the Facilities for purposes of this paragraph. Settling Defendants shall obtain all permits or approvals necessary for work off the Facilities under applicable federal, state or local laws and shall submit timely applications and requests for any such permits and approvals.

c. The standards and provisions of Section XIII hereof describing Force Majeure shall govern delays in obtaining permits required for the Work and also the denial of any such permits, provided that Settling Defendants have made timely application for any such permits and have submitted all information required therefore.

d. Settling Defendants shall include in all contracts or subcontracts entered into for work required under this Consent Decree, provisions stating that such contractors or subcontractors, including their agents and employees, shall perform all activities required by such contracts or subcontracts in compliance with all applicable laws and regulations.

e. This Consent Decree is not a permit issued pursuant to any federal or state statute or regulation.

7. Formal Approval Required. No informal advice, guidance, suggestions or comments by representatives of the United States or the State on plans, reports or other documents

submitted by the Settling Defendants shall be construed as relieving them from obtaining any formal approvals, permits or other authorizations required by law or by this Decree. Further, no advice, guidance, suggestions or comments by such government representatives with respect to any submission by the Settling Defendants shall be construed so as to relieve them of their obligations under this Decree or to transfer any of their liability or obligations under this Decree to any other party or person.

8. Computation of Time. Unless otherwise provided, dates and time periods specified in or under this Decree are in calendar days. If the date for submission of any item or notification required by this Decree falls upon a weekend or state or federal holiday, the time period for submission of that item or notification is extended to the next working day following the weekend or holiday. Submission shall be deemed accomplished when the item is delivered or mailed to the required party or parties.

9. Omitted.

VI. PERFORMANCE OF THE WORK BY SETTLING DEFENDANTS

10. Selection of Architect/Engineer and Contractor(s).

a. Architect/Engineer. All remedial design work to be performed by Settling Defendants pursuant to this Consent Decree shall be under the direction and supervision of a qualified professional architect(s) or engineer(s), including, with respect to injection well matters, a professional engineer with

experience in the design and permitting of underground injection wells. Selection of any such architect or engineer is subject to approval by U.S. EPA after consultation with the State. U.S. EPA's approval shall not be unreasonably withheld. U.S. EPA after consultation with the State hereby approves ERM North Central, Inc. as Settling Defendants' architects or engineers for remedial design, and the Golden Group of Companies as Settling Defendants' professional engineers with experience in the design and permitting of underground injection wells.

b. Contractor. All remedial action work to be performed by the Settling Defendants pursuant to this Consent Decree shall be under the direction and supervision of a qualified professional engineer(s), including, with respect to injection well matters, a professional engineer with experience in the construction and operation of underground injection wells. U.S. EPA after consultation with the State hereby approves ERM North Central, Inc. as Settling Defendants' contractors that will direct and supervise the remedial action work, and the Golden Group of Companies as Settling Defendants' professional engineers with experience in the construction and operation of underground injection wells. As soon as possible after entry of the Decree, and at least 30 days prior to the date upon which initiation of remedial action work is required under this Decree, the Settling Defendants shall notify U.S. EPA and the State, in writing, of the name, title, and qualifications of any other principal contractors and subcontractors and engineers proposed to be used in carrying out the Work to be performed pursuant to this Consent

Decree. Selection of any such engineer or contractor and/or subcontractor shall be subject to approval by the U.S. EPA after consultation with the State. U.S. EPA's approval of a selection of an architect, engineer, or contractor shall not be unreasonably withheld.

c. Disapproval of Architect/Engineer or Contractor. If U.S. EPA disapproves of any additional or subsequent selection of an architect or contractor, Settling Defendants shall submit a list of alternate architects or contractors to U.S. EPA and the State within 30 days of receipt of the notice of disapproval. Within 14 days from receipt of the list U.S. EPA, after consultation with the State, shall provide written notice of the names of the architects, engineers or contractors on the list of which it approves. Settling Defendants may select any approved architect, engineer or contractor from the list and shall notify U.S. EPA and the State of the name of the person or entity selected within 21 days of receipt of the list. If U.S. EPA does not approve or disapprove of any proposed architect or contractor or any proposed list of alternate architects or contractors within 14 days and the delay prevents Settling Defendants from meeting one or more deadlines in a plan approved by U.S. EPA pursuant to this decree, Settling Defendants may seek relief under the provisions of Section XIII hereof.

d. Replacement Or Addition of Architect/Engineer or Contractor. If at any time Settling Defendants propose to replace or add an architect, engineer or contractor previously approved by U.S. EPA, they shall give written notice to U.S. EPA

and the State of the name, title and qualifications of the proposed new architect, engineer or contractor. Such architect, engineer or contractor shall not perform any Work until approval by U.S. EPA, after consultation with the State, has been given. U.S. EPA's approval of an architect, engineer, or contractor shall not be unreasonably withheld.

U.S. EPA may revoke the approval of any architect, engineer, or contractor if the architect, engineer, or contractor does not continue to have the ability to complete all tasks under the Consent Decree, SOW, and RD/RA Project Plan. In the event of such revocation of approval, U.S. EPA will provide a written notice of revocation of approval that indicates the reasons for such revocation and Settling Defendants shall submit a list of alternate architects or contractors within 30 days of receipt of such notice. The provisions and procedures of subparagraph c above shall then apply.

11. a. Statement of Work. Appendix 1 to this Consent Decree provides the Statement of Work ("SOW") for the Facilities. This Statement of Work is incorporated into and made an enforceable part of this Consent Decree.

b. Major Components of the Remedial Action. As described in the SOW, the major components of the remedial action for the Facilities are as follows:

(i) Initial Site Security, Access Restrictions, and Close Out of Previous Investigations: See Section II.A of the SOW.

(ii) Handling and Treatment of Contaminated Sediments and Soils Beneath the Sediments: See Section II.B of the SOW.

(iii) Groundwater Extraction and Treatment and Deep Underground Well Injection System: Settling Defendants shall implement a groundwater extraction system, groundwater treatment system (as needed), and deep underground well injection system for both the Midco I and Midco II Facilities in accordance with Section II.C of the SOW.

(iv) In-situ soil solidification/stabilization and soil vapor extraction: Settling Defendants shall undertake in situ soil solidification/stabilization and soil vapor extraction and related sampling at both Midco I and Midco II in accordance with Sections II.D.2 and II.G.2 of the SOW.

(v) Final Site Cover and Access Restrictions: See Section II.E of the SOW.

(vi) Long-term Monitoring and Maintenance, Cover Repair and Reactivation of Ground Water Extraction, Treatment and Deep Well Injection System: See Subparagraph 85c of the Consent Decree and Sections II.F, II.C, Part III Task-II.B, and Part III Task-IV.C, D of the SOW.

(vii) Control of Air Emissions, On-Site Storage of Contaminated Soil and Sediments, and Waste Handling: See Section II.G of the SOW.

Other than the above-described major components of remedial action, Settling Defendants shall not be required to perform an additional major component of remedial action at the

Facilities except pursuant to and in accordance with Section VII or VIII or paragraph 67 of this Decree.

12. Cleanup Action Levels, Soil Treatment Action Levels, and Performance Standards. The Work performed under this Consent Decree shall meet the CALs as provided in Sections II.B and II.C of the SOW, subject to the limitations and conditions of pages 10-13 thereof, the requirements triggered by the Soil Treatment Action Levels, and the Performance Standards set forth below and in the SOW.

a. Cleanup and Treatment Action Levels

(i) Soil Treatment Action Levels. The areas within the minimum areas to be treated indicated on Figures 1 and 2 of the SOW must be treated by soil solidification/stabilization and soil vapor extraction as described in Section II.D.2 of the SOW. For the areas in the Facilities that are outside the minimum areas of treatment identified on Figures 1 and 2 of the SOW, any sample location sampled according to Section II.D.2 of the SOW which exceeds the Soil Treatment Action Levels described in Section II.D of the SOW shall be treated in accordance with Section II.D of the SOW.

(ii) Cleanup Action Levels For Groundwater. The groundwater CALs are described in Section II.C of the SOW.

(iii) Cleanup Action Levels For Soils Beneath Sediments. The Cleanup Action Levels for the soils beneath sediments are contained in Section II.B of the SOW.

(iv) Technical Impracticability

(a) Settling Defendants may, after ten (10) years of operation of the groundwater extraction and treatment system as required by this Decree and the SOW, petition the U.S. EPA to revise a groundwater CAL (or CALs) set forth at pages 10-11 of the SOW, on the ground that it is technically impracticable from an engineering perspective to meet such CAL. Settling Defendants' petition shall include (i) a detailed justification setting forth the technical basis for their claim that it is technically impracticable from an engineering perspective to further reduce the risk below the level being achieved for that CAL (the "Lowest Achievable Level"); (ii) a proposed alternative groundwater CAL ("Alternative Groundwater CAL"), which shall be equal to the Lowest Achievable Level for that CAL; (iii) a description of any additional response action taken or to be taken by Settling Defendants, including improvements to the design, operation and maintenance of the groundwater extraction and treatment system, to ensure that the remedial action Work is utilizing the best available technology, that the remedial action Work will be protective of human health and the environment, and that the remedial action Work will meet the Alternative Groundwater CAL established pursuant to this subparagraph; and (iv) a demonstration that the remedial action Work at the Facility and/or additional response actions proposed by Settling Defendants in their petition will meet the Alternative Groundwater CALs established pursuant to this subparagraph and will attain a degree of cleanup which assures protection of human

health and the environment. A copy of the petition shall also be sent to the State.

(b) Based on a review of Settling Defendants' petition and supporting information, and after consultation with the State, U.S. EPA shall determine whether the petition should be granted. If U.S. EPA grants the petition, U.S. EPA shall make findings identifying the Alternative Groundwater CALs that Settling Defendants shall be required to meet, and identifying any additional response action that Settling Defendants must implement to attain a degree of cleanup that at a minimum assures protection of human health and the environment and to achieve the Alternative Groundwater CAL(s).

(c) U.S. EPA's decisions and findings with respect to any petition under subparagraph 12a(iv) shall be deemed a determination regarding the adequacy and selection of the remedy for this Facility within the meaning of Section 113(j) of CERCLA, 42 U.S.C. Section 9613(j), and shall be subject to the dispute resolution provisions under paragraph 40 of this Consent Decree.

(d) If U.S. EPA grants any petition pursuant to this subparagraph 12a(iv), Settling Defendants shall thereafter achieve all Alternative Groundwater CALs.

(e) The grant of any petition by U.S. EPA pursuant to this subparagraph 12a(iv) shall be subject to the periodic review provisions of Section VIII of this Decree.

(f) Nothing in this subsection on technical impracticability shall be construed to modify or override the

provisions of pp. 10-13 of the SOW. Likewise, the provisions of pp. 10-13 of the SOW shall not be construed to modify or override the requirements of this subsection with respect to any technical impracticability petition by Settling Defendants.

b. PERFORMANCE STANDARDS.

(i) Performance Standards For Soil Solidification/ Stabilization. See Section II.D of the SOW.

(ii) Performance Standards For Soil Vapor Extraction. See Section II.D of the SOW.

(iii) Performance Standards For Groundwater Extraction System and for Treatment of Groundwater To Be Injected Into Deep Well. See Section II.C. of the SOW.

(iv) Performance Standards For Air Emissions. See Section II.G of the SOW.

(v) Performance Standards For Final Site Covers. See Section II.E of the SOW.

13. RD/RA Project Plan.

a. The RD/RA Project Plan shall consist of the following tasks and deliverables as described in the SOW including:

1. RD/RA Work Plan

A. Investigation and Monitoring Plans

B. Quality Assurance Project Plans

C. Facility Access Plans

D. Permit and Approval Plans

E. Consistency With Future Land Use Plans

F. Health and Safety Plans

2. Design Tasks Submissions

3. Preconstruction Inspections and Meetings

4. Prefinal and Final Inspections and Prefinal Reports

5. Construction Completion Reports

6. Monthly Progress Reports during RD/RA

7. Sampling Data Reports

8. Annual Court Report

9. Completion of Remedial Action Report

10. Semi-Annual Progress Reports During Operations and Maintenance Phase

11. Operations and Maintenance Sampling Data Reports

12. Notification of Failure To Meet Cleanup or Performance Standards or Requirements Triggered by Soil Treatment Action Levels

13. Response Plans in the Event of Failure To Meet Cleanup Action Levels or Performance Standards or Requirements Triggered by Soil Treatment Action Levels

The schedule for some of the above deliverables is located in Part III, Task IV.F of the SOW.

b. All parts of the RD/RA Project Plan shall be developed and approved in conformance with this Decree, the SOW, U.S. EPA Superfund Remedial Design and Remedial Action Guidance and any additional guidance documents provided by U.S. EPA that are in effect at the time of plan submission. If an applicable U.S. EPA guidance document is changed or is issued which requires

modification of plans under development, U.S. EPA shall adjust deadlines of such plans as U.S. EPA deems necessary to incorporate such guidance into the plan being developed.

c. All plans shall be subject to review, modification and approval by U.S. EPA, after consultation with the State, in accordance with the procedures set forth in paragraph 14 below.

d. All approved plans shall be deemed incorporated into and made an enforceable part of this Consent Decree. All work shall be conducted in accordance with the National Contingency Plan, the U.S. EPA Superfund Remedial Design and Remedial Action Guidance, and the requirements of this Consent Decree, including the standards, specifications and schedule contained in the RD/RA Project Plan.

14. Approval Procedures for Plans and Other Documents.

a. Upon review of each plan or other document required to be submitted and approved by U.S. EPA pursuant to this Decree, and after consultation with the State, the U.S. EPA Remedial Project Manager (the "RPM") shall notify Settling Defendants, in writing, that a document is (1) approved, (2) disapproved, (3) corrected by U.S. EPA to cure deficiencies, or (4) returned to Settling Defendants for correction. An explanation shall be provided for any disapproval or required correction.

b. Upon approval or correction of a submission by U.S. EPA, Settling Defendants shall proceed to implement the work required.

c. In the event of partial U.S. EPA disapproval or request by U.S. EPA for correction by Settling Defendants, the

Settling Defendants shall proceed to implement the work in any approved portions of the submission upon request by U.S. EPA, and shall submit a revised document to U.S. EPA and the State, curing the deficiencies within 30 calendar days of receipt of notice from U.S. EPA or such other time as may be agreed to by the parties. Any stipulated penalties applicable under Section XVII shall accrue during the 30-day period or other time agreed to by the parties but shall not be payable unless the resubmission of a revised document is disapproved, corrected, or returned for correction due to a material defect.

d. Settling Defendants may submit any disapproval, correction, or conditions of approval to which they object, for dispute resolution pursuant to Section XIV hereof. The provisions of Section XIV (Dispute Resolution) and Section XVII (Stipulated Penalties) shall govern the implementation of Work and accrual and payment of any stipulated penalties during dispute resolution. Implementation of non-deficient portions of the submission shall not relieve Settling Defendants of any liability for stipulated penalties under Section XVII.

VII. ADDITIONAL WORK AND MODIFICATION OF THE SOW

15. No Warranty. The provisions of the SOW attached as Appendix 1 reflect the United States', the State's, and Settling Defendants' best efforts at the time of execution of this Decree to define the technical work required to perform the remedial action described herein. The United States, the State, and the Settling Defendants acknowledge and agree that approval by U.S.

EPA of neither the SOW nor the RD/RA Project Plan constitutes a warranty or representation of any kind that the SOW or RD/RA Project Plan will achieve the Cleanup Action Levels, Performance Standards or requirements triggered by the Soil Treatment Action Levels, and shall not foreclose the United States or the State from seeking compliance with the applicable Cleanup Action Levels, Performance Standards or requirements triggered by the Soil Treatment Action Levels under this Decree and the SOW.

16. Modification of the Statement of Work.

a. The United States, the State, and the Settling Defendants recognize that modification of the SOW may be required at some point in the future, to provide for additional work needed to meet the Cleanup Action Levels, Performance Standards or requirements triggered by the Soil Treatment Action Levels, specified above. In such event, the following procedures shall be followed to amend the SOW:

(i) The party that determines that additional work or other modification of the SOW is necessary shall provide written notice of such determination to the United States, the State, and the Settling Defendants.

(ii) The other parties among the United States, the State, and the Settling Defendants shall respond to such notice in writing within thirty (30) days of receipt or such other time as may be agreed to.

b. Additional Work Obligations Under This Section In the Event of Failure to Meet Groundwater CALs. Settling Defendants' Additional Work obligations under this Section on

account of failure to meet groundwater CALs are subject to the provisions of Section II.C, pp. 10-13 of the SOW.

17. Modification by Agreement. If the United States, the State, and the Settling Defendants agree on the modifications to the SOW, the agreement shall be in writing and shall be submitted, along with the amended SOW, for approval of the Court.

18. Dispute Resolution. If the United States, the State, and the Settling Defendants do not agree on the proposed modifications, they shall initiate dispute resolution pursuant to Section XIV of this Decree. The scope and standard of review set forth in paragraph 40 shall govern any judicial determination in such dispute.

VIII. U.S. EPA PERIODIC REVIEW TO ASSURE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

19. To the extent required by Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations, U.S. EPA after consultation with the State shall review the remedial action at the Facilities at least every five (5) years after the entry of this Consent Decree to assure that human health and the environment are being protected by the remedial action being implemented. If upon such review, U.S. EPA determines that further response action is appropriate at the Facilities in accordance with Section 104 or 106, then the U.S. EPA, after consultation with the State, may take or, to the extent consistent with and in accordance with paragraphs 66 and 67 of this Consent Decree, require such action.

20.a. Settling Defendants shall be provided with an opportunity to confer with U.S. EPA and the State, on any response action proposed as a result of U.S. EPA's 5-year review and to submit written comments for the record. The final decision of U.S. EPA that further response action is appropriate shall be subject to dispute resolution and judicial review pursuant to the dispute resolution provisions in paragraph 40 of Section XIV hereof, if U.S. EPA seeks to require the Settling Defendants to undertake such work. If Settling Defendants wish to obtain dispute resolution and judicial review, they must provide their Informal Notice of Dispute by no later than 30 days after notice to Settling Defendants requiring them to undertake further response action pursuant to this Section.

b. If U.S. EPA determines to require the Settling Defendants to undertake further response action pursuant to this Section, Settling Defendants may also contest such decision on the ground that, whether or not further response action is appropriate, requiring the Settling Defendants to undertake such work is not consistent with and in accordance with paragraphs 66 and 67 of this Consent Decree. Such objection shall be made by providing an Informal Notice of Dispute pursuant to paragraph 38 of this Decree by no later than 30 days after notice to Settling Defendants requiring them to undertake further response action pursuant to this Section. Judicial dispute resolution may be initiated by petition as provided in paragraph 41.

IX. QUALITY ASSURANCE

21. Settling Defendants shall use quality assurance, quality control, and chain of custody procedures in accordance with U.S. EPA's "Interim Guidelines and Specifications For Preparing Quality Assurance Project Plans" (QAM-005/80) and subsequent amendments to such guidelines upon notification to Settling Defendants of such amendments by U.S. EPA. Amended guidelines shall apply only to procedures conducted after such notification. Prior to the commencement of any monitoring project under this Consent Decree, Settling Defendants shall submit Quality Assurance Project Plan(s) ("QAPP") to U.S. EPA and the State, consistent with the SOW and applicable guidelines, in accordance with paras. 13-14 hereof. Validated sampling data generated consistent with the QAPP(s) and reviewed and approved by U.S. EPA after consultation with the State shall be admissible as evidence, without objection, in any proceeding to enforce this Decree. Each laboratory utilized by Settling Defendants in implementing this Consent Decree shall be subject to approval by U.S. EPA and the State. Settling Defendants shall assure that U.S. EPA and State personnel or authorized representatives are allowed access to each such laboratory. In addition, Settling Defendants shall have their laboratory analyze samples submitted by U.S. EPA or the State for quality assurance monitoring.

X. FACILITY ACCESS, DEED RESTRICTIONS, PROPERTY NOT OWNED BY CLASS 1 OR CLASS 2 DEFENDANTS AND SAMPLING

22. Facility Access and Deed Restrictions and Notices For Property Owned By Class 1 or Class 2 Defendants.

a. Facility Access. Each Class 1 Defendant hereby grants to the United States, the State, Settling Defendants, their representatives, contractors, agents, and all other persons performing response actions under EPA's oversight, an irrevocable right of access to any portion of the Midco I or Midco II Facilities that they own for the purpose of performing or monitoring performance of response actions at the Facility. Class 2 Defendant's access obligations are contained in the Penn Central Consent Decree.

b. Deed Restrictions and Notices. (i) Each Class 1 Defendant shall within 30 days of the entry of the Consent Decree file in the land records of Lake County, Indiana, a notice, approved by U.S. EPA in consultation with the State, to subsequent purchasers of the property that they own that is part of the Facilities that hazardous substances were disposed of on the property and that U.S. EPA makes no representation as to the appropriate use of the property.

(ii) In the event that any Class 1 Defendant transfers title or possession of any of its property that is part of the Midco I or Midco II Facility, it shall continue to be bound by the all of the terms and conditions of this Decree and shall notify U.S. EPA and the State prior to any such transfer.

(iii) Within thirty (30) days of the entry of this Decree, each Class 1 Defendant shall record a copy of this Decree in the land records of Lake County, Indiana in the chain of title for each parcel of the Midco I or Midco II Facility property that they own. Such property may thereafter be alienated freely, provided that at least sixty days prior to the date of such alienation, the Class 1 Defendant notifies the United States and the State of such proposed alienation, the name of the grantee, and a description of the Class 1 Defendant's obligations, if any, to be performed by such grantee. In the event of such alienation, all of the Class 1 Defendant's obligations pursuant to this Decree shall continue to be met by the Class 1 Defendant and the grantee. Any deed, title, or other instrument of conveyance regarding such property shall contain a notice that the property is subject to this Consent Decree setting forth the style of the case, the case number, and the court having jurisdiction.

(iv) Within thirty days of the entry of this Decree, each Class 1 Defendant agrees to file in the land records of Lake County, Indiana, a deed/use restriction in the form attached hereto as Appendix 8 to protect public health and the environment and ensure that future use of the property will not impair or defeat any remedial measures or maintenance of remedial measures at the property.

(v) Class 2 Defendant's notice and deed restriction obligations are contained in the Penn Central Consent Decree.

23. Access to Property and Deed Restrictions and Notices For Property Not Owned By Class 1 or Class 2 Defendants.

a. Access. To the extent that the Facilities or other areas where Work is to be performed hereunder are owned by persons other than Class 1 or Class 2 Defendants, Settling Defendants shall use best efforts to secure from such persons access for Settling Defendants' contractors, the United States, the State, and their authorized representatives, as necessary to effectuate this Consent Decree. If access is not obtained despite best efforts within 45 days of the date of entry of this Decree, Settling Defendants shall promptly notify the United States and the State. The United States and/or the State thereafter may assist Settling Defendants in obtaining access, to the extent necessary to effectuate the remedial action for the Facilities, using such means as it deems appropriate. The United States' and the State's costs in this effort, including the United States' and the States' attorney's fees and other expenses and any compensation that the United States or the State may be required to pay to the property owner, shall be considered costs of response and shall be reimbursed by Settling Defendants in accordance with Section XVI of this Decree (Reimbursement). The standards and provisions of Section XIII hereof describing Force Majeure shall govern delays in obtaining access required for the Work. In the event any portion of the Facilities is condemned or taken for public use by any agency of government, Settling Defendants, who do not own the Facilities, shall not be required to resist or defend against such condemnation or taking.

b. Deed Restrictions and Notices For Property Not Owned By Class 1 or Class 2 Defendants. To the extent that the Facilities are not owned by Class 1 or Class 2 Defendants, Settling Defendants shall use best efforts to cause the owners of such property to:

(i) file in the land records of Lake County, Indiana, a notice, approved by U.S. EPA in consultation with the State, to subsequent purchasers of the land that hazardous substances were disposed of on the property and that U.S. EPA makes no representation as to the appropriate use of the property;

(ii) agree to notify U.S. EPA and the State of sixty (60) days in advance of any transfer of the property;

(iii) record a copy of this Decree in the land records of Lake County, Indiana in the chain of title for each parcel of such property; and

(iv) file in the land records of Lake County, Indiana, a deed/use restriction for the property approved by U.S. EPA that is similar in form and substance to the deed/use restriction attached hereto as Appendix 8 to protect public health and the environment and to insure that future use of the property will not impair or defeat any remedial measures or maintenance of remedial measures at the property.

If any of the above are not obtained despite best efforts within 45 days of the date of entry of this Decree, Settling Defendants shall promptly notify the United States and the State. The United States and/or the State thereafter may assist Settling

Defendants in obtaining the above, to the extent necessary to effectuate the remedial action for the Facilities, using such means as it deems appropriate. The United States' and the State's costs in this effort, including the United States' and the States' attorney's fees and other expenses and any compensation that the United States or the State may be required to pay to the property owner, shall be considered costs of response and shall be reimbursed by Settling Defendants in accordance with Section XVI of this Decree (Reimbursement).

24. Access Authority Retained. Nothing herein shall restrict in any way the United States' or the State's access authorities and rights under CERCLA, RCRA or any other applicable statute, regulation or permit.

25. Sampling Availability. Settling Defendants shall make available to U.S. EPA and the State the results of all sampling and/or tests or other data generated by Settling Defendants with respect to the implementation of this Consent Decree. U.S. EPA and the State, upon request, shall make available to the Settling Defendants the results of sampling and/or tests or other data generated by U.S. EPA, the State, or their contractors.

26. Split Samples. Upon request a Party taking samples shall allow United States, the State, and the Settling Defendants and/or their authorized representatives to take split or duplicate samples. The Party taking samples shall give at least 14 days prior notice of sample collection activity to the United States, the State, and the Settling Defendants, provided, however, that if there is an urgent need for sampling and 14-day

advance notice of sample collection activity is not possible, sufficient advance notice shall be provided to enable the United States, the State, and the Settling Defendants to have a representative present during said sample collection activity.

XI. REPORTING REQUIREMENTS

27. Monthly Progress Reports. Settling Defendants shall prepare and provide to the United States and the State written monthly progress reports which: (1) describe the actions which have been taken toward achieving compliance with this Consent Decree during the previous month, and attach copies of appropriate supporting documentation such as invoices, contract documents and photographs; (2) include all results of sampling and tests and all other data received by Settling Defendants during the course of the work which has passed quality assurance and quality control procedures; (3) include all plans and procedures completed under the RD/RA Project Plan during the previous month; (4) describe all actions, data and plans which are scheduled for the next month and provide other information relating to the progress of construction; (5) include information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of RD/RA Scope of Work or Project Plan, and a description of efforts made to mitigate those delays or anticipated delays. Progress reports are to be submitted to U.S. EPA and the State by the tenth day of every month following the effective date of this Consent Decree. After U.S. EPA issues its

Certificate of Completion of Remedial Action pursuant to paragraph 85 of this Consent Decree, Settling Defendants shall thereafter provide to the United States and State semi-annual progress reports on the Operations and Maintenance Phase of the remedial Work by the 10th day of January and July of each year.

28. Other Reporting Requirements. Settling Defendants shall submit reports, plans and data required by the SOW, the RD/RA Project Plan or other approved plans in accordance with the schedules set forth in such plans.

29. Reports of Releases. Upon the occurrence of any event during performance of the Work which, pursuant to Section 103 of CERCLA, requires reporting to the National Response Center, Settling Defendants shall promptly orally notify the U.S. EPA Remedial Project Manager ("RPM") or On-Scene Coordinator ("OSC"), or in the event of the unavailability of the U.S. EPA RPM, the Emergency Response Section, Region V, United States Environmental Protection Agency, in addition to the reporting required by Section 103, and provide notice as required by 327 Ind. Ad. Code 2-6-2. Within 20 days of the onset of such an event, Settling Defendants shall furnish to the United States and the State, a written report 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, Settling Defendants shall submit a report setting forth all actions taken to respond thereto.

30. Annual Report. Settling Defendants shall submit each year, within thirty (30) days of the anniversary of the entry of

the Consent Decree, a report to the Court and the parties setting forth the status of response actions at the Facilities, which shall include at a minimum a statement of major milestones accomplished in the preceding year, a statement of tasks remaining to be accomplished, and the schedule for implementation of the remaining Work.

XII. REMEDIAL PROJECT MANAGER/PROJECT COORDINATORS

31. Designation/Powers. U.S. EPA shall designate a Remedial Project Manager ("RPM") and/or an On Scene Coordinator ("OSC") and the State shall designate a Project Coordinator for the Facilities, and they may designate other representatives, including U.S. 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. The RPM/OSC shall have the authority lawfully vested in an RPM/OSC by the National Contingency Plan, 40 CFR Part 300. In addition, the RPM/OSC shall have the authority to halt any work required by this Consent Decree and to take any necessary response action when conditions at the Facilities may present an imminent and substantial endangerment to public health or welfare or the environment. The standards and provisions of Section XIII hereof (Force Majeure) shall apply to any delays caused by any halt of work or taking of response action by the RPM pursuant to this paragraph. Settling Defendants shall also designate a Project Coordinator who shall have primary responsibility for implementation of the Work at the Facilities.

32. Communications. To the maximum extent possible, except as specifically provided in the Consent Decree, communications between Settling Defendants, the State and U.S. EPA concerning the implementation of the work under this Consent Decree shall be made between the Project Coordinators and the RPM/OSC.

33. Identification of Personnel. Within twenty (20) calendar days of the effective date of this Consent Decree, Settling Defendants, the State and U.S. EPA shall notify each other, in writing, of the name, address and telephone number of the designated Project Coordinator and an Alternate Project Coordinator, and the RPM/OSC and Alternate RPM/OSC. If the identity of any these persons changes, notice shall be given to the other parties at least five (5) business days before the changes become effective.

XIII. FORCE MAJEURE

34. Definition. "Force Majeure" for purposes of this Consent Decree is defined as any event arising from causes beyond the control of Settling Defendants which delays or prevents the performance of any obligation under this Consent Decree notwithstanding Settling Defendants' best efforts to avoid the delay. Increased costs or expenses or non-attainment of the Performance Standards, Cleanup Action Levels, or requirements triggered by Soil Treatment Action Levels shall not constitute "force majeure" events. Technical impracticability issues are governed by relevant provisions in paragraph 12 of this Decree and not by this Section.

35. Notice to RPM Required. When circumstances occur which may delay the completion of any phase of the Work or delay access to the Facilities or to any property on which any part of the Work is to be performed, whether or not caused by a "force majeure" event, Settling Defendants shall promptly notify the RPM and the State Project Coordinator by telephone, or in the event of their unavailability, the Director of the Waste Management Division of U.S. EPA. Within twenty (20) days of the event which Settling Defendants contend is responsible for the delay, Settling Defendants shall supply to the United States and the State in writing the reason(s) for and anticipated duration of such delay, the measures taken and to be taken by Settling Defendants to prevent or minimize the delay, and the timetable for implementation of such measures. Failure to give such oral notice and written explanation in a timely manner shall constitute a waiver of any claim of "force majeure," unless Settling Defendants could not reasonably know that a "force majeure" event was occurring.

36. If U.S. EPA after consultation with the State agrees that a delay is or was attributable to a "force majeure" event, the United States, the State, and the Settling Defendants shall modify the SOW or RD/RA Project Plan to provide such additional time as may be necessary to allow the completion of the specific phase of Work and/or any succeeding phase of the Work affected by such delay.

37. If U.S. EPA does not agree with Settling Defendants that the reason for the delay or prevention of performance was a

"force majeure" event, that the duration of the delay is or was warranted under the circumstances, or that the length of additional time requested by Settling Defendants for completion of the delayed work is necessary, U.S. EPA shall so notify Settling Defendants in writing. Settling Defendants shall initiate a formal dispute resolution proceeding under paragraph 39 below no later than 15 days after receipt of such notice. If U.S. EPA does not respond to Settling Defendants' notice of a "force majeure" event within 45 days from receipt of Settling Defendants' notice, Settling Defendants may treat the failure to respond as a disagreement by U.S. EPA that there has been a "force majeure" event and Settling Defendants may initiate a formal dispute resolution proceeding under paragraph 39 below no later than 15 days after the expiration of the 45-day period. In dispute resolution proceedings regarding "force majeure," Settling Defendants have the burden of proving that the event was a "force majeure," that best efforts were exercised to avoid and mitigate the effects of the delay, that the duration of the delay is or was warranted, that the additional time requested for completion of the Work involved is reasonably necessary to compensate for the delay, and that the notice provisions of paragraph 35 were complied with. If the Settling Defendants prevail in dispute resolution, the United States, the State, and the Settling Defendants shall modify the SOW or RD/RA Project Plan to provide such additional time as may be necessary to allow the completion of the specific phase of Work and/or any

succeeding phase of the Work affected by delay caused by the "force majeure" event.

XIV. DISPUTE RESOLUTION

38. a. Informal Dispute Resolution Period. The Parties to this Consent Decree shall attempt to resolve expeditiously any disagreements concerning the meaning, application or implementation of this Consent Decree. Any party seeking dispute resolution first shall provide the other parties with an "Informal Notice of Dispute" in writing and request an informal dispute resolution period, which shall not exceed thirty (30) days.

b. Employment of Neutral Mediator. Within ten (10) days of the filing of an Informal Notice of Dispute (or in the event of an alleged "force majeure" event within ten (10) days of U.S. EPA's notification of disagreement pursuant to paragraph 37), either the United States or the Settling Defendants may, by providing notice in writing, request the employment of a neutral mediator to be selected in accordance with subparagraph 38(c). The United States and the Settling Defendants agree to such employment, if timely requested. Any mediation shall not last longer than forty-five (45) days from the filing of the informal notice of dispute (expiration of the informal dispute resolution period notwithstanding) or, in the event of an alleged "force majeure" event, forty-five (45) days from U.S. EPA's notification of disagreement pursuant to paragraph 37, unless extended by written agreement of the United States and Settling Defendants.

Any report, findings, recommendations, written records, or notes prepared by the mediator shall not be binding on any party and shall not be part of the administrative record or admissible in dispute resolution proceedings or any other legal proceeding. The Director, Waste Management Division, Region V, and Management for each Settling Defendant shall review any report, findings, or recommendations of the mediator, but the Director may not consider or rely on such report, findings, or recommendations in issuing a final decision on dispute resolution pursuant to subparagraph 40d.

c. Selection of Neutral Mediator Roster. Within forty-five (45) days after entry of this Consent Decree, Settling Defendants and the United States (after consultation with the State) shall submit to each other a list of at least three suggested mediators, who shall each have the qualifications of (a) demonstrated experience, (b) independence, (c) subject matter experience, and (d) lack of actual or apparent bias in general accordance with U.S. EPA guidance on the use of Alternative Dispute Resolution in Enforcement Cases. A description of the qualifications of a proposed mediator shall accompany the submittal. Settling Defendants and the United States (after consultation with the State) shall, within twenty-one (21) days after receipt of a list of mediators, strike those names to which they will not agree. If necessary, additional names shall be submitted and considered, until a roster of at least two available mediators is agreed upon. If for any reason, at any time, a previously agreed upon mediator is unavailable, then the

selection process shall be promptly reinstituted so as to have at least two mediators readily available.

d. Appointment of Neutral Mediator. Upon the timely request of the United States or Settling Defendants for the employment of a neutral mediator in accordance with subparagraph 38b, a mediator shall be selected at random (e.g., by name being drawn blindly) from the available roster. The United States and Settling Defendants shall expeditiously enter into a written contract with the mediator for the provision of required services, including salary, terms of payments, each parties' share of costs, and a confidentiality agreement. The contract shall include the following provision on confidentiality:

> "In order to promote frank and productive discussion, the mediation process will be confidential. The parties, their representatives, and the mediator may not disclose information regarding the negotiations, including settlement terms, proposals, offers, or other statements made during the mediation process or negotiations, to third parties, unless the United States and Settling Defendants otherwise agree in writing. The mediation process and negotiations shall be treated as compromise negotiations under Rule 408 of the Federal Rules of Evidence or other applicable rules of evidence. The mediator will be disqualified as and shall not appear as a witness, consultant or expert in any pending or future action relating to the subject matter of mediation, including actions between persons not parties to the mediation."

39. If the dispute is not resolved within the informal discussion period under subparagraph 38a, any party may initiate formal dispute resolution by giving a written "Formal Notice of Dispute" to the other parties no later than the 15th day

following the conclusion of the thirty-day informal dispute resolution period under subparagraph 38a. A party shall seek formal dispute resolution prior to the expiration of the informal discussion period under subparagraph 38a where the circumstances require prompt resolution.

40. Formal dispute resolution for disputes pertaining to the selection or adequacy of remedial design or remedial action (including the selection and adequacy of any plans which are required to be submitted for government approval under this Decree and the adequacy of Work performed) shall be conducted according to the following procedures:

a. Within ten (10) days of the service of the Formal Notice of Dispute pursuant to the preceding paragraph, or such other time as may be agreed to by the parties, the party who gave the notice shall serve on the other parties to this Decree a written statement of the issues in dispute, the relevant facts upon which the dispute is based, and factual data, analysis or opinion supporting its position (hereinafter the "Statement of Position"), and shall provide copies of all supporting documentation on which such party relies.

b. Opposing parties shall serve their Statements of Position and copies of supporting documentation within twenty (20) days after receipt of the complaining party's Statement of Position or such other time as may be agreed to by the parties.

c. U.S. EPA shall maintain an administrative record of any dispute governed by this paragraph. The record shall include the Formal Notice of Dispute, the Statements of Position, all

supporting documentation submitted by the parties, and any other material on which the U.S. EPA decisionmaker relies for the administrative decision provided for below. The record shall be available for inspection and copying by all parties. The record shall be closed no less than ten (10) days before the administrative decision is made, and U.S. EPA shall give all parties prior notice of the date on which the record will close.

d. The Director of the Waste Management Division, U.S. EPA Region V, will issue a final administrative decision resolving the dispute based on the administrative record described in subparagraph 40c. This decision shall be binding upon the Settling Defendants, subject to the right to seek judicial review pursuant to subparagraph 40e.

e. Any decision and order of U.S. EPA pursuant to subparagraph d. shall be reviewable by this Court, provided that a Notice of Judicial Appeal is filed within 10 days of receipt of U.S. EPA's decision and order. Judicial review will be conducted on U.S. EPA's administrative record and U.S. EPA's decision shall be upheld unless it is demonstrated to be arbitrary and capricious or in violation of law.

41. Judicial dispute resolution for any issues not governed by the preceding paragraph may be initiated by petition to the Court and shall be governed by the Federal Rules of Civil Procedure. Except as specifically provided in other provisions of this Decree, e.g., Section XIII, this Decree does not establish procedures or burdens of proof for such dispute resolution proceedings.

42. The invocation of the procedures stated in this Section shall not extend or postpone Settling Defendants' obligations under this Consent Decree with respect to the disputed issue unless and until U.S. EPA agrees otherwise. EPA's position on an issue in dispute shall control until such time as the Court orders otherwise in accordance with the provisions of this Section.

43. Any applicable Stipulated Penalties continue to accrue during dispute resolution, as provided in Section XVII hereof. Settling Defendants may seek forgiveness of stipulated penalties that accrue during dispute resolution by petition to U.S. EPA and/or the Court pursuant to paragraph 61 below.

44. Upon the conclusion of any formal or informal dispute resolution under this Section which has the effect of nullifying or altering any provision of the RD/RA Project Plan or any other plan or document submitted and approved pursuant to this Decree, Settling Defendants shall submit an amended plan, in accordance with the decision, to U.S. EPA and the State within fifteen (15) days of receipt of the final order or decision. Amendments of the SOW as a result of dispute resolution proceedings are governed by Section VII above. Amendments of a plan or other document as a result of dispute resolution shall not alter any dates for performance unless such dates have been specifically changed by the order or decision. Extension of one or more dates of performance in the order or decision does not extend subsequent dates of performance for related or unrelated items of

Work unless the order or decision expressly so provides or the parties so agree.

XV. RETENTION AND AVAILABILITY OF INFORMATION

45. Settling Defendants, Class 1, 2, and 3 Defendants, Settling Third Parties, and Settling State Agency shall make available to U.S. EPA and the State and shall retain the following documents until 6 years following the third "five-year review" conducted for the Facilities pursuant to Section 121(c) of CERCLA (or the final review, if there are fewer than three reviews): all records and documents in their possession, custody, or control which relate to the performance of this Consent Decree, including, but not limited to, documents reflecting the results of any sampling, tests, or other data or information generated or acquired by any of them, or on their behalf, with respect to the Facilities and all documents pertaining to their own or any other person's liability for response action or costs under CERCLA at the Facilities. After this period of document retention, Settling Defendants, Class 1, 2, and 3 Defendants, Settling Third Parties, and Settling State Agency shall notify U.S. DOJ, U.S. EPA and the State at least ninety (90) calendar days prior to the destruction of any such documents, and upon request by U.S. EPA or the State, Settling Defendants, Class 1, 2, and 3 Defendants, Settling Third Parties, and Settling State Agency shall relinquish custody of the documents to U.S. EPA or the State.

46. Settling Defendants, Class 1, 2, and 3 Defendants, Settling Third Parties, and Settling State Agency may assert business confidentiality claims covering part or all of the information provided in connection with this Consent Decree in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and pursuant to 40 CFR § 2.203(b) and applicable State law, including 329 Ind. Ad. Code 6. Information determined to be confidential by U.S. EPA will be afforded the protection specified in 40 CFR Part 2, Subpart B and, if determined to be entitled to confidential treatment under State law by the State, afforded protection under State law by the State. If no such claim accompanies the information when it is submitted to U.S. EPA and the State, the public may be given access to such information without further notice to Settling Defendants, Class 1, 2, and 3 Defendants, Settling Third Parties, and Settling State Agency.

47. Information acquired or generated by Settling Defendants in performance of the Work that is subject to the provisions of Section 104(e)(7)(F) of CERCLA, 42 U.S.C. § 9604(e)(7)(F), shall not be claimed as confidential by Settling Defendants.

48. In the event that Settling Defendants', Class 1, 2, or Class 3 Defendants', Settling Third Parties', or Settling State Agency's obligation to produce documents under this Section includes documents which are privileged from disclosure as attorney-client communications, attorney work-product or other privilege recognized by law, Settling Defendants, Class 1, 2, or

3 Defendants, Settling Third Parties, or Settling State Agency may seek to withhold production of such documents to avoid improper disclosure. At the time production is requested, Settling Defendants, Class 1, 2, and 3 Defendants, Settling Third Parties, and Settling State Agency must provide the United States and the State all information necessary to determine whether the document is privileged, including such information as is generally required under the Federal Rules of Civil Procedure. If either the United States or the State does not agree with the Settling Defendants', Class 1, 2, or 3 Defendants', Settling Third Parties', or Settling State Agency's claim of privilege, Settling Defendants, Class 1, 2, or 3 Defendants, Settling Third Parties, or Settling State Agency may seek protection of the documents from the Court. Settling Defendants, Class 1, 2, and 3 Defendants, Settling Third Parties, and Settling State Agency shall not withhold as privileged any information or documents that this Decree requires be created, generated or collected, regardless of whether the document has been generated in the form of an attorney-client communication or other generally privileged manner. Settling Defendants, Class 1, 2, and 3 Defendants, Settling Third Parties, and Settling State Agency may not withhold as privileged any documents that are subject to the public disclosure provision of Section 104(e)(7)(F) of CERCLA, 42 U.S.C. § 9604(e)(7)(F). No claim of privilege or 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 evidence of conditions at or around the Facilities.

XVI. REIMBURSEMENT AND PAYMENT OF CIVIL FINE

49. a. Within 45 days of the entry of this Consent Decree, Settling Defendants shall pay to the EPA Hazardous Substances Superfund the sum of Two Million dollars ($2,000,000) plus interest on such sum accruing from April 12, 1991 until the date of payment at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607. Such payment shall be delivered to the U.S. EPA, Superfund Accounting, P.O. Box 70753, Chicago, Illinois 60673 in the form of a certified or cashier check payable to "EPA Hazardous Substances Superfund," and referencing CERCLA Numbers 09 and 27 and DOJ Case Number 90-7-1-1. A copy of such check shall be sent to the Director, Waste Management Division, U.S. EPA, Region V and to the Assistant Attorney General, Environment and Natural Resources Division, U.S. Department of Justice, at the addresses provided in Section XXI (Notices). This payment is for reimbursement of part of the United States' past Response Costs claimed by the United States in this action by U.S. EPA through December 31, 1990, and DOJ through September 30, 1990 plus accrued interest.

b. Settling Defendants shall pay to the State within forty-five (45) days of the entry of this Consent Decree, Thirty-Eight Thousand Nine Hundred and Seventy-Nine Dollars and Twenty-Eight Cents ($38,979.28) plus interest on such sum accruing from April 12, 1991 at the rate established pursuant to Section 107(a)

of CERCLA, 42 U.S.C. § 9607(a). Payment shall be made by means of a check made payable to "Indiana Department of Environmental Management" and delivered to the Cashier, Indiana Department of Environmental Management, 105 S. Meridian Street, P.O. Box 7060 Indianapolis, Indiana 46206-7060. This payment is for reimbursement of the State's past Response Costs through March 15, 1991, for Midco I and through September 2, 1990, for Midco II plus accrued interest.

c. Settling Defendants shall pay within thirty (30) days of the entry of this Consent Decree, a civil fine of Four Hundred Thousand Dollars ($400,000) to the United States. Such payment shall be as specified in subparagraph 49a above. In the event that payment is not made in a timely fashion, Settling Defendants shall pay interest accruing effective on the date of entry of the Consent Decree on any unpaid amount at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607. Payments of interest under this paragraph shall be in addition to such other remedies or sanctions that are available to the United States by virtue of Settling Defendants' failure to make timely payment under this paragraph.

d. Within thirty (30) days of receipt by Settling Defendants' Trust Fund or other business entity carrying out their obligations under the Decree of the check referred to in subparagraph 65f of this Decree, Settling Defendants shall pay to the EPA Hazardous Substances Superfund the sum of Three Hundred and Five Thousand dollars ($305,000). Such payment shall be delivered to the U.S. EPA, Superfund Accounting, P.O. Box 70753,

Chicago, Illinois 60673 in the form of a certified or cashier check payable to "EPA Hazardous Substances Superfund," and referencing CERCLA Numbers 09 and 27 and DOJ Case Number 90-7-1-1. A copy of such check shall be sent to the Director, Waste Management Division, U.S. EPA, Region V and to the Assistant Attorney General, Environment and Natural Resources Division, U.S. Department of Justice, at the addresses provided in Section XXI (Notices).

50. Settling Defendants shall pay all Response Costs incurred by the United States and the State after the dates set forth respectively in subparagraphs 49a and 49b including all Oversight Costs, all costs of obtaining access or obtaining deed restrictions required to be paid pursuant to Section X hereof, and all costs incurred in enforcing this Decree.

51. a. The United States and the State shall submit their claims for Response Costs incurred after the dates set forth respectively in subparagraphs 49a and 49b and up to the date of entry of the Decree as soon as practicable after entry of the Decree. Payments shall be made, as specified in paragraph 49 above, within 30 days of the submission of the above claims. U.S. EPA and the State will provide itemized cost summaries or similar documents to Settling Defendants, who may inspect supporting cost documentation upon request. In the event that payment is not made in a timely fashion, Settling Defendants shall pay interest on any unpaid amount at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607. Interest shall begin to accrue on the date of the Settling Defendants'

receipt of the bill and shall continue to accrue at the rate specified through the date of the Settling Defendants' payment. Payments of interest under this paragraph shall be in addition to such other remedies or sanctions that are available to the United States or the State by virtue of Settling Defendants' failure to make timely payments under this paragraph.

b. The United States and the State shall annually as soon as practicable after each anniversary of the date of entry of this Consent Decree submit their claims for unreimbursed Response Costs incurred after the date of entry of the Decree. Failure to include a claim for a Response Cost in a bill shall not preclude the United States or the State from submitting a bill for such Response Cost in a future year. Payments shall be made, as specified in paragraph 49 above, within 30 days of the submission of the above claims. U.S. EPA and the State will provide itemized cost summaries or similar documents to Settling Defendants, who may inspect supporting cost documentation upon request. In the event that payment is not made in a timely fashion, Settling Defendants shall pay interest on any unpaid amount at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607. Interest shall begin to accrue on the date of the Settling Defendants' receipt of the bill and shall continue to accrue at the rate specified through the date of the Settling Defendants' payment. Payments of interest under this paragraph shall be in addition to such other remedies or sanctions that are available to the United States or the State by

virtue of Settling Defendants' failure to make timely payments under this paragraph.

c. Settling Defendants may contest payment of any Response Costs due under subparagraphs 51a or 51b if they determine that the United States or the State has made an accounting error or if they allege 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 (if the United States' bill is being disputed) or the State (if the State's bill is being disputed). Any such objection shall specifically identify the contested Response Costs and the basis for objection. In the event of an objection, the Settling Defendants shall within the 30-day period pay all uncontested Response Costs to the United States (or the State, if applicable) in the manner described in paragraph 49 above. Simultaneously, the Settling Defendants shall establish an interest-bearing escrow account in a federally insured bank and remit to that escrow account funds equivalent to the amount of the contested Response Costs. As of the date that such funds are deposited into the escrow account, interest on such funds required to be paid under subparagraph 51a or 51b shall be at the rate paid by the escrow account rather than the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607. The Settling Defendants shall send the United States and the State a copy of the transmittal letter and check paying the uncontested 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, the Settling Defendants shall initiate Dispute Resolution procedures in accordance with Section XIV of this Decree. If the United States (or the State, if applicable) prevails in the dispute, within 10 days of the resolution of the dispute, the Settling Defendants shall pay the sums due (with accrued interest) to the United States (or the State, if applicable) in the manner described in paragraph 49. If the Settling Defendants prevail concerning any aspect of the contested costs, the Settling Defendants shall pay that portion of the costs (plus accrued interest on that portion) for which they did not prevail to the United States (or the State, if applicable) in the manner described in paragraph 49; Settling Defendants 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 XIV shall be the exclusive mechanisms for resolving disputes regarding the Settling Defendants' obligation to reimburse the United States and the State for Response Costs under subparagraphs 51a or 51b.

52. Settling Defendants may agree among themselves as to the apportionment of responsibility for the payments required by this Section, but their liability to the United States and the State for these payments shall be joint and several.

XVII. STIPULATED PENALTIES

53. Settling Defendants shall jointly and severally pay a daily stipulated penalty in the amount set forth below to the United States and the State (90% of any stipulated penalty to be paid to the United States and 10% to the State) for each failure to complete any of the following requirements of this Consent Decree in accordance with and within the time schedules specified in the Consent Decree, the SOW, the RD/RA Project Plan or in other plans submitted and approved under this Consent Decree:

	DAILY PENALTY		
	UP TO 30 DAYS	31-60 DAYS	OVER 60 DAYS
Failure to submit monthly progress reports; semi-annual progress reports after certification of completion; annual court report	$300	$500	$1000
Failure to submit RD/RA Work Plan	$1000	$3000	$6000
Failure to submit one of the following plans on schedule: Deep Underground Well Injection Package, Pre-Design Reports, Preliminary Design Packages, Pre-Final Design Packages, or Final Design Packages	$1000	$3000	$6000
Failure to submit revisions to RD/RA Work Plan or above-listed plans addressing deficiencies within 30 days of notice from U.S. EPA (or such other time as the parties may agree)	$2000	$5000	$7500

	UP TO 30 DAYS	31-60 DAYS	OVER 60 DAYS
Failure to complete the following components of remedial action in accordance with the schedule in an approved final design package or UIWAP (or subsequent EPA-approved changes thereto): Deep Underground Well Injection System; Groundwater Extraction System; Groundwater Treatment System (as needed); Soil Solidification/Stabilization System; Soil Vapor Extraction System; Final Site Cover	$2000	$4000	$7500
Failure to meet air emission requirements under Section II.G.1 of the SOW (based on specific evidence of a violation on the particular day of violation, which shall be made available to Settling Defendants in a timely fashion if requested pursuant to paragraph 25)	$3000	$6000	$9000
Deep well injection without meeting Maximum Allowable Concentration (MACs) Performance Standards prior to deep well injection (based on specific evidence of a violation on the particular day of violation, which shall be made available to Settling Defendants in a timely fashion if requested pursuant to paragraph 25)	$3000	$6000	$9000
Operation of Underground Injection Well, Groundwater Extraction, Groundwater Treatment, Soil Solidification/ Stabilization, or Soil Vapor Extraction System without obtaining EPA approval to proceed or after EPA notice requiring shutdown	$4000	$8000	$12000
Failure to take action to abate an endangerment under Section XXIII	$5000	$10000	$15000

54. All penalties begin to accrue on the day after complete performance is due or the day a violation occurs, and continue to accrue through the final day of correction of the noncompliance or completion of performance. Any modifications of the time for performance shall be in writing and approved by U.S. EPA after consultation with the State. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

55. Following U.S. EPA's determination after consultation with the State that Settling Defendants have failed to comply with the requirements of this Consent Decree, U.S. EPA shall give Settling Defendants written notification of the same and describe the non-compliance. This notice shall also indicate the amount of penalties due. However, penalties shall accrue as provided in the preceding paragraph regardless of whether U.S. EPA has notified Settling Defendants of a violation.

56. All penalties owed to the United States and the State under this Section shall be payable within 30 days of receipt of the notification of non-compliance, unless Settling Defendants invoke the dispute resolution procedures under Section XIV.

57. Settling Defendants may dispute the United States' and the State's right to the stated amount of penalties on the grounds that the violation is excused by the Force Majeure provisions of Section XIII or that there was no violation. The dispute resolution procedures under Section XIV shall be followed for such a dispute.

58. Neither the filing of a petition to resolve a dispute nor the payment of penalties shall alter in any way Settling Defendants' obligation to continue and complete the performance required hereunder.

59. Penalties shall continue to accrue as provided in paragraph 54 during the dispute resolution period, but need not be paid until the following decision points:

a. If the dispute is resolved by agreement or by decision or order of U.S. EPA which is not appealed to this Court, accrued penalties shall be paid to U.S. EPA and the State within fifteen (15) days of the agreement or the receipt of U.S. EPA decision or order;

b. If the dispute is appealed to this Court, accrued penalties shall be paid to U.S. EPA and the State within fifteen (15) days of receipt of the Court's decision or order, except as provided in subparagraph c below;

c. If the District Court's decision is appealed by any party, Settling Defendants shall pay all accrued penalties into an interest-bearing escrow account within fifteen (15) days of receipt of the Court's decision or order. Penalties shall be paid into this account as they continue to accrue, at least every sixty (60) days. Within fifteen (15) days of receipt of the appellate court decision, the escrow agent shall pay the balance of the account to U.S. EPA and the State, and/or to Settling Defendants to the extent that they prevail, as determined pursuant to the following paragraph.

60. Settling Defendants shall not owe stipulated penalties for any items upon which they prevail in dispute resolution.

Settling Defendants shall request a specific determination at each stage of dispute resolution as to the issues and items upon which they have prevailed and as to the amount of any stipulated penalties owed.

61. Notwithstanding the above provisions, the Settling Defendants shall have the right to petition the Court or U.S. EPA (according to the level of dispute resolution reached) for forgiveness of stipulated penalties to be paid to the United States or the State that accrue during dispute resolution for items upon which they did not prevail, based on a finding (1) that the delay in work or other violation that caused the stipulated penalty to accrue was necessary and appropriate during the dispute resolution proceeding (2) that Settling Defendants' position regarding the dispute had substantial support in law and fact and reasonably could have been expected to prevail, considering the applicable standard of review, and (3) that Settling Defendants sought dispute resolution at the earliest practicable time and took all other appropriate steps to avoid any delay in remedial action work as a result of the dispute. If the Court or U.S. EPA so finds, they may grant an appropriate reduction in the stipulated penalties to be paid to the United States or the State that accrued during the dispute resolution period. Settling Defendants shall have the burdens of proof and persuasion on any petition submitted under this provision.

62. Interest shall begin to accrue on the unpaid balance of stipulated penalties on the day following the date payment is due. The rate of interest shall be the rate established pursuant

to Section 107(a) of CERCLA. Penalties shall be paid as specified in paragraph 49 hereof.

63. If Settling Defendants fail to pay stipulated penalties, the United States or the State may institute proceedings to collect the penalties. In any such proceeding, penalties shall be paid as provided in paragraph 49 above.

64. Notwithstanding any of the above provisions, U.S. EPA may elect to assess civil penalties and/or to bring an action in U.S. District Court pursuant to Section 109 of CERCLA to enforce the provisions of this Consent Decree. Notwithstanding any of the above provisions, the State may elect to assess civil penalties and/or to bring an action in U.S. District Court pursuant to applicable federal or state law to enforce the provisions of this Consent Decree. Payment of stipulated penalties shall not preclude U.S. EPA or the State from electing to pursue any other remedy or sanction to enforce this Consent Decree, and nothing shall preclude U.S. EPA or the State from seeking statutory penalties against Settling Defendants for violations of statutory or regulatory requirements.

XVIIIA. THIRD PARTY SETTLEMENTS, SETTLEMENTS WITH CLASS 1, 2 AND 3 DEFENDANTS, AND SETTLEMENTS WITH SETTLING FEDERAL AND STATE AGENCIES

65. a. Third Party Settlements.

(i) Overview: Settling Third Parties are divided into four categories. Settling Class A and Class B Third Parties have entered into a Third Party Agreement with Settling Defendants that is attached as Appendix 7. Settling Class A Third Parties will be making payments to the Settling Defendants as the

implementation of the Work progresses based upon assigned percentages in the Third Party Agreement. Settling Class B Third Parties will be paying Settling Defendants a premium on their assigned percentages in the Third Party Agreement for buying out of certain future liability to Settling Defendants. Settling Class C, Class D, and Class E Third Parties are not parties to the Third Party Agreement but are Settling Third Parties pursuant to this Consent Decree. Settling Class C Third Party is entering into the settlement described in subparagraph 65a(v) below. Settling Class D Third Parties are entering into a de minimis settlement under Section 122(g) of CERCLA as described in subparagraph 65a(vi) below. Settling Class E Third Parties had previously expressed an interest in signing the Third Party Agreement, but are instead entering into a de minimis settlement under Section 122(g) of CERCLA as described in subparagraph 65a(vi) below. A settlement with Settling State Agency is described in subparagraph 65g.

(ii) By entering into this Decree, Settling Class A, Class B, Class C, Class D, and Class E Third Parties are entitled to such protection from contribution actions or claims as is indicated in subparagraphs 66d and 66e below.

(iii) In the event that the Settling Defendants fail to perform any of their obligations under this Decree, Settling Class A and Class C Third Parties agree jointly and severally to perform the obligations of the Settling Defendants in accordance with the terms of this Decree and the SOW as if they were Settling Defendants. The United States agrees not to require performance of such obligations by Settling Class A and Class C

Third Parties unless all of the Settling Defendants have first failed to perform such obligations and either (a) Settling Defendants are collectively financially unable fully to perform such obligations or (b) the United States has made reasonable efforts to compel compliance with such obligations by Settling Defendants.

(iv) For purposes of the Third Party Agreement only, Settling Defendants, Settling Class A and Class B Third Parties agree that the proceeds of (1) any settlement between the United States and any Class 1, Class 2, or Class 3 Defendant or (2) any sums paid by Settling Federal Agencies pursuant to subparagraph 65f of the Decree shall be allocated to the Settling Defendants' account as opposed to the account of the Settling Class A Third Parties. The United States will retain all such proceeds and sums and shall allocate such proceeds and sums towards unreimbursed Response Costs as determined solely by the United States.

(v) Settling Class C Third Party. Within 45 days of the entry of this Consent Decree, Settling Class C Third Party shall pay to the EPA Hazardous Substances Superfund the sum of Five Hundred Eighty Thousand Dollars ($580,000) plus interest on such sum accruing from June 7, 1991 until the date of payment at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a). Such payment shall be made as specified in subparagraph 49a above.

(vi) Settling Class D and Class E Third Parties.

(a) The Settling Class D and Class E Third Parties, which are listed in Appendices 9A and 9B, are entering

into a de minimis settlement under CERCLA. Based upon the Administrative Record, U.S. EPA has determined that the requirements of Section 122(g) of CERCLA, 42 U.S.C. § 9622(g), are satisfied with respect to the Settling Class D and Class E Third Parties. The settlement with the Settling Class D and Class E Third Parties embodied in this Consent Decree is practicable and in the public interest. A final settlement is being reached with the Settling Class D and Class E Third Parties which allows them to settle their potential liability for Response Costs which have been or may be incurred at the Facility, thereby avoiding difficult, prolonged and complicated litigation among U.S. EPA, the State, the Settling Defendants, and the Settling Class D and Class E Third Parties.
This settlement involves only a minor portion of the Response Costs at the Facilities with respect to each Settling Class D and Class E Third Party herein. Information currently known to U.S. EPA and the State indicates that the amount of hazardous substances contributed to the Facilities by each Settling Class D and Class E Third Party herein is minimal in comparison to the amount of hazardous substances contributed to the Facilities. The volume of the waste contributed to the Facilities by each Settling Class D and Class E Third Party herein was estimated by U.S. EPA and is listed in Appendices 9A and 9B. Information currently known to U.S. EPA and the State indicates that the toxic or other hazardous effects of the hazardous substances contributed to the Facilities by each Settling Class D and Class E Third Party herein are minimal in comparison to other hazardous substances at the Facilities. U.S. EPA knows of no Settling

Class D or Class E Third Party herein that contributed hazardous substances having disproportionately hazardous effects. By executing this Decree, the Settling Class D and Class E Third Parties do not admit liability or any statement of fact contained herein, and retain their rights to controvert in any subsequent litigation, other than dispute resolution proceedings or other proceedings to implement or enforce this Decree, the validity of the assessments of waste volume contained in Appendices 9A and 9B attached to this Decree.

(b) Within 45 days of the entry of this Consent Decree, Settling Class D Third Parties shall pay to the EPA Hazardous Substances Superfund the amounts indicated in Appendix 9A plus interest on such sums accruing upon lodging of this Decree through payment at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a). Such payments shall be made as specified in subparagraph 49a above.

(c) Within 45 days of entry of this Consent Decree, Settling Class E Third Parties shall pay to a trust fund to be established by the Settling Defendants, which fund shall be used to pay for performance and completion of the Remedial Action Work by the Settling Defendants, the amounts indicated for such payments in Appendix 9B. In addition, within 45 days of entry of this Consent Decree, Settling Class E Third Parties shall pay to the EPA Hazardous Substances Superfund the amounts indicated in Appendix 9B for such payments plus interest on such sums accruing upon lodging of this Decree through payment at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

(d) By signing this Consent Decree, each Settling Class D and Class E Third Party certifies to the best of its knowledge and belief, that it has made reasonable inquiry to gather all information which relates in any way to its ownership, operation, generation, treatment, transportation, storage or disposal of hazardous substances at or in connection with the Facilities, and has provided to the United States all such information, and that information is materially true and correct with respect to the amount of hazardous substances or other wastes that the Settling Class D or Class E Third Party may have shipped or arranged to be shipped to the Facilities (See Appendices 9A and 9B). The covenant not to sue contained in subparagraph 66b below is made applicable to each Settling Class D and Class E Third Party in reliance on this certification and the United States reserves all rights if this certification is not materially, true, correct, and complete.

65b. Class 1 Defendant V&E Corporation.

(i) Class 1 Defendant V&E Corporation certifies that to the best of its knowledge and belief, it has fully and accurately disclosed to U.S. EPA all information in its possession or the possession of its agents, officers, directors, employers, or affiliates relating to its assets, relevant insurance policies, and financial ability to pay any judgment that could be obtained against it in this action. The covenant not to sue in subparagraph 66a below is made applicable to Class 1 Defendant V&E Corporation in reliance on this certification and the United States reserves all rights if this certification is not materially, true, correct, and complete.

(ii) Within 45 days of the entry of this Consent Decree, Class 1 Defendant V&E Corporation shall pay the United States the sum of One Hundred and Thirty Thousand Dollars ($130,000) plus interest on such sum accruing upon lodging of this Decree through payment at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a). Such payment shall be made as specified in subparagraph 49a above.

(iii) Class 1 Defendant V&E Corporation agrees to the provisions of paragraph 22 on access and deed restrictions.

(iv) By entering into this Decree, Class 1 Defendant V&E Corporation is entitled to such protection from contribution actions or claims as is indicated in subparagraphs 66d and 66e below.

65c. Class 1 Defendant Robert J. Dawson.

(i) Within 45 days of the entry of this Consent Decree, Class 1 Defendant Robert J. Dawson shall pay the United States the sum of One Thousand Dollars ($1,000) plus interest on such sum accruing upon lodging of this Decree through payment at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a). Such payment shall be made as specified in subparagraph 49a above.

(ii) Class 1 Defendant Robert J. Dawson agrees to the provisions of paragraph 22 on access and deed restrictions.

(iii) By entering into this decree, Class 1 Defendant Robert J. Dawson is entitled to such protection from contribution actions or claims as is indicated in subparagraphs 66d and 66e below.

65d. Class 2 Defendant Penn Central Corporation. A Consent Decree between the United States and Class 2 Defendant Penn Central Corporation was lodged with this Court on approximately March 22, 1991 ("Penn Central Consent Decree"). Settling Defendants, Class 1 and Class 3 Defendants, and Settling Third Parties hereby withdraw any objections that they have made or that they have to entry of the Penn Central Consent Decree and agree not to oppose entry of that Decree. Class 2 Defendant is entitled to such protection from contribution actions or claims as is indicated in the Penn Central Consent Decree and subparagraphs 66d and 66e below.

65e. Class 3 Defendants Charles Licht, Dolores Licht, David Licht, Intec, By-Products Management, Inc. and Alfred M. Tenney.

(i) Class 3 Defendants Charles Licht and Industrial Tectonics, Inc. ("Intec") certify that to the best of their knowledge and belief, they have fully and accurately disclosed to U.S. EPA all information in their possession or the possession of their agents, officers, directors, employers, or affiliates relating to their assets, relevant insurance policies, and financial ability to pay any judgment that could be obtained against them in this action. The covenant not to sue in subparagraph 66a below is made applicable to Class 3 Defendants Charles Licht and Intec in reliance on this certification and the United States reserves all rights if this certification is not materially, true, correct, and complete.

(ii) Class 3 Defendants Charles Licht and Intec shall pay the United States the sum of Seventy-One Thousand Dollars ($71,000) plus interest on such sum accruing upon lodging of this

Decree through payment at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a). Class 3 Defendant Dolores Licht shall pay the United States the sum of Two Thousand Dollars ($2,000) plus interest on such sum accruing upon lodging of this Decree through payment at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a). Class 3 Defendant David Licht shall pay the United States the sum of Two Thousand Dollars ($2,000) plus interest on such sum accruing upon lodging of this Decree through payment at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a). The schedule for the above payments is as follows:

(a) Within thirty (30) days of entry of this Consent Decree, Twenty-Five Thousand Dollars ($25,000) plus accrued interest (the "First Payment"), including Twenty-One Thousand Dollars ($21,000) plus accrued interest from Charles Licht and Intec and Two Thousand Dollars ($2,000) each plus accrued interest from Dolores Licht and David Licht.

(b) Within thirty (30) days of the one-year anniversary of the entry of this Consent Decree, Twenty-Five Thousand Dollars ($25,000) plus all accrued interest since the First Payment from Charles Licht and Intec (the "Second Payment"); and

(c) Within thirty (30) days of the two-year anniversary of the entry of this Consent Decree, Twenty-Five Thousand Dollars ($25,000) plus all accrued interest since the Second Payment from Charles Licht and Intec. All payments shall be made as specified in subparagraph 49a above.

(iii) For purposes of this Decree, third-party defendants By-Products Management, Inc. and Alfred M. Tenney are being classified as Class 3 Defendants as if they had been named defendants in this matter. Class 3 Defendants By-Products Management, Inc. and Alfred M. Tenney shall pay the United States the sum of Seventy-Five Thousand Dollars ($75,000) plus interest on such sum accruing upon lodging of this Decree through payment at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a). The payments to the United States shall be made as specified in subparagraph 49a above. Class 3 Defendants By-Products Management, Inc. and Alfred M. Tenney shall also pay an additional Seventy-Five Thousand Dollars ($75,000) plus interest on such sum accruing upon lodging of this Decree through payment at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a) to a trust fund to be established by the Settling Defendants, which fund shall be used to pay for performance and completion of the Remedial Action Work by the Settling Defendants. The schedule for the required payments by Class 3 Defendants By-Products Management, Inc. and Alfred M. Tenney is as follows:

(a) Within thirty (30) days of entry of this Consent Decree, Twenty-Five Thousand Dollars ($25,000) plus accrued interest to the United States and Twenty-Five Thousand Dollars ($25,000) plus accrued interest to the Settling Defendants' trust fund (the "First Payments").

(b) Within four months of entry of this Consent Decree, Twelve Thousand Five Hundred Dollars ($12,500) plus all accrued interest to the United States since the First Payments

and Twelve Thousand Five Hundred Dollars ($12,500) plus all accrued interest to the Settling Defendants since the First Payments (the "Second Payments").

(c) Within seven months of entry of this Consent Decree, Twelve Thousand Five Hundred Dollars ($12,500) plus all accrued interest to the United States since the Second Payments and Twelve Thousand Five Hundred Dollars ($12,500) plus all accrued interest to the Settling Defendants since the Second Payments (the "Third Payments").

(d) Within ten months of entry of this Consent Decree, Twelve Thousand Five Hundred Dollars ($12,500) plus all accrued interest to the United States since the Third Payments and Twelve Thousand Five Hundred Dollars ($12,500) plus all accrued interest to the Settling Defendants since the Third Payments (the "Fourth Payments").

(e) Within thirteen months of entry of this Consent Decree, Twelve Thousand Five Hundred Dollars ($12,500) plus all accrued interest to the United States since the Fourth Payments and Twelve Thousand Five Hundred Dollars ($12,500) plus all accrued interest to the Settling Defendants since the Fourth Payments.

(iv) By entering into this Decree, Class 3 Defendants are entitled to such protection from contribution actions or claims as is indicated in subparagraphs 66d and 66e below.

65f. Federal Agency Settlement.

(i) (a) Within a reasonable time after entry of this Consent Decree, Settling Federal Agencies shall pay by check, as their share of future costs to be incurred by Settling Defendants

in carrying out response actions required by this Consent Decree, Three Hundred Five Thousand Dollars ($305,000) to Settling Defendants' Trust Fund or other business entity carrying out their obligations under the Decree. Within thirty (30) days of receipt of this check, Settling Defendants shall provide copies of the check to the Director, Waste Management Division, U.S. EPA, Region V and to the Assistant Attorney General, Environment and Natural Resources Division, U.S. Department of Justice, at the addresses provided in Section XXI (Notices).

(b) Within a reasonable time after entry of this Consent Decree, the United States on behalf of the Settling Federal Agencies shall cause to be transferred to the EPA Hazardous Substances Superfund as reimbursement of EPA past response costs, Twenty Thousand Dollars ($20,000).

(ii) Payments and/or fund transfers by the United States or the Settling Federal Agencies including, but not limited to, those required pursuant to subparagraph (i) are subject to the availability of appropriated funds. No provision of this Decree shall be interpreted as or constitute a commitment or requirement that the United States or the Settling Federal Agencies obligate or pay funds in contravention of the Anti-Deficiency Act, 31 U.S.C. § 1341.

(iii) By entering into this Decree, the United States and Settling Federal Agencies are entitled to such protection from contribution actions or claims as is indicated in subparagraphs 66d and 66e below. Settling Defendants expressly acknowledge that the Federal Agency Settlement embodied in the

terms of this Decree was reached after appropriate negotiations at arm's length.

65g. State Agency Settlement.

Settling Defendants and Settling State Agency have entered into the INDOT Settlement Agreement that is attached as Appendix 10. The Settling State Agency will be making payments and providing services to the Settling Defendants as provided in that INDOT Settlement Agreement. The Settling State Agency is entitled to such protection from contribution actions or claims as is indicated in subparagraphs 66d and 66e below. Attachment of the INDOT Settlement Agreement to this Decree does not necessarily reflect any agreement by the United States with any statements made therein.

XVIIIB. COVENANTS NOT TO SUE AND CONTRIBUTION PROTECTION

66. a. Covenant Not To Sue Settling Defendants, Class 1 and 3 Defendants, and Settling Class A, B, and C Third Parties, and Settling State Agency.

(i) In consideration of the actions that will be performed and the payments that will be made by the Settling Defendants, Class 1 and Class 3 Defendants, Settling Class A, Class B, and Class C Third Parties, and Settling State Agency under the terms of the Consent Decree, and except as specifically provided in paragraphs 65-69 of this Decree, the United States and the State covenant not to commence a civil judicial or administrative action against the Settling Defendants, Class 1 and Class 3 Defendants, Settling Class A, Class B, and Class C Third Parties, and Settling State Agency for Covered Matters.

Covered Matters shall mean any and all claims available to the United States under Sections 106 and 107 of CERCLA or Section 7003 of RCRA, 42 U.S.C. § 6973, relating to the Facilities, and any and all claims relating to the Facilities available to the State, IDEM, or any other state agency under Ind. Code 13-7-8.7 and 13-7-12 or common law nuisance. Except with respect to future liability, the United States' covenant not to sue shall take effect upon the receipt by U.S. EPA of the payment required by subparagraph 49a and the State's covenant not to sue upon receipt by the State of the payment required by subparagraph 49b. With respect to future liability (as provided in Section 122(f)(3) of CERCLA), the covenants not to sue shall take effect upon certification by U.S. EPA after consultation with the State of the completion of the remedial action concerning the Facilities pursuant to Section XXVI below. The covenants not to sue are conditioned upon the complete and satisfactory performance by Settling Defendants, Class 1 and Class 3 Defendants, Settling Class A, Class B, and Class C Third Parties, and Settling State Agency of their obligations under this Consent Decree. Upon entry of the Decree, the UAOs shall be deemed to be merged into this Decree and of no independent further force and effect as to the Settling Defendants and Class 1, 2, and 3 Defendants.

(ii) "Covered Matters" in subsection (i) above does not include:

(a) Liability arising from hazardous substances removed from the Facilities;

(b) Natural resource damages;

(c) Criminal liability;

(d) Claims based on a failure by the Settling Defendants, Class 1 and 3 Defendants, Settling Third Parties, and Settling State Agency to meet the requirements of this Consent Decree;

(e) Any matters for which the United States or the State is owed indemnification under Section XIX hereof; or

(f) Liability for violations of Federal or State law which occur during implementation of the remedial action.

66b. Covenant Not To Sue Settling Class D and Class E Third Parties and Class 2 Defendant. The United States and the State covenant not to commence a civil judicial or administrative action against any Settling Class D or Class E Third Party for Class D and Class E Covered Matters. Class D and Class E Covered Matters shall mean any and all claims available to the United States under Sections 106 and 107 CERCLA and Section 7003 of RCRA relating to the Facilities, and any and all claims relating to the Facilities available to the State under Ind. Code 13-7-8.7 and 13-7-12 or common law nuisance. Class D and Class E Covered Matters shall also include any and all civil liability for Settling Defendants' Response Costs, as well as any and all civil liability for future Response Costs relating to the Facility. This covenant not to sue for present and potential future liability shall take effect as to each Settling Class D and Class E Third Party after that Settling Class D or Class E Third Party has made timely and full payment pursuant to subparagraph 65a(vi) of this Decree. Class D and Class E Covered Matters do not include:

(i) any liability as a result of a failure to make the payments required by subparagraph 65a(vi) of this Decree;

(ii) criminal liability; and

(iii) natural resource damages.

The covenant not to sue Class 2 Defendant Penn Central Corporation is contained in paragraph 5 of the Consent Decree between the United States and Penn Central Corporation.

66c. Covenant Not To Take Administrative Action Against Settling Federal Agencies and Covenant Not To Sue the United States or the Settling Federal Agencies. In consideration of the payments and fund transfers that will be made by the Settling Federal Agencies, or by the United States on their behalf, U.S. EPA covenants not to commence administrative action against the Settling Federal Agencies, and the State covenants not to commence judicial or administrative action against the United States with respect to Covered Matters.

For purposes of this subsection c., "Covered Matters" shall mean any and all claims available to the U.S. EPA pursuant to Sections 106 and 107 CERCLA or Section 7003 of RCRA, 42 U.S.C § 6973, relating to the Facilities, and any and all claims relating to the Facilities available to the State, IDEM, or any other State agency pursuant to Ind. Code 13-7-8.7 or common law nuisance.

For purposes of this subsection c., "Covered Matters" does not include:

(i) Any liability for failure to make the payments required by subparagraph 65f of this Decree;

(ii) Criminal liability; and

(iii) Natural resource damages.

66d. Contribution Protection. With regard to claims for contribution against Settling Defendants, Class 1, 2, and 3 Defendants, Settling Federal Agencies, Settling State Agency and Settling Third Parties for matters addressed in this Consent Decree, the parties hereto agree that the Settling Defendants, Class 1, 2, and 3 Defendants, Settling Federal Agencies, Settling State Agency and Settling Third Parties are entitled to such protection from contribution actions or claims as is provided by CERCLA § 113(f)(2), 42 U.S.C. § 9613(f)(2). Class 2 Defendant is also entitled to such protection from contribution actions or claims as is indicated in the Penn Central Consent Decree.

66e. Mutual Covenants Not To Sue Among All Defendants, Settling Third Parties, Settling Federal Agencies, and Settling State Agency.

Settling Defendants, Class 1, 2, and 3 Defendants, Settling Federal Agencies, Settling State Agency and Settling Third Parties covenant not to commence or pursue any claim for contribution against the Settling Defendants, Class 1, 2, and 3 Defendants, the United States, the State, and Settling Third Parties regarding the matters addressed in this Consent Decree, including but not limited to Sections VI, VII, X, XVI, XVII, XIX, XX, XXIII, and XXVI of this Consent Decree. In addition, Settling Defendants, Class 1, 2, and 3 Defendants, Settling Federal Agencies, Settling State Agency and Settling Third Parties covenant not to commence or pursue any claim for contribution against Class 2 Defendant, Settling Class B, D, and

E Third Parties, and the United States on account of any additional work under Section VIII or subparagraph 67a of this Decree. Each of the above covenants not to commence or pursue claims extends only to the parties expressly referenced in the covenant, and not to any other person. These covenants do not extend to the potential liability or claims of any Settling Defendant relating to the acts or omissions of an entity or entities known or doing business as U.S. Reduction Company, its affiliates, or its predecessors or successors in interest. In addition, the applicability of either covenant to a party is conditioned on complete and satisfactory performance by that party of its obligations under this Decree. Nothing in this paragraph shall preclude enforcement of the Third Party Agreement or collection of response costs due thereunder or enforcement of the INDOT Settlement Agreement. Furthermore, nothing in this subparagraph shall prevent any party from commencing or pursuing any claim for contribution for natural resource damages.

67. a. Notwithstanding any other provision in this Consent Decree, (1) the United States reserves the right to institute proceedings in this action or in a new action or to issue an Order seeking to compel the Settling Defendants, Settling Class A, Class B, or Class C Third Parties, Class 1 or Class 3 Defendants, or Settling State Agency to perform any additional response work at the Facilities, and (2) the United States and the State reserve the right to institute proceedings in this action or in a new action against Settling Defendants, Settling Class A, Class B, or Class C Third Parties, Class 1 or Class 3 Defendants, or Settling State Agency seeking to reimburse

the United States for its Response Costs and to reimburse the State for its matching share of any response action undertaken by U.S. EPA and/or the State under CERCLA, relating to the Facilities, if prior to U.S. EPA certification of completion of the remedial action concerning the Facilities,

(i) conditions at the Facilities, previously unknown to U.S. EPA, are discovered, or

(ii) information, previously unknown to U.S. EPA, is received, in whole or part,

and these previously unknown conditions or this information together with any other relevant information indicates that the remedial action is not protective of human health or the environment; or if subsequent to certification of completion of the remedial action concerning the Facilities,

(i) conditions at the Facilities, previously unknown to U.S. EPA, are discovered, or

(ii) information, previously unknown to U.S. EPA, is received, in whole or part,

and 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.

b. Notwithstanding any other provision in this Consent Decree, (1) the U.S. EPA reserves the right to commence administrative action against Settling Federal Agencies seeking to compel the Settling Federal Agencies to perform any additional response work at the Facilities, and (2) U.S. EPA reserves the right to commence administrative action and the State reserves

the right to institute proceedings in this action or in a new action against Settling Federal Agencies seeking to reimburse the United States for its Response Costs and to reimburse the State for its matching share of any response action undertaken by U.S. EPA and/or the State under CERCLA, relating to the Facilities, under the same conditions as in subparagraph 67a above.

c. This Consent Decree and the SOW are premised on certain assumptions that (1) deep well injection will not cause an exceedance of total dissolved solids in any portion of the Lower Eau Clair or Mt. Simon that is an Underground Source of Drinking Water ("USDW") pursuant to 40 C.F.R. 144.3; (2) that the Lower Mt. Simon below the deep well site is not a USDW; and (3) that the Amended ROD will not need to be amended on account of the failure of all binders in the treatability study to meet minimum performance standards for soil solidification/stabilization, all as indicated at pp. 16-17 and 34 of the SOW. In the event that EPA determines based on the modelling, sampling, and testing taken in connection with injection well construction that deep well injection into the lower Mt. Simon Formation would cause an exceedance of total dissolved solids in any portion of the Lower Eau Clair or Mt. Simon that is a USDW, Settling Defendants' obligations to implement remedial action under the Consent Decree and SOW will be terminated and considered null and void and of no further force and effect (except as indicated in the parenthetical on p. 17 of the SOW). In the event that EPA determines that the lower Mt. Simon Formation below the well site is a USDW, at Settling Defendants' option, Settling Defendants' obligations to implement further remedial action under the

Consent Decree and this SOW shall be terminated and considered null and void and of no further force and effect (except as indicated in the parenthetical on p. 17 of the SOW). In the event of termination under this subparagraph of Settling Defendants' obligations to implement remedial action under the Consent Decree and SOW, the United States and Settling Defendants reserve all of their rights (including the United States' right to commence a civil judicial or administrative action), except that the provisions and protections of the Consent Decree as to past costs and penalties shall remain in effect. In the event that the Amended ROD is reopened on account of the failure of all binders to meet the minimum performance standards for soil solidification/stabilization in Section II.D of the SOW, Settling Defendants' obligations to implement soil solidification/ stabilization under this Consent Decree and the SOW shall be terminated and considered null and void and of no further force and effect. In such event, the United States and Settling Defendants reserve all of their rights as to soil treatment issues (including the United States' right to commence a civil judicial or administrative action).

68. For purposes of the preceding subparagraphs 67a and 67b, the information received by and the conditions known to the United States are that information and those conditions set forth in the RODs or the ROD Amendments or the UAOs or in documents contained in U.S. EPA's administrative record supporting the RODs or the ROD Amendments or the UAOs or, if subsequent to certification of completion of the remedial action, in reports or other documents submitted to U.S. EPA pursuant to this Consent

Decree or generated by U.S. EPA in overseeing this Consent Decree prior to certification of completion.

69. Notwithstanding any other provisions in this Consent Decree, the covenant not to sue in this Section shall not relieve the Settling Defendants of their obligation to meet and maintain compliance with the requirements set forth in this Consent Decree, and the United States reserves its rights to take response actions at the Facilities in the event of a breach of the terms of this Consent Decree and to seek from Settling Defendants recovery of costs incurred after entry of the Consent Decree: 1) resulting from such a breach; 2) relating to any portion of the Work funded or performed by the United States; or 3) incurred by the United States as a result of having to seek judicial assistance to remedy conditions at or adjacent to the Facilities. The United States shall consult with the State before taking any remedial action under this paragraph in accordance with Section 104(c)(3) of CERCLA. In such instance, the State reserves its right to recovery of its 10 percent matching share of U.S. EPA's response action costs.

70. Settling Defendants, Class 1, 2, and 3 Defendants, Settling Third Parties, and Settling State Agency hereby covenant not to sue and waive any rights to assert any claims against the United States or the State, or any agency of the United States or the State arising out of response activities at the Facilities. However, the Settling Defendants, Class 1, 2, and 3 Defendants, Settling Third Parties, and Settling State Agency reserve, and this Decree is without prejudice to, actions against the United States based on negligent actions taken directly by the United

States (not including oversight or approval of the Settling Defendants' plans, work, or activities) that 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.

71. Nothing in this Consent Decree shall constitute or be construed as a release or a covenant not to sue regarding any claim or cause of action against any person, firm, trust, joint venture, partnership, corporation or other entity not a signatory to this Consent Decree for any liability it may have arising out of or relating to the Facilities. 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 United States and the State expressly reserve the right to sue or continue to sue (or assert any defense against) any person, other than the Settling Defendants, Class 1, 2, or 3 Defendants, and Settling Third Parties in connection with the Facilities on any theory of law or fact whatsoever. The Settling Defendants expressly reserve the right to sue or continue to sue (or assert any defense against) any person not a party to this Decree on any theory of law or fact whatsoever. The United States agrees that so long as Settling Defendants are complying with this Consent Decree, the United States will not enter into a separate settlement with Insilco Corporation, Valspar Corporation, or U.S. Reduction Co. in connection with the Facilities that would provide that Insilco Corporation, Valspar Corporation, or U.S. Reduction Co. have contribution protection pursuant to 42 U.S.C. § 9613(f)(2) against any claim by Settling Defendants, Class 1, 2, or 3 Defendants, or Settling Third Parties for the

costs of performing the Work or meeting other requirements under this Decree.

XIX. INDEMNIFICATION; OTHER CLAIMS

72. Settling Defendants agree to indemnify, save and hold harmless the United States, the State and/or their representatives from any and all claims or causes of action arising from the acts or omissions of Settling Defendants and/or their representatives, including contractors and subcontractors, in carrying out the activities pursuant to this Consent Decree. The United States and the State shall notify Settling Defendants of any such claims or actions promptly after receipt of notice that such a claim or action is anticipated or has been filed.

73. The United States and the State do not assume any liability of Settling Defendants by virtue of entering into this agreement or by virtue of any designation that may be made of Settling Defendants as U.S. EPA's representatives under Section 104(e) of CERCLA for purposes of carrying out this Consent Decree. The United States and the State are not to be construed as parties to any contract entered into by Settling Defendants in carrying out the activities pursuant to this Consent Decree. The proper completion of the Work under this Consent Decree is solely the responsibility of Settling Defendants (except to the extent that this responsibility becomes that of the Settling Class A, Class B, or Class C Third Parties pursuant to paragraph 65 hereof).

74. Settling Defendants, Settling Class 1, 2, and 3 Defendants, Settling Third Parties, and Settling State Agency

waive their rights to assert any claims against the Hazardous Substances Superfund under CERCLA or the Indiana Hazardous Substances Response Trust Fund under Ind. Code 13-7-8.7 that are related to any costs incurred in the Work performed pursuant to this Consent Decree or work performed pursuant to the 1985 Partial Consent Decree, and nothing in this Consent Decree shall be construed as U.S. EPA's preauthorization of a claim against the Superfund or the State's preauthorization of a claim against Indiana's Trust Fund.

XX. INSURANCE/FINANCIAL RESPONSIBILITY

75. Settling Defendants shall purchase and maintain in force for the duration of the remedial action work, comprehensive general liability and automobile insurance with limits of three million dollars, combined single limit, naming as additional insurers the United States and the State. In addition, for the duration of this Consent Decree, Settling Defendants 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 work on behalf of Settling Defendants in furtherance of this Consent Decree. Prior to commencement of the Work at the Facilities, Settling Defendants shall provide U.S. EPA and the State with certificates of insurance and copies of insurance policies required by this paragraph. If Settling Defendants demonstrate by evidence satisfactory to the United States and the State that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the

same risks but in a lesser amount, then with respect to that contractor or subcontractor Settling Defendants need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

76. a. Within 30 days of entry of this Consent Decree, Settling Defendants shall establish and maintain financial security in the amount of $24,000,000 (Twenty-Four Million Dollars) in one or more of the following forms:

(i) A surety bond guaranteeing performance of the Work;

(ii) One or more irrevocable letters of credit; or

(iii) A trust fund or escrow for the Midco Facilities.

In addition, the Third Party Settlement Agreement may be used to satisfy up to 33% of the amount of required financial security. If Settling Defendants seek to rely on the Third Party Settlement Agreement for such purposes, Settling Defendants shall submit sworn statements annually, certifying the remaining value of the Third Party Settlement Agreement (based on the then current total estimated cost of the remaining Work) on each anniversary of the effective date of the Consent Decree.

The amount of financial security shall be reduced from time to time by amounts equal to the actual expenditures which Settling Defendants certify have been incurred to fund the Work required by the Consent Decree, provided that the Settling Defendants shall at all times maintain minimum financial assurance in one or a combination of the above forms for a sum equalling the then current total estimated cost of completing the remaining Work. This amount may be further reduced by agreement of the Settling Defendants and the United States as the future

cost requirements become more certain. Upon issuance of a Certification of Completion of Remedial Action by U.S. EPA pursuant to subparagraph 85b of this Decree, the amount of financial assurance shall be further reduced to an amount sufficient to secure the total estimated monitoring and maintenance obligations provided in subparagraph 85c of this Decree. This amount may be further adjusted if the cost requirements for maintenance and monitoring change, and the financial obligations will be terminated in the event a petition pursuant to subparagraph 85c to terminate all maintenance and monitoring obligations is granted.

b. In the event that U.S. EPA determines at any time that the financial assurances provided pursuant to this Section are inadequate, Settling Defendants shall, within 30 days of receipt of notice of EPA's determination, obtain and present to U.S. EPA for approval one of the other forms of financial assurance listed in subparagraph 76a above. Settling Defendants' inability to demonstrate financial ability to complete the Work shall not excuse performance of any activities required under this Consent Decree.

c. In the event that Settling Defendants cannot agree among themselves on financial security arrangements under subparagraph 76a, they shall establish such financial security in the required form and amount in proportion to their adjusted revised percentages in Appendix A of the Third Party Settlement Agreement (as adjusted pro rata among Settling Defendants for any shortfall for any party that does not contribute its full share of financial security), which is attached hereto as Appendix 7. The

foregoing references to percentages and the allocation among Settling Defendants of their obligation to post financial security in no way alters, diminishes, or excuses the joint and several liability of Settling Defendants to comply with this Consent Decree, including, without limitation, the joint and several obligation to maintain the total required financial security under this paragraph 76.

XXI. NOTICES

77. Whenever, under the terms of this Consent Decree, notice is required to be given, a report or other document is required to be forwarded by one party to another, or service of any papers or process is necessitated by the dispute resolution provisions of Section XIV hereof, such correspondence shall be directed to the following individuals at the addresses specified below, unless these individuals or their successors give notice of a change to the other parties in writing:

As to the United States or U.S. EPA:

a. Regional Counsel
Attn: Midco I and II Coordinator (5CS)
U.S. Environmental Protection Agency
230 S. Dearborn Street
Chicago, Illinois 60604

As to the State of Indiana:

a. Attorney General
State of Indiana
Attn: Midco I and II Coordinator
Rm. 219, State House
Indianapolis, Indiana 46204

b. Director, Waste Management
Attn: Midco I and II Remedial Project Manager
U.S. Environmental Protection Agency
77 West Jackson Blvd.
Chicago, IL 60604-3590

b. Commissioner
Indiana Department of Environmental Management
105 S. Meridian St.
Indianapolis, Indiana 46206
Attn: Midco I and II Project Manager
Superfund Section
Office of Environmental Response

c. Assistant Attorney General
Environment & Natural Resources Division
U.S. Department of Justice
10th & Pennsylvania Ave., N.W.
Washington, D.C. 20530
Ref. D.J. # 90-7-1-1

<u>As to Settling Defendants</u>:

a. ERM North Central
102 Wilmot Rd. Suite 300
Deerfield, IL 60015
Attn: Roy Ball

b. Harvey M. Sheldon, Esq.
McDermott, Will & Emery
227 West Monroe Street, 31st Floor
Chicago, IL 60606

c. The Harker Firm
5301 Wisconsin Ave., N.W.
Suite 740
Washington, DC 20015

d. Karaganis & White
414 North Orleans
Suite 810
Chicago, IL 60603

Notice need not be given to the below-listed classes of settling parties for reports required by Section XI and dispute resolution notices or submissions unless the interest of a below-listed class is specifically implicated. In such a case, notice shall be sent to:

As to Class 1 Defendants:

a. William O'Connor, Esq.
O'Connor & O'Connor
2646 Highway Ave.
Highland, IN 46322

b. Zena Crenshaw, Esq.
7235 Indianapolis Ave.
Hammond, IN 46324

As to Class 2 Defendant:

Michael R. Blankshain, Esq.
Wildman, Harrold, Allen & Dixon
225 West Wacker Drive
Chicago, IL 60606-1229

As to Class 3 Defendants Charles Licht, Dolores Licht, David Licht, and Intec:

William J. Moran, Esq.
9105-A Indianapolis Blvd.
Highland, IN 46322

As to Class 3 Defendants By-Products Management, Inc. and Alfred M. Tenney:

Roy M. Bernstein, Esq.
Gottlieb & Schwartz
111 East Wacker Dr., Suite 2700
Chicago, IL 60601-4798

As to Settling Class A and B Third Parties:

a. Thomas T. Terp, Esq.
Taft, Stettinus & Hollister
First National Bank Center
Fountain Square
Cincinnati, OH 45202

b. Percy L. Angelo, Esq.
Mayer, Brown & Platt
231 S. LaSalle Street
Chicago, IL 60604

c. Steven Tasher, Esq.
Willkie, Farr & Gallagher
1155 21st Street, N.W.
Washington, D.C. 20036-3302

d. James T. Herrington, Esq.
Ann Beckert, Esq.
Ross & Hardies
Suite 2600
150 North Michigan Ave.

As to Settling Class C Third Party

Len Polisar, Esq.
Herzfeld & Rubin
40 Wall St.
New York, NY 10005

As to Settling Class D and Class E Third Parties

The addressees for notice indicated in Appendices 9A and 9B.

As to Settling Federal Agencies:

Michael D. Rowe
Environmental Defense Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 23986
Washington, D.C. 20026-3986

As to Settling State Agency:

John Jordan
Indiana Department of Transportation
Room N730
100 N. Senate Ave.
Indianapolis, IN 46204

XXII. CONSISTENCY WITH NATIONAL CONTINGENCY PLAN

78. The United States and the State agree that the Work and additional work if any, if properly performed, is consistent with the provisions of the National Contingency Plan.

XXIII. ENDANGERMENT AND EMERGENCY RESPONSE

79. In the event of any action or occurrence during the performance of the Work which causes or threatens a release of a hazardous substance into the environment that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Settling Defendants shall

immediately take all appropriate action to prevent, abate, or minimize such release and endangerment, and shall immediately notify the RPM or, if the RPM is unavailable, the U.S. EPA Emergency Response Section, Region V, U.S. EPA as well as the State pursuant to 327 Ind. Ad. Code 2-6-2. Settling Defendants shall take such action in accordance with all applicable provisions of the Health and Safety/Contingency Plan developed pursuant to the SOW and approved by U.S. EPA. In the event that Settling Defendants fail to take appropriate response action as required by this paragraph and U.S. EPA or the State takes such action instead, Settling Defendants shall reimburse all costs of the response action not inconsistent with the NCP. Payment of such Response Costs shall be made in the manner provided in Section XVI hereof.

80. Nothing in the preceding paragraph or in this Consent Decree shall be deemed to limit the response authority of the United States under 42 U.S.C. § 9604 or the State under Ind. Code 13-7-8.7-9.

XXIV. COMMUNITY RELATIONS

81. Settling Defendants shall cooperate with U.S. EPA and the State in providing information regarding the progress of remedial design and remedial action at the Facilities to the public. As requested by U.S. EPA or the State, Settling Defendants shall participate in the preparation of all appropriate information disseminated to the public and in public

meetings which may be held or sponsored by U.S. EPA or the State to explain activities at or concerning the Facilities.

XXV. RETENTION OF JURISDICTION; MODIFICATION

82. Retention of Jurisdiction. This Court will retain jurisdiction for the purpose of enabling any of the Parties to apply to the Court at any time for such further order, direction, or 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 XIV hereof. In any action to enforce this Decree, including without limitation any disputes under or relating to Sections VII or VIII or paragraph 67 of this Decree, the United States (or the State where applicable) shall not have to prove that the Settling Defendants are covered persons or responsible parties within the meaning of Section 107(a) of CERCLA, 42 U.S.C. § 9607(a) (or Ind. Code 13-7-8.7).

83. Modification. No modification shall be made to this Consent Decree without written notification to and written approval of the parties and the Court except as provided in Section VII (Modification of the Scope of Work; Additional Work). The notification required by this Section shall set forth the nature of and reasons for any requested modification. No oral modification of this Consent Decree shall be effective. Nothing in this paragraph shall be deemed to alter the Court's power to supervise or modify this Consent Decree.

XXVI. EFFECTIVE DATE AND CERTIFICATION OF COMPLETION OF REMEDY

84. a. If after public comment on the proposed ROD Amendments attached as Appendices 2A and 2B, U.S. EPA adopts ROD Amendments which differ from the proposed ROD Amendments, the United States will so notify Settling Defendants, Class 1, 2, and 3 Defendants, Settling Federal and State Agencies and the addressees listed for Settling Class A, B, C, and D Third Parties in Section XXI, in writing, prior to moving to enter the Decree, and the Parties shall have thirty (30) days following adoption of the ROD Amendments in which to agree to modifications to the Decree and SOW in accordance with the ROD Amendments. The Parties may mutually agree to extend the 30-day time period.

If the Parties fail to reach agreement regarding modification of the Decree and/or SOW within the time specified above or an alternative time agreed to by the Parties, any Party may withdraw from the Consent Decree, in which case the Decree shall be without any force or effect for any purpose as to such Party. A Party may withdraw from this Consent Decree under the provisions of this subparagraph by filing with the Court and serving on the Parties a notice that sets forth such Settling Defendant's decision to withdraw within fifteen (15) days after termination of the period for agreeing to modifications referred to above. If any Party serves a timely notice of withdrawal, other Parties shall have an additional ten (10) days from receipt of service of such notice to provide a notice of withdrawal in the manner described above.

b. This Consent Decree shall be effective upon the date of its entry by the Court.

85. Certification of Completion of Remedial Action.

a. Application. When the Settling Defendants believe that in-situ soil solidification/stabilization, in-situ soil vapor extraction, groundwater extraction, groundwater treatment (as needed), injection of treated groundwater into deep well(s), excavation and treatment of sediment areas and wetlands mitigation, and installation of final site covers have all been completed in accordance with this Consent Decree and the SOW and that the demonstration of compliance with CALs (Alternative Groundwater CALs in the event a petition has been granted pursuant to subparagraph 12a(iv) of this Decree), requirements triggered by Soil Treatment Action Levels, and Performance Standards has been made in accordance with this Consent Decree, they shall submit to the United States and the State a Notification of Completion of Remedial Action for that Facility and a final report which summarizes the work done, any approved modification made to the SOW or RD/RA Project Plan, and data demonstrating that the CALs, requirements triggered by Soil Treatment Action Levels, and Performance Standards have been complied with, and which contains the elements required in Part III, Task IV.D of the SOW. A separate notification and report may be submitted for each Facility. The report(s) shall be prepared and certified as true and accurate by a registered professional engineer and the Settling Defendants' Project

Coordinator, and shall include appropriate supporting documentation.

b. Certification. Upon receipt of the Notification of Completion of Remedial Action, U.S. EPA shall review the final report and supporting documentation, and the remedial actions taken. U.S. EPA after consultation with the State shall issue a Certification of Completion of Remedial Action for that Facility upon a determination that Settling Defendants have completed implementation and operation of in-situ soil solidification/ stabilization, in-situ soil vapor extraction, groundwater extraction, groundwater treatment (as needed), injection of treated groundwater into deep well(s), excavation and treatment of sediment areas and wetlands mitigation, and installation of final site covers in accordance with this Consent Decree and the SOW and demonstrated compliance with CALs, Treatment Action Levels, and Performance Standards (Alternative Groundwater CALs in the event a petition has been granted pursuant to subparagraph 12a(iv) of this Decree) in accordance with the terms of this Consent Decree and the SOW, and that no further corrective action is required.

c. Monitoring and Maintenance Obligations.

(i) Notwithstanding the provisions of subparagraph 66a of this Decree, Settling Defendants shall monitor and maintain remedy components including the deep well(s), solidified/ stabilized material, and final site covers in accordance with Sections II.F, II.C, Part III.Task-II.B, and Part III.Task.IV.C, .D of the SOW and shall continue to do so notwithstanding the

issuance of any Certification of Completion of Remedial Action pursuant to subparagraph b above. Notwithstanding the provisions of subparagraph 66a of this Decree, after issuance of any Certification of Completion of Remedial Action, Settling Defendants shall also undertake long-term groundwater monitoring and possibly additional groundwater extraction and treatment as more fully described at Section II.F of the SOW.

(ii) Settling Defendants may, at any time after fifteen (15) years following the issuance of the Certification of Completion of Remedial Action for that Facility, petition U.S. EPA and the State to modify or terminate monitoring or maintenance obligations for that Facility. Settling Defendants' petition shall include a detailed description of the proposed modification and termination and demonstration that the continuation of the activity to be modified or terminated is not necessary to protect human health or the environment or to protect against threats thereto. The petition may be based on information such as but not limited to the following: results of monitoring well or piezometer sampling; results of extraction well sampling; absence of significant changes over time in monitoring parameters; characteristics of the solidified/stabilized materials, cover, and other materials; frequency of extraction well operation; status and condition of any injection well; and the ability of the program element to be resumed if shown to be necessary to protect human health or the environment or against threats thereto. Based upon the petition and any other relevant information, U.S. EPA (with the concurrence of the State) shall

issue a written determination stating whether any or all of the monitoring or maintenance activities may be modified or terminated and the basis for such determination. Upon a finding by U.S. EPA that resumption of a discontinued or modified monitoring or maintenance obligation is necessary to protect human health or the environment or to protect against any threat thereto, the Settling Defendants shall resume such activity, subject to the provisions of Section XIV of this Decree. The grant of any petition by U.S. EPA pursuant to this subparagraph shall also be subject to the periodic review provisions of Section VIII of this Decree.

86. Effect of Settlement. The entry of this Consent Decree shall not be construed to be an acknowledgment by the parties that the release or threatened release concerned constitutes an imminent and substantial endangerment to the public health or welfare or the environment. Except as provided in the Federal Rules of Evidence, the participation by any party in this Decree shall not be considered an admission of liability for any purpose (except a proceeding to enforce this Decree).

87. Settling Defendants, Class 1, 2, and 3 Defendants, Settling State Agency and Settling Third Parties 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 the parties in writing that (1) the United States no longer supports entry of the Consent Decree without change or that (2) U.S. EPA has adopted ROD Amendments which differ from the proposed ROD Amendments (attached as Appendices

2A and 2B) and that the party has in response served a timely notice of withdrawal from this Decree.

XXVII. OPTION FOR SETTLEMENT WITH NATURAL RESOURCE TRUSTEES

88. Settling Defendants shall have the below-described option of entering into a settlement with the Natural Resource Trustees on their behalf and on behalf of the Settling Class A and B Third Parties. Notice of intent to exercise this option must be received by the United States and the State by no later than March 1, 1992, unless the United States and the State agree in writing to extend the option period. The terms of the option are as follows:

a. Settling Defendants shall cause fee title of 150 acres of property in Northern Indiana within a ten-mile radius of the Midco Facilities to be conveyed to the State or its designee for restoration, replacement, or protection of natural resources or habitat (the "Conveyed Property"). The Natural Resource Trustees must unanimously approve in writing the specific parcel(s) of property that the Settling Defendants propose to convey prior to exercise of the option by Settling Defendants.

b. Settling Defendants shall pay $35,000 to U.S. DOI as reimbursement of its past and anticipated future costs of assessing natural resource damages.

c. Settling Defendants shall pay $60,000 to the State as reimbursement of its past and anticipated future costs of assessing natural resource damages.

d. Settling Defendants shall pay the State $105,000 to be used by the State to restore, replace, or acquire natural resources or habitat on the Conveyed Property. Use of this payment shall be governed by a Natural Resource Restoration and Replacement Plan, see 43 C.F.R. 11.93, to be prepared at no additional cost to Settling Defendants. The Natural Resource Restoration and Replacement Plan must be approved unanimously by the Natural Resource Trustees. At least twelve (12) acres of wetlands must be restored as part of the project.

e. The State shall file in the land records of Lake County, Indiana, a deed/use restriction for the Conveyed Property approved unanimously by the Natural Resource Trustees that is similar in form and substance to the deed/use restriction attached hereto as Appendix 11.

f. In the event that Settling Defendants provide notice of the exercise of the option described in this paragraph 88, the parties to the Consent Decree agree to enter into an Amendment of the Consent Decree that will make the following changes to the Consent Decree:

(i) Paragraph 88 of the Consent Decree will be amended to read as follows:

"a. Settling Defendants shall cause fee title of 150 acres of property in Northern Indiana within a ten-mile radius of the Midco Facilities to be conveyed to the State or its designee for restoration, replacement, or protection of natural resources or habitat (the "Conveyed Property"). The Natural Resource Trustees must unanimously approve in writing the

specific parcel(s) of property that the Settling Defendants propose to convey.

b. Within 45 days of entry of the Consent Decree as amended, Settling Defendants shall pay $35,000 to U.S. DOI as reimbursement of its past and anticipated future costs of assessing natural resource damages. The payment shall be made by certified or bank check made payable to U.S. Department of Interior, Fish and Wildlife Service, and shall be addressed to Michael Hurst, Chief, Division of Fiscal Services, Department of Interior, Office of the Secretary, Mail Stop 5257, 1849 C Street, N.W., Washington, DC 20240. The check shall clearly reference "Midco Sites Natural Resource Settlement." Copies shall be sent to the: U.S. Department of Justice and the State at the addresses indicated in paragraph 77; Division of Environmental Contaminants, U.S. Fish and Wildlife Service, 4401 N. Fairfax Dr., Room 330, Arlington, VA 22203; and U.S. Fish and Wildlife Service, 718 N. Walnut St., Bloomington, IN 47404.

c. Within 45 days of entry of the Consent Decree as amended, Settling Defendants shall pay $60,000 to the State as reimbursement of its costs of assessing natural resource damages and future anticipated response costs. The payment shall be made by certified or bank check made payable to Gary Doxtater, Deputy Director, Indiana Department of Natural Resources, 402 West Washington St., Room 264, Indianapolis, IN 46204. The check shall clearly reference "Midco Sites Natural Resource Settlement." Copies shall be sent to the State and the U.S. Department of Justice at the addresses indicated in paragraph 77.

d. Within 45 days of entry of the Consent Decree as amended, Settling Defendants shall pay the State $105,000 to be used by the State to restore, replace, or acquire natural resources or habitat on the Conveyed Property. The payment shall be made by certified or bank check made payable to Gary Doxtater, Deputy Director, Indiana Department of Natural Resources, 402 West Washington St., Room 264, Indianapolis, IN 46204. The check shall clearly reference "Midco Sites Natural Resource Settlement." Copies shall be sent to the State and the U.S. Department of Justice at the addresses indicated in paragraph 77. Use of this payment shall be governed by a Natural Resource Restoration and Replacement Plan, see 43 C.F.R. 11.93, to be prepared at no additional cost to Settling Defendants. The Natural Resource Restoration and Replacement Plan must be approved unanimously by the Natural Resource Trustees. At least twelve (12) acres of wetlands must be restored as part of this project for the Conveyed Property.

e. The State shall file in the land records of Lake County, Indiana, a deed/use restriction for the Conveyed Property approved unanimously by the Natural Resource Trustees that is similar in form and substance to the deed/use restriction attached hereto as Appendix 11."

(ii) Subparagraphs 66a, 66b, and 66c of the Decree shall be amended to delete the exclusion for natural resource damages from the covenants not to sue or take

administrative action against [list parties] in those subparagraphs.

(iii) The last sentence of subparagraph 66e regarding a reservation of claims for contribution for natural resource damages shall be modified to add the following language at the end of the sentence: "except that Settling Defendants, Settling Class A and Class B Third Parties, Settling Federal Agencies, and [list of any other parties that enter into the natural resource settlement] covenant not to commence or pursue any claim for contribution against each other and the United States for natural resource damages.

ENTERED this ___ day of _____, 19__.

_____
U.S. District Judge

The parties whose signatures appear below hereby consent to the terms of this Consent Decree. The consent of the United States is subject to the public notice and comment requirements of Section 122(i) of CERCLA and 28 CFR 50.7.

UNITED STATES OF AMERICA

By: _____
Barry M. Hartman
Acting Assistant Attorney General
Environment & Natural Resources
Division
U.S. Department of Justice
Washington, D.C.

Date: _____

By: _____
Valdas V. Adamkus
Regional Administrator
U.S. EPA, Region V
Chicago, Illinois

Date: Jan. 10, 1992.

By: _____
Herbert H. Tate, Jr.
Assistant Administrator for Enforcement
U.S. EPA
Washington, D.C.

Date: Jan 28, 1992

By: _____
Alan S. Tenenbaum
Environment & Natural Resources
Division
Environmental Enforcement Section
U.S. Department of Justice
Washington, D.C.

Date: Jan. 29, 1992

By: _____
Michael R. Berman
U.S. EPA, Region V
Chicago, Illinois

Date: Jan. 7, 1992

By: _____
Peter W. Moore
U.S. EPA, Region V
Chicago, Illinois 60604

Date: Jan 7, 1992

STATE OF INDIANA

By: [illegible] Magnus for Evan Bayh

Office of the Governor

Date: 1-10-92

By: [illegible]

Kathy Prosser, Commissioner
Indiana Department of Environmental Management

Date: _____

By: [illegible]

Greta Hawvermale, Assistant Commissioner
Indiana Department of Environmental Management

Date: _____

By: [illegible]

Gary Doxtater, Deputy Director
Indiana Department of Natural Resources

Date: 1/10/92

Approved as to Form and Legality

Linley E. Pearson
Attorney General, State of Indiana

By: [illegible]

Mathew S. Scherschel
Deputy Attorney General

Date: Jan. 10, 1992

SIGNATURE PAGE FOR INDIANA DEPARTMENT OF TRANSPORTATION

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

The Indiana Department of Transportation ("INDOT") hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al.

Indiana Department of Transportation
100 N. Senate Ave., Room N755
Indianapolis, IN 46204-2249
Address

APPROVED AS TO THE LEGALITY AND FORM
BY: _____ (FOR)
LINLEY E. PEARSON
ATTORNEY GENERAL OF INDIANA

By: John J. Dillon
Name (Type)

x _____
Signature

Commissioner
Title

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

John E. Jordan
Name
100 N. Senate Ave., Room N730
Address
Indianapolis, IN 46204-2249

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURES OF SETTLING DEFENDANTS

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Primerica Holdings, Inc. successor in interest to American Can Company (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

X Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Primerica Holdings, Inc., Successor in interest to American Can Company

NAME OF COMPANY (Type)

65 East 55th Street, New York, NY 10022

Address

By: Jerome T. Fadden

Name of Officer (Type)

Jerome T. Fadden

(Signature of officer)

Vice President, Financial Planning & Analysis

Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Motorola, Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

X Settling Defendant	____ Settling Class A Third Party
____ Class 1 Defendant	____ Settling Class B Third Party
____ Class 2 Defendant	____ Settling Class C Third Party
____ Class 3 Defendant	____ Settling Class D Third Party
	____ Settling Class E Third Party

Motorola, Inc.
NAME OF COMPANY (Type)

1301 E. Algonquin Road
Schaumburg, Illinois 60196
Address

By: Robert S. Hall
Name of Officer (Type)

(Signature of officer)
Sr. Vice-President & General Manager for
Title Land Mobil Products Sector Support Group

(Place corporate seal and acknowledgment of authority of officer to sign here)

Douglas F. MacPhail
Assistant Secretary
Motorola, Inc.

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Richard H. Weise, Esq.
Name
1303 E. Algonquin Road
Address Schaumburg, IL 60196

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

PRE FINISH METALS INC. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

X	Settling Defendant		Settling Class A Third Party
	Class 1 Defendant		Settling Class B Third Party
	Class 2 Defendant		Settling Class C Third Party
	Class 3 Defendant		Settling Class D Third Party
			Settling Class E Third Party

PRE FINISH METALS INC.
NAME OF COMPANY (Type)

2300 E. PRATT BLVD., ELK GROVE VILLAGE, IL
Address

By: JAMES J. WACLAWIK
Name of Officer (Type)

(Signature of officer)

Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Premier Coatings, Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

✓ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

PREMIER COATINGS, INC.
NAME OF COMPANY (Type)

2250 Arthur Avenue
Elk Grove Village, Illinois 60007
Address

By: Edward R. Andrus, Jr.
Name of Officer (Type)

Edward R. Andrus Jr.
(Signature of officer)
President & Chief Operating Officer
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Rust-Oleum Corporation (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

X Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Rust-Oleum Corporation
NAME OF COMPANY (Type)

11 Hawthorn Parkway
Vernon Hills, Illinois 60061
Address

By: Leonard P. Judy
Name of Officer (Type)

(Signature of officer)

Chief Executive Officer
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Standard T Chemical Co., Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

X	Settling Defendant		Settling Class A Third Party
	Class 1 Defendant		Settling Class B Third Party
	Class 2 Defendant		Settling Class C Third Party
	Class 3 Defendant		Settling Class D Third Party
			Settling Class E Third Party

Standard T Chemical Co., Inc.
NAME OF COMPANY (Type)

290 East Joe Orr Road
Chicago Heights, Illinois 60411
Address

By: Richard Bergel
Name of Officer (Type)

Richard Bergel
(Signature of officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Zenith Electronics Corporation, f/k/a Zenith Radio Corporation (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

X Settling Defendant	____ Settling Class A Third Party
____ Class 1 Defendant	____ Settling Class B Third Party
____ Class 2 Defendant	____ Settling Class C Third Party
____ Class 3 Defendant	____ Settling Class D Third Party
	____ Settling Class E Third Party

Zenith Electronics Corporation
NAME OF COMPANY (Type)

1000 Milwaukee Avenue
Glenview, Illinois 60025-2493
Address

By: John Borst, Jr.
Name of Officer (Type)

(Signature of officer)

Vice President - General Counsel
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

Attest: Patricia A. Strandberg
Assistant Secretary

SIGNATURES OF CLASS 1 DEFENDANTS

SIGNATURE PAGE FOR V & E CORPORATION

The undersigned Defendant, V & E Corporation, a Class 1 Defendant, hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al.

V & E Corporation

1242 Melbrook Drive
Munster, Indiana 46321

By: _____
Victor A. Kirsch, President

Attest:

_____
Eva Kirsch, Secretary

STATE OF INDIANA, COUNTY OF LAKE) SS:

I, the undersigned, a Notary Public, in and for the County and State aforesaid, do hereby certify, that Victor A. Kirsch, personally known to me to be the President of V & E Corporation, and Eva Kirsch, personally known to me to be the Secretary of said corporation, and personally known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that as such President and such Secretary, they signed and delivered the said instrument as President and Secretary of said corporation, pursuant to authority given by the Board of Directors of said corporation as their free and voluntary act, and as the free and voluntary act and deed of said corporation, for the uses and purposes therein set forth.

Given under my hand and official seal, this 6th day of January, 1992.

My Commission Expires:
April 9, 1992

_____
William J. O'Connor, Notary Public
Resident of Lake County

SIGNATURE PAGE FOR INDIVIDUALS

The undersigned Class 1 Defendant hereby consents to the foregoing Consent Decree in U.S. v. MIDWEST SOLVENT RECOVERY, INC., et al.

Robert J. Dawson

2402 Broadway East Chicago, IN 46312

/s/ Robert J. Dawson

SIGNATURE OF CLASS 2 DEFENDANT

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

The Penn Central Corporation (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____	Settling Defendant	_____	Settling Class A Third Party
_____	Class 1 Defendant	_____	Settling Class B Third Party
X	Class 2 Defendant	_____	Settling Class C Third Party
_____	Class 3 Defendant	_____	Settling Class D Third Party
		_____	Settling Class E Third Party

The Penn Central Corporation
NAME OF COMPANY (Type)

One East Fourth Street
Cincinnati, Ohio 45202
Address

By: Robert W. Olson
Name of Officer (Type)

(Signature of officer)

Senior Vice President, General
Title Counsel & Secretary

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURES OF CLASS 3 DEFENDANTS

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

INDUSTRIAL TECTONICS, INC. ("Intec") (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____	Settling Defendant	_____	Settling Class A Third Party
_____	Class 1 Defendant	_____	Settling Class B Third Party
_____	Class 2 Defendant	_____	Settling Class C Third Party
X	Class 3 Defendant	_____	Settling Class D Third Party
		_____	Settling Class E Third Party

INDUSTRIAL TECTONICS, INC. ("Intec")
NAME OF COMPANY (Type)

3439 Vollmer Road
Flossmoor, IL 60422
Address

By: Charles Licht
Name of Officer (Type)

Signature of officer)

President
Title

Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR INDIVIDUALS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

DAVID LICHT (Name of Individual) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____	Settling Defendant	_____	Settling Class A Third Party
_____	Class 1 Defendant	_____	Settling Class B Third Party
_____	Class 2 Defendant	_____	Settling Class C Third Party
X	Class 3 Defendant	_____	Settling Class D Third Party
		_____	Settling Class E Third Party

DAVID LICHT
NAME OF INDIVIDUAL (Type or Print)

[redacted] [redacted]
Jackson Heights, NY 11372
Address

SIGNATURE OF INDIVIDUAL

SIGNATURE PAGES FOR INDIVIDUALS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

DOLORES LICHT (Name of Individual) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____	Settling Defendant	_____	Settling Class A Third Party
_____	Class 1 Defendant	_____	Settling Class B Third Party
_____	Class 2 Defendant	_____	Settling Class C Third Party
X	Class 3 Defendant	_____	Settling Class D Third Party
		_____	Settling Class E Third Party

DOLORES LICHT
NAME OF INDIVIDUAL (Type or Print)

[redacted]
Flossmoor, IL 60422
Address

Dolores Licht
SIGNATURE OF INDIVIDUAL

SIGNATURE PAGES FOR INDIVIDUALS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

CHARLES LICHT (Name of Individual) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
X Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

CHARLES LICHT
NAME OF INDIVIDUAL (Type or Print)

[redacted]
Flossmoor, IL 60422
Address

SIGNATURE OF INDIVIDUAL

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

By-Products Management, Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
X Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

By-Products Management, Inc.
NAME OF COMPANY (Type)

1150 Junction Avenue
Schererville, Indiana 46375
Address

By: Ronald D. Tenny
Name of Officer (Type)

(Signature of officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Roy L. Bernstein
Name c/o Gottlieb and Schwartz
111 E. Wacker, #2700, Chicago, IL 60601
Address

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR INDIVIDUALS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Alfred M. Tenny (Name of Individual) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
X Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Alfred M. Tenny
NAME OF INDIVIDUAL (Type or Print)

c/o By-Products Management, Inc.
1150 Junction Avenue
Schererville, Indiana 46375
Address

Alfred M. Tenny
SIGNATURE OF INDIVIDUAL

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Roy L. Bernstein
Name c/o Gottlieb and Schwartz
111 E. Wacker, #2700, Chicago, IL 60601
Address

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURES OF SETTLING CLASS A THIRD PARTIES

SIGNATURE PAGES FOR CORPORATIONS

ACCUTRONICS, INC. (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

ACCUTRONICS, INC.
NAME OF COMPANY (Type)

225 W. Washington St.
Chicago, Illinois 60606
Address

By: Gerald T. Shannon
Name of Officer (Type)

(Signature of officer)

Vice President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

STATE OF ILLINOIS)
) SS:
COUNTY OF C O O K)

This is to certify that Gerald T. Shannon, Vice President of Accutronics, Inc., personally known to me to be the same person whose name is subscribed to the foregoing document appeared before me, Carol D'Ascenzo, a Notary Public, this 23rd day of January, 1992, and expressly acknowledged to me the execution of said foregoing document as the free and voluntary act of Accutronics, Inc.

Carol D'Ascenzo
Notary Public

My Commission expires on:

"OFFICIAL SEAL"
CAROL D'ASCENZO
Notary Public, State of Illinois
My Commission Expires Dec. 1, 1992

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

James R. Latta
Thomas B. Golz
FAGEL & HABER
Name
140 S. Dearborn St./#1400
Address Chicago, IL. 60603

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

ACTIVE SERVICE CORP. (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

ACTIVE SERVICE CORP.
NAME OF COMPANY (Type)

1712 Church Street
Evanston, Illinois 60201
Address

By: Richard DeBoer
Name of Officer (Type)

(Signature of officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Donald J. Moran, Esq.
PEDERSEN & HOUPT
Name
180 N. LaSalle St., #3400
Address Chicago, IL 60601

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

AMERICAN RIVET COMPANY, INC. (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

AMERICAN RIVET COMPANY, INC.
NAME OF COMPANY (Type)

11330 WEST MELROSE STREET
FRANKLIN PARK, IL. 60131
Address

By: ANTHONY W. REIBEL
Name of Officer (Type)

Anthony W. Reibel
(Signature of officer)

VICE PRESIDENT & SECY.
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al.

Armour Pharmaceutical Company is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a:

_____ Settling Defendant	__X__ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Armour Pharmaceutical Company
500 Arcola Road, P.O. Box 1200
Collegeville, PA 19426

By: Gary C. Floyd

Gary C Floyd
Signature

Title: Vice President,
Marketing and Operations

pu.297

SIGNATURE PAGES FOR CORPORATIONS

Ashland Chemical, Inc. (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	✓ Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

ASHLAND CHEMICAL, INC.
NAME OF COMPANY (Type)

P.O. BOX 2219, COLUMBUS, OHIO 43216
Address

By: SCOTTY B. PATRICK
Name of Officer (Type)

WSHQ
(Signature of officer)

GROUP VICE PRESIDENT
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Cargill, Incorporated (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Cargill, Incorporated
NAME OF COMPANY (Type)
P.O. Box 9300
Minneapolis,
Minnesota 55440
Address

By: James F. Lawrence
Name of Officer (Type)

(Signature of officer)
Senior Vice President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

Attest: M. A. Kurschner
M A Kurschner Assistant Secretary

SIGNATURE PAGES FOR CORPORATIONS

CONNOR FOREST INDUSTRIES INC. (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	XXX Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

CONNOR FOREST INDUSTRIES INC.
NAME OF COMPANY (Type)

9701 WILSHIRE BLVD., STE. 1200 BEVERLY HILLS, CA 90
Address

By: H. ANDREW THORNBURG
Name of Officer (Type)

(Signature of officer)

CHIEF EXECUTIVE OFFICER
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

ACKNOWLEDGED BY:

Vice President

SIGNATURE PAGES FOR CORPORATIONS

Continental White Cap. (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Continental White Cap
NAME OF COMPANY (Type)

1140 31st Street
Downers Grove, IL 60515
Address

By: Albert Schnell
Name of Officer (Type)

(Signature of officer)

V.P. of Manufacturing
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Daubert Chemical Company (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Daubert Chemical Company
NAME OF COMPANY (Type)

4700 South Central Avenue
Chicago, Illinois 60638
Address

By: M. Lawrence Garman
Name of Officer (Type)

M. Lawrence Garman
(Signature of Officer)

Chairman
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Mr. Jon Furlow
Sonnenschein, Nath & Rosenthal

Name

8000 Sears Tower
Chicago, Illinois 60606-6404

Address

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Duo-Fast Corporation (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Duo-Fast Corporation
NAME OF COMPANY (Type)

3702 North River Road, Franklin Park, Illinois 60131
Address

By: Paul Noland
Name of Officer (Type)

(Signature of officer)

Executive Vice President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

Paul Noland is authorized by the Board of Directors of Duo-Fast Corporation to execute this agreement on behalf of the Corporation.

SIGNATURE PAGES FOR CORPORATIONS

American Home Products Corporation
on behalf of Ekco Housewares
_____ (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

American Home Products Corporation
on behalf of Ekco Housewares
NAME OF COMPANY (Type)

685 Third Avenue
New York, New York 10017
Address

By: Louis L. Hoynes, Jr.
Name of Officer (Type)

(Signature of officer)

Title Senior Vice President and General Counsel

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Ethicon, Inc. (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Ethicon, Inc.
NAME OF COMPANY (Type)

Rt 22, Somerville, N.J. 08876
Address

By: Nelson Baker
Name of Officer (Type)

X Nelson Baker
(Signature of officer)

Secretary
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

Robert L. Zocca
Assistant Secretary

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Option Exercise:
Settling Class A Third Party Defendant

FURNAS ELECTRIC COMPANY
NAME OF COMPANY (Type)

1000 MCKEE STREET, BATAVIA, IL 60510
Address

By: Gilbert R. Nary
Name of Officer (Type)

Gilbert R. Nary
(Signature of officer)

Vice Chairman & C.O.O.
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Copy To:

Kate McCracken
Name

Drendel, Schanlaber, Horwitz, Tatnall & McCracken
Address

520 Redwood Drive
Aurora, Illinois 60506

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Gilbert & Bennett Manufacturing Company (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	XX Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Gilbert & Bennett Manufacturing Company
NAME OF COMPANY (Type)

One North Main Street, Georgetown, Ct. 06829
Address

By: Paul L. Gossling, President
Name of Officer (Type)

(Signature of officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

Acknowledged By:

John E. Zimmerman, Secretary

SIGNATURE PAGES FOR CORPORATIONS

Henry Pratt Company, Formerly a Division of AMSTED Industries Inc. (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Henry Pratt Company, Formerly a Division of AMSTED Industries Inc.
NAME OF COMPANY (Type)

205 N. Michigan Ave. Chicago, IL 60601
Address

By: David S. O'Neill
Name of Officer (Type)

(Signature of officer)
Environmental Attorney
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

J. M. HUBER CORPORATION (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

J. M. Huber Corporation
NAME OF COMPANY (Type)

333 Thornall Street
Edison, New Jersey 08818
Address

ACKNOWLEDGED BY:

Secretary

By: James E. Coleman
Name of Officer (Type)

James E. Coleman
(Signature of Officer)

Vice President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Option Exercise:
Settling Class A Third Party Defendant
Knaack Manufacturing Company

NAME OF COMPANY (Type)

420 E. Terra Cotta Avenue
Crystal Lake, IL 60014

Address

By: Robert L. Ripley

Name of Officer (Type)

(Signature of officer)

President

Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Please Copy To:
Kate McCracken

Name

Drendel, Schanlaber, Horwitz Tatnall & McCracken

Address

520 Redwood Drive
Aurora, Illinois 60506

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

McWharter Chemical, a/k/a/ McWhorter Chemical, by IMCERA Group Inc., as successor (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	DK Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

IMCERA Group Inc.
NAME OF COMPANY (Type)

2315 Sanders Road
Northbrook, IL 60062
Address

By: DOUGLAS K. LARSEN
Name of Officer (Type)

(CORPORATE SEAL)

(Signature of officer)
Vice President
Title Environment & Safety

ACKNOWLEDGED BY:

Its Assistant Secretary

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Morton International Inc. (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

MORTON INTERNATIONAL INC.
NAME OF COMPANY (Type)

100 N. Riberside Plaza
Chicago, IL 60606
Address

By: Robert B. Covalt
Name of Officer (Type)

Robert B. Covalt
(Signature of officer)

Executive Vice President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

National Can Corporation by American National Can Company (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

National Can Corporation
by American National Can Company
NAME OF COMPANY (Type)

8770 W. Bryn Mawr Avenue
Chicago, Illinois 60631
Address

By: Neil Chernikoff
Name of Officer (Type)

(Signature of officer)

Senior Vice President Research & Engineering
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Pierce & Stevens Corp. (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Pierce & Stevens Corp.
NAME OF COMPANY (Type)

710 Ohio St.
P. O. Box 1092, Buffalo NY 14240
Address

By: James R. Boldt
Name of Officer (Type)

James R. Boldt
(Signature of officer)

Treasurer & Secretary
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Akzo Coatings Inc. (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Akzo Coatings Inc.
NAME OF COMPANY (Type)

1930 Bishop Ln., Ste. 1600
Louisville, KY 40218
Address

By: Paul E. Brooks Jr.
Name of Officer (Type)

Paul E. Brooks, Jr.
(Signature of officer)

Director, Health, Safety & Environmental Engineering
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

The undersigned Settling Class A Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al.

Richardson Graphics Company, now dissolved, by its indirect parent, Witco Corporation

2701 Lake Street
Melrose Park, Illinois 60160

By: William C. Grabarek
William C. Grabarek
Senior Attorney
Witco Corporation

SIGNATURE PAGES FOR CORPORATIONS

Size Control Company (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Size Control Company
NAME OF COMPANY (Type)

853 Dundee Avenue
Elgin, IL 60120
Address

By: William H. Murphy
Name of Officer (Type)

W. H. Murphy
(Signature of officer)

Vice President and Treasurer
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Specialty Coatings Company, Inc. (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Part under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Par
_____ Class 2 Defendant	_____ Settling Class C Third Par
_____ Class 3 Defendant	_____ Settling Class D Third Par
	_____ Settling Class E Third Par

Specialty Coatings Company, Inc.
NAME OF COMPANY (Type)

2526 Delta Lane, Elk Grove Vlg., IL 6[illegible]
Address

By: Seymour S. Neems
Name of Officer (Type)

Seymour S. [illegible]
(Signature of officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address o
this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling
Third Party's agent for service of process:

Jon Furlow c/o Sonnenschein, Nath & Rosenthal
Name
8000 Sears Tower, Chicago, IL 60606-6404
Address

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

Stuart Chemical and Paint N/K/A (Name of Company) hereby
Stuart Industrial Coatings
consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X.A Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Stuart Chemical and Paint N/K/A
Stuart Industrial Coatings
NAME OF COMPANY (Type)

11740 S. Front Chicago, IL 60628
Address

By: Charles J. Kowalski
Name of Officer (Type)

X [signature]
(Signature of officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Sequa Corporation (Successor to Sun Chemical) (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

X Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Sequa Corporation (for Sun Chemical Corp...)
NAME OF COMPANY (Type)

200 Park Ave., N.Y., N.Y. 10166
Address

By: Jeffrey H. Teitel, Esq.
Name of Officer (Type)

Jeffrey H. Teitel
(Signature of officer)

Director of Environ. Law
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Teepak, Inc. (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Teepak, Inc.
NAME OF COMPANY (Type)

Three Westbrook Corporate Center
Westchester, IL 60154
Address

By: Geoffrey C. Upton
Name of Officer (Type)

Geoffrey C. Upton
(Signature of officer)

Treasurer
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

Martin J. FitzGerald
Martin J. FitzGerald, Its Secretary

State of Illinois County of Cook
Signed before me on this 3rd day of June, 1992 by G.C. Upton
Notary Public Pamela A. Gray

" OFFICIAL SEAL "
PAMELA A. GRAY
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 3/7/95

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

L. H. Froehlich
Name
915 Michigan, Danville, IL 61832
Address

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

ICI SPECIALTY INKS (f.k.a Thiele-Engdahl) (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	x Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

ICI SPECIALTY INKS
(f.k.a. Thiele-Engdahl)
NAME OF COMPANY (Type)

7830 North Point Blvd.-Suite 101
Winston-Salem, NC 27106
Address

By: PETER J. CLOUD
Name of Officer (Type)

(Signature of officer)

Business General Manager
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

NORTH CAROLINA
Forsyth County

Sworn to and subscribed before me this the 23rd day of January, 1992.

Witness my hand and official seal.

NOTARY PUBLIC

My Commission Expires September 29, 1992.

SANDRA L. CIROMA NOTARY PUBLIC FORSYTH COUNTY, N.C.

SIGNATURE PAGES FOR CORPORATIONS

USX Corporation
(formerly United States Steel Corp) (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

USX Corporation
NAME OF COMPANY (Type)

600 Grant St., Pittsburgh, PA. 15219
Address

By: Donald M. Laws
Name of Officer (Type)

(Signature of officer)
General Counsel, U. S. Steel Group
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Stephan K. Todd

Name

600 Grant St., Rm. 1538, Pittsburgh, PA. 15219

Address

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

VELSICOL CHEMICAL CORPORATION (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	X Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

VELSICOL CHEMICAL CORPORATION
NAME OF COMPANY (Type)

2603 Corporate Aven, Ste 100, Memphis, TN
Address

By: Charles R. Hanson
Name of Officer (Type)

CRHanson 1/22/92
(Signature of officer)

Vice-President, Environmental
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

A. Enrique Huerta

Name

2603 Corporate Avenue, Ste 100 Memphis, TN

Address

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

REVISED LANGUAGE FOR PARAGRAPH 6 OF
THIRD PARTY SETTLEMENT AGREEMENT

6. After the Agreement becomes effective, as set forth below, the Settling Primary Defendants must pay the Proportional Share of any persons or entities listed in Appendix A, except Uniroyal, who do not enter into this Settlement Agreement, and must contribute to the Trust Fund the full amount allocable to such persons or entities, as shown on Appendix A, as such amounts are assessed by the Trustees. The Settling Primary Defendants shall make such contribution according to the relative proportions of their Proportional Shares, as set forth in Appendix A.

To pay the Proportional Share of Uniroyal, the Proportional Share, as set forth on Appendix A, of each Third Party Defendant that executes the Consent Decree as a Settling Class A Third Party and that executes this Settlement Agreement (but does not exercise the "Buy Out Option" set forth in Article IV below) shall be increased by 18.56%. The difference, if any, between, the full amount allocable to Uniroyal, and the amount generated by the Third Party Defendants to be applied toward the Uniroyal Proportional Share shall be paid by the Settling Primary Defendants, according to the relative proportions of their Proportional Shares. All such amounts shall be contributed to the Trust Fund as such amounts are assessed by the Trustee. Each Participating Settling Party that contributes toward the Proportional Share of Uniroyal shall be entitled to share, on a pro rata basis, in any recovery (after reimbursement of litigation costs) from Uniroyal.

SIGNATURES OF SETTLING CLASS B THIRD PARTIES

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

BUTLER SPECIALTY COMPANY (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	X Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

BUTLER SPECIALTY COMPANY
NAME OF COMPANY (Type)

8200 South Chicago Avenue
Chicago, Illinois 60617
Address

By: BURTON BERGMAN
Name of Officer (Type)

(Signature of officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

USA v. Midwest Solvent, et al.
Consent Decree

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Crown Cork & Seal Co., Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	X Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

CROWN CORK & SEAL CO., INC.
NAME OF COMPANY (Type)

9300 Ashton Road
Philadelphia, Pennsylvania 19136

Address

By: William Gallagher
Name of Officer (Type)

William T. Gallagher
(Signature of officer)

Attorney, Authorized Signatory
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Robert P. Harris, Esq.
Name

29 South LaSalle Street
Address Chicago, IL 60603
(312) 236-7587
FAX (312) 236-7589

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

J & S Tin Mill Products Co., Inc./ Armstrong Containers, Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	X Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

J & S Tin Mill Products Co., Inc./
Armstrong Containers, Inc.
NAME OF COMPANY (Type)

2235 Enterprise Drive, Suite 3506
Westchester, IL. 60154
Address

By: Edward J. Flemming
Name of Officer (Type)

Edward J. Flemming
(Signature of officer)

Vice President, Administration - Armstrong Containers, Inc.
Title

ACKNOWLEDGED BY:

Nancy L. Fisher
Its Assistant Secretary

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Masonite Corporation (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	X Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Masonite Corproation
NAME OF COMPANY (Type)

One South Wacker Drive
Chicago, IL 60606
Address

By: John V. Faraci
Name of Officer (Type)

(Signature of officer)

Vice President/General Manager
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

ACKNOWLEDGED BY:
Edward G. Markus

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Paslode Corporation (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	X Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Paslode Corporation
NAME OF COMPANY (Type)

Two Marriott Drive
Lincolnshire, IL 60069
Address

By: Stewart S. Hudnut
Name of Officer (Type)

Stewart S. Hudnut
(Signature of officer)

Vice President and Secretary
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

State of Illinois
County of Cook

ACKNOWLEDGMENT

On this the 9th day of January, 1992, before me, Frederick N. Bates, the undersigned officer, personally appeared Stewart S. Hudnut, who acknowledged himself to be the Vice President and Secretary of Paslode Corporation, and that he, as such Vice President and Secretary, being authorized to do so, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by himself as Vice President and Secretary.

In witness whereof I hereunto set my hand and official seal.

Frederick N. Bates, Assistant Secretary

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

George E. Bullwinkel
Bullwinkel Partners, Ltd.
Name
19 S. LaSalle St., Chicago, IL 60603
Address

For: Paslode Corporation and Illinois Tool Works, Inc.

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

PPG Industries, Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	X Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

PPG Industries, Inc.
NAME OF COMPANY (Type)

One PPG Place
Pittsburgh, PA 15272
Address

By: E. B. Mosier
Name of Officer (Type)

(Signature of officer)
Group Vice President - C&R
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

ATTEST: Helen A. Pavlick
Helen A. Pavlick, Assistant Secretary

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

R.R. DONNELLEY + SONS COMPANY (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	X Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

R.R. DONNELLEY + SONS COMPANY
NAME OF COMPANY (Type)

2223 KING DRIVE
CHICAGO, IL 60616
Address

By: DAVID C HART
Name of Officer (Type)

David C Hart
(Signature of officer)

VICE PRESIDENT, GENERAL COUNSEL, SECRETARY
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

MICHAEL J HUSTON
Name
BAKER & DANIELS
Address
300 NORTH MERIDIAN STREET
SUITE 2700
INDIANAPOLIS, IN 46204

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

RHC/Spacemaster Corporation f/k/a Reflector-Hardware Corp. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	X Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

RHC/Spacemaster Corporation
f/k/a Reflector-Hardware Corporation
NAME OF COMPANY (Type)

1400 North 25th Avenue
Melrose Park, Illinois 60160
Address

By: Thomas E. Berger
Name of Officer (Type)

Thomas E Berger
(Signature of officer)

Vice President of Finance
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Howard N. Gilbert, Esq.
Holleb & Coff
Name
55 E. Monroe St, Chicago, IL 60603
Address

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Schwinn Bicycle Company (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	X Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Schwinn Bicycle Company
NAME OF COMPANY (Type)

217 N. Jefferson Street, Chicago, IL 60661
Address

By: Brian D. Fiala
Name of Officer (Type)

(Signature of officer)

Vice President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

ACKNOWLEDGED BY:

Its: Assistant Secretary

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Skil Corporation (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	X Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Skil Corporation
NAME OF COMPANY (Type)

4300 W. Peterson Ave.
Chicago, IL 60646

Address

By: G. Thomas McKane
Name of Officer (Type)

G. Thomas McKane
(Signature of officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

Acknowledged By:

D. D. Maxwell
Secretary

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

TRICIL ENVIRONMENTAL SERVICES INC.

(Systech Waste Treatment Center) (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	X Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

TRICIL ENVIRONMENTAL SERVICES INC.
NAME OF COMPANY (Type)

LEGAL DEPARTMENT
POST OFFICE BOX 210799
Columbia, SC 29221-0799
Address

By: William E. Stilwell, Jr.
Name of Officer (Type)

William E. Stilwell Jr.
(Signature of officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Universal Tool & Stamping Company, Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	__x__ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Universal Tool & Stamping Company, Inc.
NAME OF COMPANY (Type)

P.O. Box 100, Main and Commerce
Butler, Indiana 46721-0100
Address

By: Brian W. H. Marsden
Name of Officer (Type)

(CORPORATE SEAL)

(Signature of officer)
Chairman and Chief Executive Officer
Title

ACKNOWLEDGED BY:

(Place corporate seal and acknowledgment of authority of officer to sign here)

Roberta A. Glab
Roberta A. Glab
Its Assistant Secretary

SIGNATURE OF SETTLING CLASS C THIRD PARTY

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery Inc., et al."

Scholle Corporation (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	X Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	_____ Settling Class E Third Party

Scholle Corporation
NAME OF COMPANY (Type)

200 W. North Avenue
Northlake, IL 60164
Address

By: William Borkett
Name of Officer (Type)

(Signature of officer)

Title: Vice President-Finance

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURES OF SETTLING CLASS D THIRD PARTIES

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Bretford Manufacturing Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	X Settling Class D Third Party
	_____ Settling Class E Third Party

Bretford Manufacturing, Inc.
NAME OF COMPANY (Type)

9715 Soreng Ave. Schiller Park, IL 60176
Address

By: Edward A. Petrick
Name of Officer (Type)

(Signature of officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

County of DuPage (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	__X__ Settling Class D Third Party
	_____ Settling Class E Third Party

County of DuPage
NAME OF COMPANY (Type)

505 N. County Farm Road, Wheaton, Illinois 60187
Address

By: Aldo E. Botti
Name of Officer (Type)

(Signature of officer)
Chairman, County Board
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

Attest:

County Clerk

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Whittaker Corporation (Name of Company) is consenting
(on Behalf of Dutone Corporation)
to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	X Settling Class D Third Party
	_____ Settling Class E Third Party

WHITTAKER CORPORATION (Dutone)
NAME OF COMPANY (Type)

10880 Wilshire Boulevard
Los Angeles, California 90024
Address

By: GORDON J. LOUTTIT
Name of Officer (Type)

(Signature of Officer)
Vice President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

AUTHORIZATION

Acting pursuant to the powers and responsibilities vested in him as Chairman and Chief Executive Officer of Whittaker Corporation, a Delaware corporation ("Whittaker"), by the Bylaws of Whittaker, including without limitation the power and responsibility to serve as the general manager of, and to supervise and direct the business and affairs of Whittaker, the undersigned, Joseph F. Alibrandi, on behalf of Whittaker, does hereby authorize Gordon J. Louttit, a Vice President of Whittaker, as agent and authorized signatory of Whittaker, to execute and deliver to the U.S. Department of Justice (the "Department of Justice"), and such other signatories and interested parties as he shall, in his discretion, deem appropriate, that certain Consent Decree between, among others, the Department of Justice and Whittaker, and any and all additional amendments, documents, orders, and consents necessary and appropriate to fulfill the purposes of this Authorization, including without limitation any agreements, documents, or understandings among any individual or group of Settling Defendants, Third-Party Defendants, or others arising out of, related to, or in connection with that action entitled "U.S. v. Midwest Solvent Recovery Inc., et. al."

The authority given hereunder shall be deemed retroactive, and acts authorized hereunder performed prior to the date of this Authorization are hereby ratified and approved. This Authorization shall remain in effect until revoked in writing.

IN WITNESS WHEREOF, the undersigned has executed this Authorization this 2nd day of January, 1992.

By: _____
JOSEPH F. ALIBRANDI
Chairman and Chief
Executive Officer

ATTEST:

_____
JOANNE VAGO
Assistant Secretary

GJL\DOCS\AUTHORIZATION.DOJ

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third-Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third-Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Knape & Vogt Manufacturing Company is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a:

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	__X__ Settling Class D Third Party
	_____ Settling Class E Third Party

VARNUM, RIDDERING, SCHMIDT & HOWLETT
Attorneys for Knape & Vogt Manufacturing Company

Dated: January 10, 1992

William H. Merrill

William H. Merrill (P-17639)
Business Address:
171 Monroe Ave., N.W., Suite 800
Grand Rapids, MI 49503
Telephone: (616) 459-4186

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Whirlpool Corporation for and on behalf of St. Charles Manufacturing (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	__X__ Settling Class D Third Party
	_____ Settling Class E Third Party

Whirlpool Corporation for and on behalf of St. Charles Manufacturing
NAME OF COMPANY (Type)

2000 M-63
Benton Harbor, MI 49022
Address

By: John P. Stansbury
Name of Officer (Type)

(Signature of officer)

Senior Counsel
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURES OF SETTLING CLASS E THIRD PARTIES

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

ECODYNE CORPORATION
Indemnitor for American Nameplate

_____ (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

ECODYNE CORPORATION

_____
NAME OF COMPANY (Type)
225 West Washington Street
Chicago, Illinois 60606

_____
Address

By: Gerald T. Shannon
Name of Officer (Type)

_____
(Signature of officer)
Vice President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

STATE OF ILLINOIS)
) SS:
COUNTY OF C O O K)

This is to certify that Gerald T. Shannon, Vice President of Ecodyne Corporation, personally known to me to be the same person whose name is subscribed to the foregoing document appeared before me, Carol D'Ascenzo, a Notary Public, this 9th day of January, 1992, and expressly acknowledged to me the execution of said foregoing document as the free and voluntary act of Ecodyne Corporation.

Carol D'Ascenzo
Notary Public

My Commission expires on:

"OFFICIAL SEAL"
CAROL D'ASCENZO
Notary Public, State of Illinois
My Commission Expires Dec. 1, 1992

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Thomas B. Golz, Fagel & Haber

Name

140 S. Dearborn, Chicago, IL 60603

Address

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

ARTISAN HANDPRINTS, INC. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

ARTISAN HANDPRINTS, INC.
NAME OF COMPANY (Type)

c/o Lawrence S. Adler
19 S. LaSalle St., Rm. 1450
Chicago, IL 60603-1407
Address

By: LAWRENCE S. ADLER
Name of Officer (Type)

Lawrence S. Adler
(Signature of officer)

Attorney and Agent
Title Attorney and Agent

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Cooper Industries, Inc. (on behalf of Belden Division) (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

Cooper Industries, Inc., on behalf of Belden
NAME OF COMPANY (Type)

P. O. Box 4446
Houston, TX 77210
Address

By: Carl J. Plesnicher, Jr.
Name of Officer (Type)

Carl J. Plesnicher Jr.
(Signature of officer)

Vice President, Employee Relations & Environmental Affairs
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

C&C Industrial Maintenance
Navistar International Transportation Corp. (International Harvest
Laidlaw Waste Systems, Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

C&C Industrial Maintenance
NAME OF COMPANY (Type)

1315 EAST CHICAGO AVE, EIG
Address

By: [illegible]
Name of Officer (Type)

[illegible]
(Signature of officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

Navistar International Transportation Corp.
(International Harvester)
NAME OF COMPANY (Type)

455 N. CITYFRONT PLAZA DR.
CHICAGO, IL. 60525
Address

By: MICHAEL A. JARRICK
Name of Officer (Type)

(Signature of officer)

ATTORNEY-IN-FACT
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

Laidlaw Waste Systems, Inc.
NAME OF COMPANY (Type)

3221 NORTH SERVICE ROAD
BURLINGTON, ONTARIO L7R 3Y8 C
Address

By: DICK VAN WYCK
Name of Officer (Type)

(Signature of officer)

SECRETARY
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

One of Its Attorneys

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Name

Address

Name

Address

Name

Address

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

General Instrument Corp.(C.P.Clare) (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

General Instrument Corp. (C.P. Clare)
NAME OF COMPANY (Type)

181 West Madison
Chicago, Illinois 60602
Address

By: David S. Machlowitz
Name of Officer (Type)

(Signature of officer)
Assistant General Counsel
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGE

"The undersigned Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

The C. P. Hall Company is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a:

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	__X__ Settling Class E Third Party

CORPORATE SEAL

The C. P. Hall Company
7300 South Central Avenue
Chicago, Illinois 60638

By: James R. Klusendorf

James R Klusendorf

Vice President
Finance and Administration

ACKNOWLEDGED BY:

Robert C. Eitel

Robert C. Eitel
Its Secretary

Krueger Ringier, Inc. (F/K/A Chicago Rotoprint) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a

_____ Settling Defendant

_____ Class 1 Defendant

_____ Class 2 Defendant

_____ Class 3 Defendant

_____ Settling Class A Third Party

_____ Settling Class B Third Party

_____ Settling Class C Third Party

_____ Settling Class D Third Party

__X__ Settling Class E Third Party

Krueger Ringier, Inc. (F/K/A Chicago Rotoprint)
Name of Company

One Pierce Place, Itasca, Illinois 60143
Address

By: J. C. Danek
Name of Officer

J C Danek

V.P. General Counsel & Corporate Secretary
Title

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Consumers Paint Factory, Inc.
n/d/b/a Courtaulds Coatings Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	✓ Settling Class E Third Party

Consumers Paint Factory, Inc.
n/d/b/a Courtaulds Coatings Inc.
NAME OF COMPANY (Type)

P. O. Box 1439, Louisville, KY 40201
Address

By: W. R. Niblock, Vice President & Corporate Secretary
Name of Officer (Type)

W. R. Niblock
(Signature of officer)

Vice President & Corporate Secretary
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

DAP, Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

DAP, Inc.
NAME OF COMPANY (Type)

101 South Wacker
Chicago, Illinois 60606
Address

By: J. Eric Schaal
Name of Officer (Type)

(Signature of officer)
Corporate Secretary
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Beth Anne Spanninger

Name SmithKline Beckman

One Franklin Plaza

Address P. O. Box 7929
Philadelphia, PA 19101-7929

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

DEUBLIN COMPANY (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	XX Settling Class E Third Party

DEUBLIN COMPANY
NAME OF COMPANY (Type)

1919 Stanley St., Northbrook, IL 60062
Address

By: Donald L. Deubler
Name of Officer (Type)

(Signature of Officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Extruded Metals, Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	✓ Settling Class E Third Party

Extruded Metals, Inc.
NAME OF COMPANY (Type)

302 Ashfield St.
Belding, Michigan 48809
Address

By: George M. Dykhuizen
Name of Officer (Type)

George M. Dykhuizen
(Signature of officer)

Vice President of Operations
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

FELT PRODUCTS MFG. CO. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	x Settling Class E Third Party

FELT PRODUCTS MFG. CO.
NAME OF COMPANY (Type)

7450 NORTH MCCORMICK BOULEVARD
Address SKOKIE, ILLINOIS 60076

By: H M Rosen
Name of Officer (Type)

Harold M. Rosen
(Signature of officer)

Controller
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Flint Ink Corporation (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

Flint Ink Corporation
NAME OF COMPANY (Type)

25111 Glendale Avenue
Detroit, Michigan 48239
Address

By: Thomas W. Clarke
Name of Officer (Type)

T.W. Clarke
(Signature of officer)

Vice President-Finance
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Gearmaster (Emerson Motor Co. - Division of Emerson Electric Co.) (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

Gearmaster (Emerson Motor Co. - Division of Emerson Electric Co.)
NAME OF COMPANY (Type)

8100 W. Florissant Ave.
St. Louis, MO 63136
Address

By: J.T. Slattery
Name of Officer (Type)

J. T. Slattery
(Signature of officer)

Senior Vice President - Finance
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

HYDRITE CHEMICAL CO. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

HYDRITE CHEMICAL CO.
NAME OF COMPANY (Type)

300 N. PATRICK BLVD.
BROOKFIELD, WI 53045
Address

By: JOHN HONKAMP
Name of Officer (Type)

John Honkamp
(Signature of officer)

PRESIDENT
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Naz-Dar Company (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

Naz-Dar Company
NAME OF COMPANY (Type)

1087 N. North Branch St.
Chicago, Illinois 60622-4292
Address

By: J. Jeffrey Thrall
Name of Officer (Type)

(Signature of officer)

Chief Executive Officer
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

Acknowledged:

John M. Hartigan, Asst. Secretary

SIGNATURE PAGES FOR CORPORATIONS

Pyle National (Name of Company) hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party under revised paragraph 6 of the Third Party Settlement Agreement as attached hereto
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

Pyle National
(By its successor Akzo America Inc.)
NAME OF COMPANY (Type)

300 S. Riverside Plaza
Chicago, IL 60606
Address

By: Peter S. Gold
Name of Officer (Type)

Peter S. Gold
(Signature of officer)

Vice President & General Counsel
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Edward K. Duplaga, Esq.
Name
300 S. Riverside Plaza, Chicago, IL 60606
Address

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Schmidt Liquidating Corporation, successor to Riverside Laboratories, Inc., d/b/a R-Lite (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

Schmidt Liquidating Corporation (R-Lite)
NAME OF COMPANY (Type)

1108 South Sixth Street
St. Charles, IL 60174

Address

By: Robert L. Schmidt
Name of Officer (Type)

Robert L. Schmidt 7-1-92
(Signature of officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

No seal per Ill. Rev. Stats chapter 32, section 3.10(c)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

_____ (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	✓ Settling Class E Third Party

REGAL TUBE CO.
NAME OF COMPANY (Type)

7401 S. LINDER AVE CHICAGO ...
Address

By: [illegible]
Name of Officer (Type)

[illegible]
(Signature of officer)

[illegible]
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

Shirley L. Augustinius
1/10/92

"OFFICIAL SEAL"
Shirley L. Augustinius
Notary Public, State of Illinois
Cook County, Illinois
My Commission Expires June 5, 1993

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Sheldahl, Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

Sheldahl, Inc.
NAME OF COMPANY (Type)

1150 Sheldahl Road
P. O. Box 170
Northfield, MN 55057-0170
Address

By: Gerald E. Magnuson
Name of Officer (Type)

(Signature of officer)

Secretary
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Sommer & Maca Industries, Inc. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

SOMMER & MACA INDUSTRIES, INC.
NAME OF COMPANY (Type)

5501 West Ogden Avenue
Chicago, IL 60650
Address

By: Richard J. Carroll
Name of Officer (Type)

Richard J. Carroll
(Signature of officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Spotnails (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

ACCO USA, Inc. (formerly Swingline Inc.) for Spotnails
NAME OF COMPANY (Type)

770 South Acco Plaza
Wheeling, Illinois 60090
Address

By: John J. Barron
Name of Officer (Type)

(Signature of officer)

Senior Vice President - Manufactu
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Kenton R. Rose, Esq.
Name 510 Lake Cook Road, Suite 175
Deerfield, Illinois 60015
Address

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

_____ (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

United Resin Adhesives, Inc.
NAME OF COMPANY (Type)

7852 West 47th Street
Lyons, IL 60534
Address

By: Richard E. Loderhose
Name of Officer (Type)

Richard E. Loderhose
(Signature of officer)

President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

In the State of New York, County of Kings, on the 7th day of January 1992, before me appeared Mr. Richard E. Loderhose, President of United Resin Adhesives, Inc., who, in my presence, acknowledged that he signed the next document and stated that he had authorized to do so.

Notary Public

LAURE S. [illegible] New York
Notary Public, State of New York
No. 52-4945600
Qualified in Suffolk County
Commission Expires ~~March 30, 19~~
JULY 31, 1993

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Westvaco Corporation (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

Westvaco Corporation
NAME OF COMPANY (Type)

299 Park Avenue
New York, NY 10171
Address

By: F. C. Haas
Name of Officer (Type)

(Signature of officer)

Title
Senior Vice President

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Browning-Ferris Industries of Illinois, Inc.
as successor-in-interest to Van Der Molen
Disposal Company (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

Browning-Ferris Industries of Illinois, Inc.
as successor-in-interest to Van Der Molen
Disposal Company
NAME OF COMPANY (Type)

757 N. Eldridge
Houston, Texas 77079
Address

By: Gerald K. Burger
Name of Officer (Type)

Gerald K. Burger
(Signature of officer)

Vice President
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

If different from above, the following is the name and address of this Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party's agent for service of process:

Michael Miller, Director of CERCLA Activities
Name 757 N. Eldridge
Houston, Texas 77079
Address

Prior Notice to all parties shall be provided by Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party of any change in the identity or address of the Settling Defendant or its agent for service of process.

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Dana Corporation -- on behalf of Victor Gasket (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

Dana Corporation
NAME OF COMPANY (Type)

P.O. Box 1000
Toledo, Ohio 43697

Address

By: John Doddridge
Name of Officer (Type)

(Signature of officer)

President of North American Operations
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Dana Corporation -- on behalf of Warner Electric Brake and Clutch. (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

Dana Corporation
NAME OF COMPANY (Type)

P.O. Box 1000
Toledo, Ohio 43697
Address

By: John Doddridge
Name of Officer (Type)

(Signature of officer)
President of North American Operations
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

SIGNATURE PAGES FOR CORPORATIONS

Signatures of each Settling Defendant, Class 1, 2, or 3 Defendant, and Settling Third Party may be on a separate page beneath the statement "The undersigned Settling Defendant, Class 1, 2, or 3 Defendant, or Settling Third Party hereby consents to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al."

Xerox Corporation (Name of Company) is consenting to the foregoing Consent Decree in U.S. v. Midwest Solvent Recovery, Inc., et al. as a (check appropriate line):

_____ Settling Defendant	_____ Settling Class A Third Party
_____ Class 1 Defendant	_____ Settling Class B Third Party
_____ Class 2 Defendant	_____ Settling Class C Third Party
_____ Class 3 Defendant	_____ Settling Class D Third Party
	X Settling Class E Third Party

Xerox Corporation
NAME OF COMPANY (Type)

Xerox Square 021B
Rochester, New York 14644
Address

By: James C. MacKenzie
Name of Officer (Type)

(Signature of officer)

Director of EH&S
Title

(Place corporate seal and acknowledgment of authority of officer to sign here)

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF INDIANA
HAMMOND DIVISION

UNITED STATES OF AMERICA, Plaintiff, v. MIDWEST SOLVENT RECOVERY, INC., et al. Defendants. AMERICAN CAN COMPANY, INC., et al. Third-Party Plaintiffs, v. ACCUTRONICS, et al., Third-Party Defendants.	Civil Action No. H 79-556 Judge Moody

APPENDICES TO CONSENT DECREE

LIST OF APPENDICES

Appendix 1 - Statement of Work

Appendix 2 - Proposed ROD Amendments

Appendices 3A and 3B - Maps of Midco I and Midco II Facilities

Appendix 4 - Settling Defendants

Appendix 5 - Settling Class A Third Parties

Appendix 6 - Settling Class B Third Parties

Appendix 7 - Third Party Agreement

Appendix 8 - Deed/Use Restriction

Appendix 9A - Settling Class D Third Parties

Appendix 9B - Settling Class E Third Parties

Appendix 10 - INDOT Settlement Agreement

Appendix 11 - Natural Resources Deed/Use Restriction

APPENDIX 1

STATEMENT OF WORK

FOR REMEDIAL DESIGN AND REMEDIAL ACTION

FOR THE MIDCO I AND MIDCO II FACILITIES

GARY, INDIANA

I. SUMMARY

This Statement of Work (SOW) sets forth the requirements for the final remedial actions that must be designed and implemented by the Settling Defendants at the Midco I and Midco II Facilities.

II. DESCRIPTION OF REMEDIAL ACTIONS FOR MIDCO I AND MIDCO II

Part II sets forth the remedial actions in the general order in which they are expected to be implemented as described below:

A. Initial Site Security, Access Restrictions, and Close Out of Previous Investigations;

B. Handling of Contaminated Sediments;

C. Ground Water Extraction, Treatment and Deep Underground Well Injection System;

D. Soil Treatment;

E. Final Site Cover and Access Restrictions; and

F. Long Term Monitoring, Cover Repair and Reactivation of

the Ground Water Extraction, Treatment and Deep Well Injection Systems.

Section G sets forth requirements for control of air emissions and waste handling, which may affect more than one component of the remedial action.

Section H discusses applicable or relevant and appropriate requirements (ARARs) related to the remedial actions.

The cleanup action levels (CALs) and Performance Standards for treatment or cleanup of each media are identified in the sections dealing with the remedial action for that media.

The sequence of implementation of the major components of the remedial action for the Facility is as follows:

1. Initial Site Security, Access Restrictions, Close Out of Previous Investigations, and Handling of Contaminated Sediments and Soils Beneath the Sediments: See Sections II.A, II.B and II.G.2.
2. An initial phase of ground water extraction and treatment and deep well injection prior to soil treatment for a maximum period of between 24 and 36 months. See Sections II.D.1 and II.C.
3. After the initial phase of ground water extraction and treatment and deep well injection, Settling Defendants will

conduct soil sampling and solidification/stabilization and soil vapor extraction to the extent required by Sections II.D.2 and II.G.2 and Attachments 1 and 5. Ground water extraction and treatment will also continue during this period until ground water CALs have been met for a period of three consecutive years in accordance with Section II.C unless it is demonstrated in the design process that temporary adjustments or stoppage of the system is necessary in order for the soil treatment to be conducted or for the treatment to be effective.

4. Settling Defendants shall upon completion of soil solidification/stabilization and soil vapor extraction promptly install final site covers. See Section II.E. Ground water extraction and treatment shall continue during this period if ground water CALs have still not been achieved for a period of three consecutive years in accordance with Section II.C.

5. Ground water extraction and treatment and deep well injection in accordance with the Consent Decree and Section II.C will then continue until ground water CALs have been met for a period of three consecutive years in accordance with Section II.C, subject to the technical impracticability provisions of subparagraph 12.a.(iv) of the Consent Decree.

6. Settling Defendants shall perform long-term ground water monitoring and possibly ground water treatment and injection into a non-hazardous deep well in accordance with paragraph

85c of the Consent Decree and Section II.F.

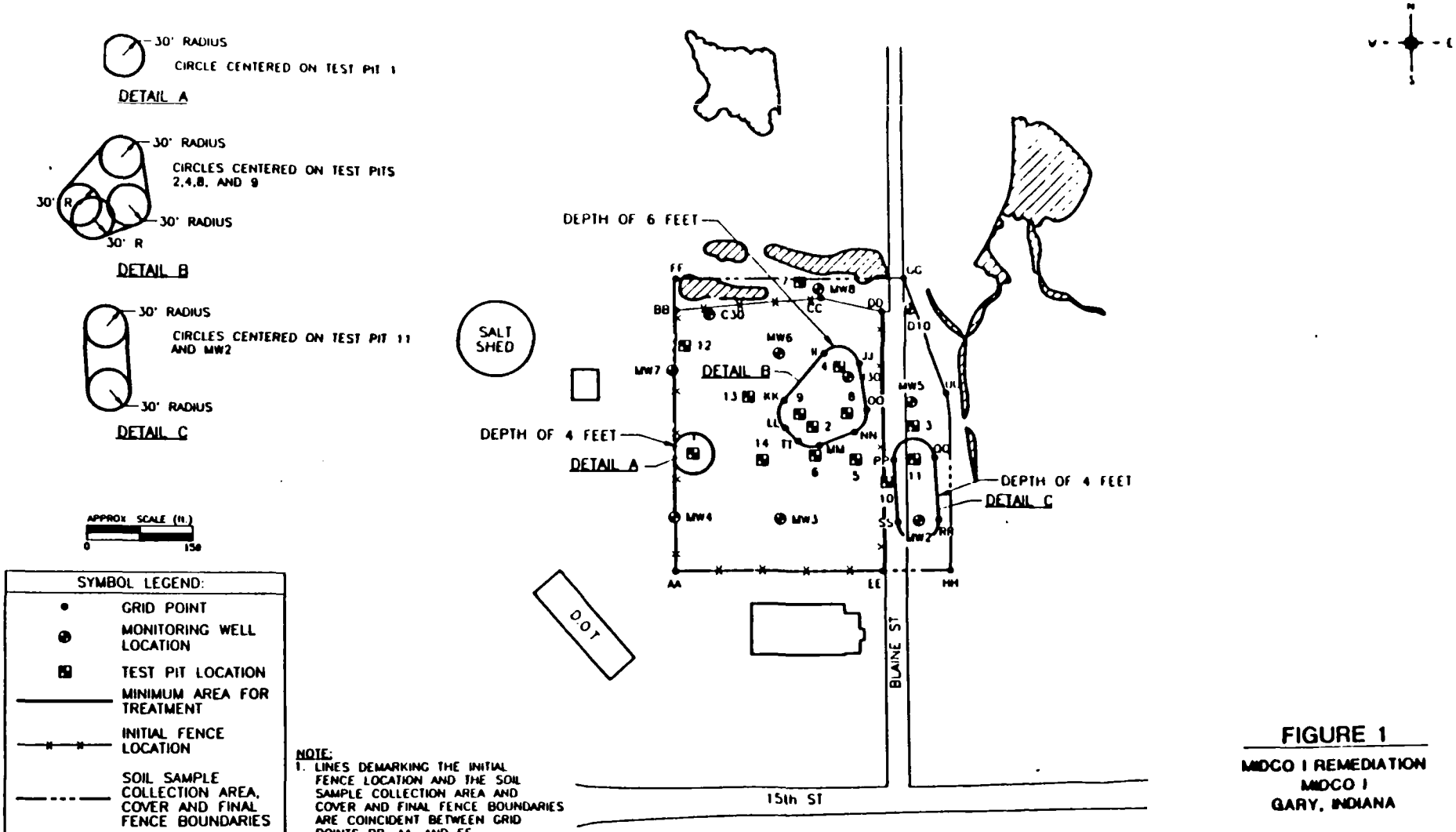
7. Settling Defendants shall monitor and maintain all remedial action Work, including the deep well(s), solidified/ stabilized material, and final site covers before and after the issuance of any Certification of Completion of Remedial Action in accordance with paragraph 85c of the Consent Decree and Sections II.F, II.C, III.Task-II.B, III.Task-IV.C. and III. Task-IV.D.

A. Initial Site Security, Access Restrictions and Close Out of Previous Investigations:

1. Site Security and Access Restrictions:

The Settling Defendants shall extend the Midco I fence to enclose the area marked "Final Fence Boundaries" in Figure 1, and the Midco II fence to enclose the area marked "Final Fence Boundaries" on Figure 2. The fence, at a minimum, shall be six foot chain link fence with 3-strands of barbed wire. Outside the Final Fence Boundaries shown on Figures 1 and 2, the Settling Defendants shall extend, during the remedial construction activities, temporary construction fences as necessary to enclose areas where remedial construction is being conducted and access needs to be restricted. Warning signs shall be posted at 200-foot intervals along all fences. The warning signs shall read: "WARNING. HAZARDOUS AREA. NO TRESPASSING." The signs shall also provide a telephone number to call for further information. The Settling Defendants shall maintain all fences, promptly take

FIGURE 1



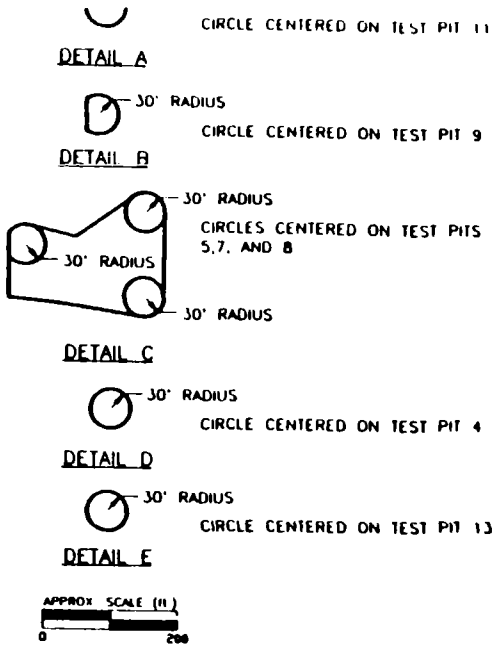
NOTE:
1. LINES DEMARKING THE INITIAL FENCE LOCATION AND THE SOIL SAMPLE COLLECTION AREA AND COVER AND FINAL FENCE BOUNDARIES ARE COINCIDENT BETWEEN GRID POINTS BB, AA, AND EE

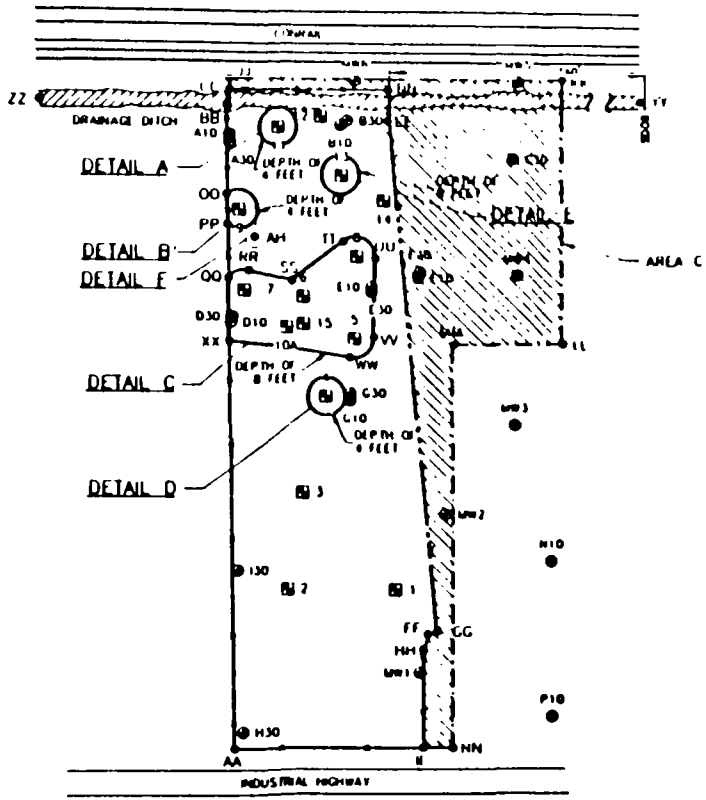
FIGURE 1

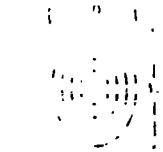
MIDCO I REMEDIATION
MIDCO I
GARY, INDIANA

ERM

FIGURE 2







6' HIGH SOIL PILE
DETAIL F

SYMBOL LEGEND:	
•	GRID POINT
●	MONITORING WELL LOCATION
■	TEST PIT LOCATION
———	MINIMUM AREA FOR TREATMENT
—•—•—	INITIAL FENCE LOCATION
— - - —	MINIMUM COVER BOUNDARY
—·—·—	SOIL SAMPLE COLLECTION AREA AND FINAL FENCE BOUNDARIES
———	SOIL PILE
▨	AREA C
▨	SEDIMENTS TO BE REMEDIATED

NOTE
1. LINES DEMARKING THE INITIAL FENCE LOCATION AND THE MINIMUM COVER BOUNDARY ARE COINCIDENT
2. LINES DEMARKING THE INITIAL FENCE LOCATION, MINIMUM COVER BOUNDARY, SOIL SAMPLE COLLECTION AREA AND FINAL FENCE BOUNDARIES ARE COINCIDENT BETWEEN GRID POINTS CC, AA, AND II

FIGURE 2
MIDCO II REMEDIATION
MIDCO II
GARY, INDIANA

ERM

measures to prevent access to the Facilities, protect against vandalism, repair any vandalism to the fences, and provide any other necessary security measures, including manned security as needed during periods of active construction.

2. Close Out of Previous Investigations:

The Settling Defendants shall properly close monitoring wells from the Remedial Investigation that are not of any further use. Sampling residuals from previous site investigations conducted by the Settling Defendants shall be contained on site and addressed as part of the final remedial actions.

B. Handling of Contaminated Sediments and Soils Beneath the Sediments:

The Settling Defendants shall excavate sediments in the areas shown in Figure 1 for Midco I and Figure 2 for Midco II.

Following the excavation, the soils below the excavation shall be sampled. The results from the sampling shall be used to calculate the soil risk levels at each sampling point using the procedures defined in Attachment 1. These risk levels shall be compared to the soil cleanup action levels defined below:

SEDIMENT/SOIL CLEANUP ACTION LEVELS (SEDIMENT/SOIL CALS)

cumulative lifetime carcinogenic risk for Midco I = 1×10^{-6}

cumulative lifetime carcinogenic risk for Midco II= 1×10^{-5}

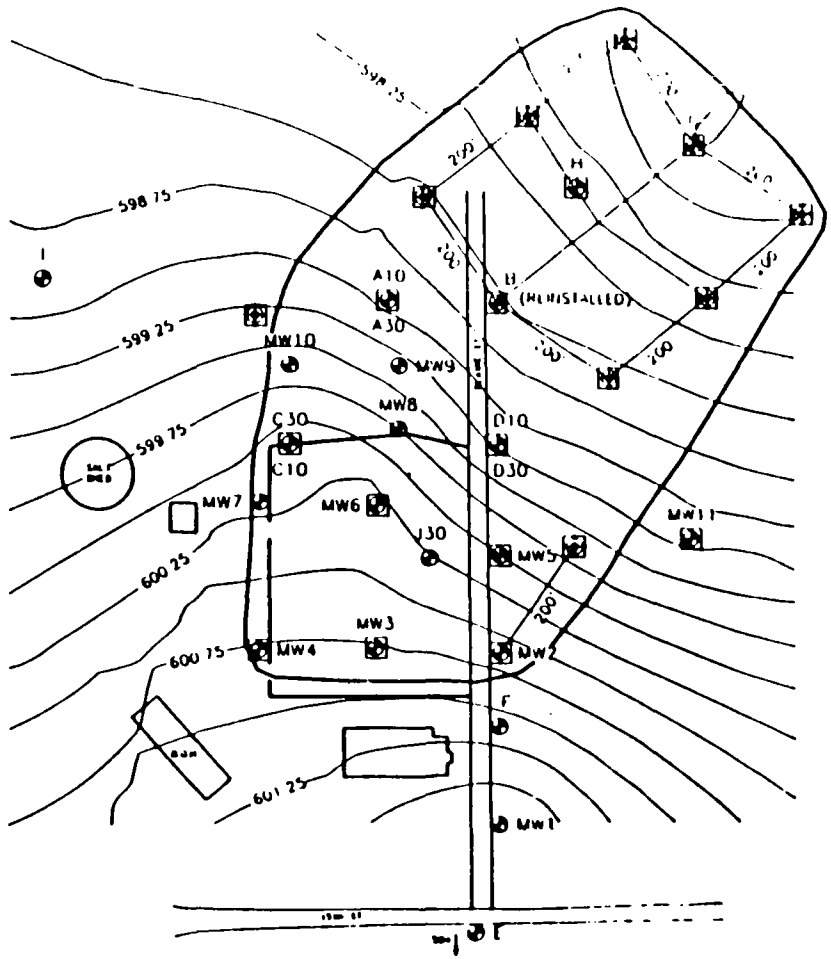
cumulative chronic non-carcinogenic index	= 1.0
lead concentration in mg/kg	= 500

If the soil below the excavated sediments exceeds the sediment/soil CALs then additional soil shall be excavated until these CALs are attained below the excavated soil unless it is demonstrated that the contamination is from the ground water and will be remediated by the ground water extraction and treatment system. Contaminated sediments and soils must be stored on-site in accordance with Section II.G.2. In addition, Settling Defendants shall comply with the wetland requirements described in Section II.H.

C. Ground Water Extraction, Treatment and Deep Underground Well Injection System:

Figure 3 shows an estimated extent of the hazardous substance migration in the ground water at Midco I. Figure 4 shows an estimated extent of the hazardous substance migration in the ground water at Midco II. Sampling to define the full extent of the hazardous substance migration shall be conducted using monitoring wells located as shown in Figures 3 and 4. At each location, a shallow (screening the top ten feet of the Calumet aquifer) monitoring well and a deep (screening the bottom 10 feet of the aquifer) monitoring well has been or shall be installed. These monitoring wells shall be sampled, and analyzed for the hazardous constituents listed in 40 CFR 264, Appendix IX. If the

FIGURE



APPROX. SCALE (ft)
0 200

SYMBOL LEGEND
□ MONITORING WELL NETWORK FOR COMPLIANCE (UP TO 5 ADDITIONAL WELLS MAY BE ADDED)
—599.75— AVERAGE GROUND WATER CONTOUR
◕ EXISTING MONITORING WELL
◈ PROPOSED MONITORING WELL
——— ESTIMATED EXTENT OF HAZARDOUS SUBSTANCE MIGRATION

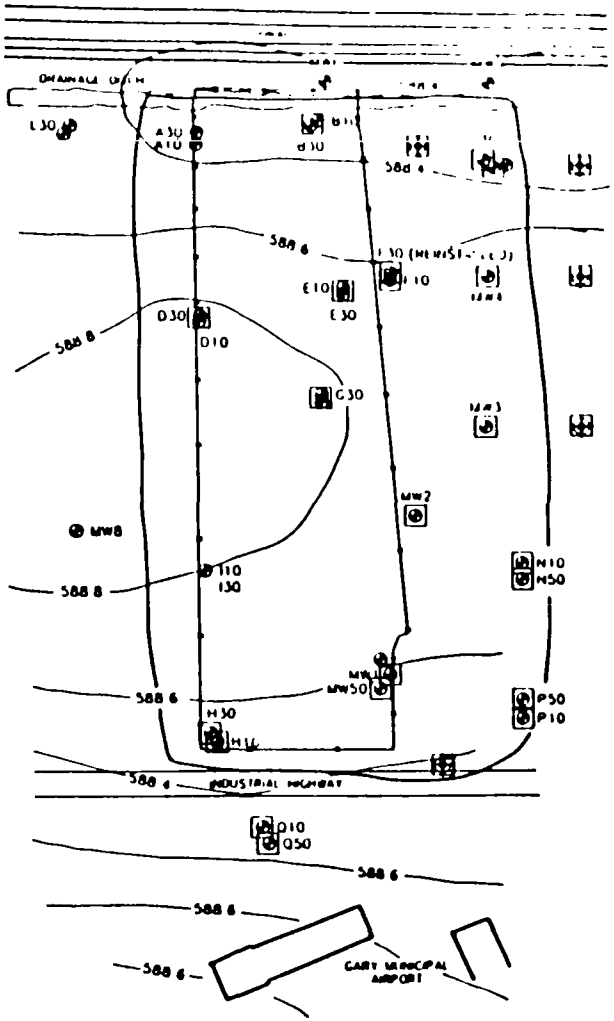
BASED ON FIGURE 4-9 OF RI REPORT, GEOSCIENCES AND ERM, DECEMBER 1987

FIGURE 3

MONITORING WELL NETWORK
MIDCO I
GARY, INDIANA

ERM

FIGURE



APPROX SCALE (ft)
0 200

SYMBOL LEGEND

- MONITORING WELL NETWORK FOR COMPLIANCE (UP TO 5 ADDITIONAL WELLS MAY BE ADDED)
- 588.4 — AVERAGE GROUND WATER CONTOUR
- EXISTING MONITORING WELL
- PROPOSED MONITORING WELL
- ESTIMATED EXTENT OF HAZARDOUS SUBSTANCE MIGRATION

NOTE
BASED ON FIGURE 4-8 OF RI REPORT, GEOSCIENCES AND ERM, MARCH 1988

FIGURE 4

MONITORING WELL NETWORK
MIDCO II
GARY, INDIANA

ERM

extent of ground water contamination is not adequately defined by the sampling described above, additional monitoring wells shall be installed and sampled (and these additional monitoring wells shall hereafter be considered as included in Figures 3 and 4 whenever those figures are referenced), as necessary to define fully the extent of ground water contamination from the Midco I and Midco II Facilities.

Based on these results, the Settling Defendants shall install and operate a ground water extraction system designed to meet the ground water cleanup action levels (CALs), which are defined below. The ground water extraction system at each Facility shall be a network of extraction wells designed to capture ground water that exceeds the ground water CALs from each Facility. The extraction well network shall not include location of any extraction wells outside the capture zone that will be defined during the design. The extraction well network shall be designed to minimize the extraction of ground water from outside the area of the full extent of hazardous substance migration unless such pumping will shorten the period of time needed to attain ground water CALs. The ground water shall be pumped to the surface and treated in accordance with the provisions of this Section II.C and then shall be disposed of by injection into a non-hazardous deep well (or wells) on one (or both) of the Facilities in accordance with EPA non-hazardous deep well regulations in a manner approved by EPA.

During operation of the ground water extraction system at each Facility, the influent to the ground water treatment system shall be monitored once per quarter for the Target Compound List and the Target Analyte List (TCL/TAL) as presented in the Contract Laboratory Program Statements of Work for organics (OLM 01.1.1, February 1991) and inorganics (ILM 01.1, March 1990) in order to evaluate the ground water treatment system, and progress towards attainment of the ground water CALs.

In addition, the monitoring well networks shown on Figures 3 and 4 (including up to five additional wells per Facility if determined to be necessary)[1] shall be sampled and analyzed, once per year, for the TCL/TAL lists and any 40 CFR Part 264 Appendix IX compounds detected in the initial round of sampling. Any TCL analytical fractions that are below the detection limits for all compounds in all wells in the network for three consecutive years shall be deleted from further monitoring requirements under Section II.C of this SOW. Similarly, any wells that are below CALs for three consecutive years shall be deleted from further monitoring requirements under Section II.C of this SOW. However, after all wells at a Facility have attained ground water CALs for two consecutive years, in order to confirm attainment of the ground water CALs, all monitoring wells at which monitoring had

[1] When the phrase, "five additional wells per Facility" is further referenced in this SOW, it is understood that such references are not cumulative and that a maximum of five additional wells per Facility may be required.

been previously discontinued shall be sampled one additional time in the following year for the TCL/TAL lists and any 40 CFR Part 264, Appendix IX compounds detected during previous sampling.

The ground water extraction, treatment, and injection system shall be operated (including during and after soil treatment unless it is demonstrated in the design process that temporary adjustments or stoppage of the system is necessary in order for the soil treatment to be conducted or for the treatment to be effective) until hazardous substances throughout the Calumet aquifer affected by Midco I or Midco II have been reduced below the ground water CALs for a period of three consecutive years (unless EPA has granted a petition on technical impracticability pursuant to Paragraph 12.a.(iv) of the Consent Decree). This shall be determined based on the results of ground water samples[2] from the monitoring well networks shown in Figures 3 and 4, plus any additional monitoring wells needed to fully define the extent of ground water contamination and up to five additional wells per Facility if determined to be necessary. Notwithstanding the above, this SOW does not require Settling Defendants to attain ground water CALs for portions of the Calumet aquifer that Settling Defendants prove were not contaminated in whole or in part by Midco operations.

---

[2] As described in the above paragraph for wells that were dropped from the yearly monitoring program because the sampling results from the wells were below ground water CALs for three consecutive years, such wells need only be sampled one additional time to confirm attainment of ground water CALs.

The ground water CALs are defined below and are calculated in accordance with procedures defined in Attachment 2 to this SOW:

GROUND WATER CLEANUP ACTION LEVELS

Cumulative Lifetime Carcinogenic Risk = 1×10^{-5}

Cumulative Chronic Non-carcinogenic Index = 1.0

Primary Maximum Contaminant Levels (40 CFR 141)

Chronic Ambient Water Quality Criteria for aquatic life multiplied by a factor of 3.9 for Midco I, or a factor of 3.6 for Midco II

The above groundwater CALs shall be computed without including total dissolved solids/salinity, chlorides, sodium, and potassium.

Before being required to undertake additional or alternative technologies other than the Ground Water Extraction Technologies defined below in order to attain ground water CALs, Settling Defendants shall be allowed to continue the ground water extraction specified in this SOW until the earlier of: (1) thirteen (13) years from the date of commencement of the operation of the ground water extraction system; or (2) when there is no statistically significant decrease (at the 99% confidence level) in ground water carcinogenic risk in any of the wells in the monitoring well network shown in Figures 3 and 4 (including up to five additional wells per Facility if determined to be necessary). During this time period, Settling Defendants

shall not (in order to meet a ground water CAL) be required to implement alternative or additional technologies other than the Ground Water Extraction Technologies defined below. For purposes of this Section, Ground Water Extraction Technologies shall be limited to: (1) improvements to the design, operation and maintenance of the ground water extraction system; (2) variation of pumping rates of the extraction wells to eliminate stagnation points and to increase contaminant reductions; and (3) intermittent operation of the system (pulse pumping) to allow aquifer equilibration and encourage adsorbed contaminants to partition into ground water. For purposes of this Section, active soil flushing with or without chemical additives or slurry walls are not Ground Water Extraction Technologies.

After the above time period, EPA may seek Additional Work to attain ground water CALs. However, if after that time the carcinogenic risk for ground water at a Facility is less than 1 X 10^{-6} at each well in the monitoring well networks shown in Figures 3 and 4 (including up to five additional wells per Facility if determined to be necessary) for a period of three consecutive years (as calculated in accordance with Attachment 2 of this SOW), then Settling Defendants shall not (in order to meet a ground water CAL at that Facility) be required to implement alternative or additional technologies other than the Ground Water Extraction Technologies defined above, provided that Settling Defendants have implemented soil vapor extraction, soil

solidification/stabilization, and installation of cover as required by Sections II.D and II.E of this SOW and are attempting with the Ground Water Extraction Technologies defined above to achieve the ground water CALs. If the carcinogenic risk level thereafter again exceeds 1 X 10^{-4} at any one or more well(s) in the monitoring networks shown in Figures 3 and 4 (including up to five additional wells per Facility if determined to be necessary) for three consecutive years, this limitation on Additional Work shall have no effect until such time as the carcinogenic risk for ground water at a Facility is again reduced, for a period of three consecutive years, to below 1 X 10^{-4} at all wells in the monitoring well network shown in Figures 3 and 4 (including up to five additional wells per Facility if determined to be necessary). In addition, after the above time period, if ground water CALs are not being met, EPA may also require low level pumping as a long-term gradient control or containment measure.

As long as Settling Defendants operate the extraction system during the time specified above in accordance with this SOW, and if after that time period Settling Defendants have achieved at least the 1 X 10^{-4} carcinogenic risk level and have met and continue to meet the requirements identified in the previous three paragraphs (including the requirement that Settling Defendants have been and are continuing to use reasonable best efforts to attempt with the Ground Water Extraction Technologies defined above to achieve ground water CALs), Settling Defendants

shall not be subject to stipulated or statutory penalties on account of any failure to meet ground water CALs.

Nothing in the above paragraphs shall be construed as excusing Settling Defendants from Additional Work where necessary to meet other Cleanup or Performance Standards, including without limitation, the MAC Performance Standards for treated ground water effluent contained in Section II.C of this SOW. In addition, nothing in the above paragraphs shall limit any authority of EPA or the State under provisions of Section VIII or Paragraph 67 of the Consent Decree.

EPA is submitting ROD Amendments for public comment, which Amendments propose to delist the Settling Defendants' treated ground water if it meets specified Maximum Allowable Concentrations (MACs) under the standards set forth in the EPA Superfund publication, A Guide to Delisting of RCRA Wastes for Superfund Remedial Responses (September 1990 Doc. No. 9347.3-09FS).[3] Under the proposed ROD Amendments, the MACs will be 6.3 times the Health Based Levels listed in Attachment 3. The Settling Defendants shall undertake whatever treatment is

[3] EPA believes that delisting is necessary to permit the ground water to be injected into a non-hazardous deep well. After the delisting proposals in the ROD Amendments are approved and as long as the ground water is treated to meet the MACs prior to deep well injection, EPA believes that the requirements of RCRA applicable to listed wastes contained in ground water at the Midco Facilities will have been satisfied with respect to the deep well injection of the ground water.

necessary to the ground water to ensure that the MACs are attained prior to deep well injection. Until the extracted ground water meets the MACs, the extracted ground water shall be managed as a hazardous waste in accordance with the substantive requirements of RCRA.

After the ground water has been delisted and has met the MACs, Settling Defendants shall inject the extracted ground water into the lower Mt. Simon Formation without further treatment by means of a deep well constructed according to Class I non-hazardous underground injection well requirements if either of the conditions (1 or 2) listed below is met.

1. Neither the Lower Eau Claire Formation nor the Mount Simon Formation below the well site is a USDW pursuant to 40 CFR 144.3.
2. The injection of the ground water will not cause (for each constituent for which a Safe Drinking Water Act Maximum Contaminant Level exists): (a) the exceedance of Safe Drinking Water Act Maximum Contaminant Levels at the point of entry of the injected ground water into any portion of the Lower Eau Claire or Mount Simon Formation that is a USDW pursuant to 40 CFR 144.3; or (b) the exceedance of natural background levels present in any portion of the Lower Eau Claire or Mount Simon Formation that is a USDW pursuant to 40 CFR 144.3 -- whichever is least stringent.

Settling Defendants have made a ground water modelling demonstration that preliminarily indicates that injection of the ground water meeting MACs into the lower Mt. Simon Formation will meet the requirements of condition 2 above. During the drilling of the Settling Defendants' injection well(s), sampling and testing shall be performed to confirm that the technical premises of the modelling demonstration are reasonably conservative. This sampling and testing shall include the following items:

1. Determination of the depth of the lowermost USDW in the formations that are drilled;
2. Collection of one 30-foot core of the "B" Cap with stratigraphic and mineralogic analysis of the entire core. Laboratory determination of vertical permeability to brine for four (4) "whole-core" samples which are representative of the range of lithologies in the 30 foot interval;
3. Determination of the maximum effective vertical permeability of the "B" Cap in the area surrounding the well. The Settling Defendants should propose a test for EPA approval. For example, Settling Defendants might propose to drill 30 feet into the lower Mount Simon Sandstone, set tandem packers across a small subsection of the "B" Cap and perform a pump or injection test in the lower Mount Simon while measuring pressure response above the packers);
4. Collection of a representative fluid sample of lower Mount Simon formation fluid taken from near (within about 100 feet) of the "B" Cap, with laboratory analysis of chemical and

physical properties;

5. Conduct a suite of open-hole logs; and
6. Determination of the transmissivity of the lower Mount Simon Sandstone.

If the sampling and testing confirms that the technical premises of the modelling are reasonably conservative, Settling Defendants may inject the delisted ground water meeting MACs without further treatment. However, if additional treatment is required to ensure that the requirements of condition 2 above will be met, Settling Defendants shall provide sufficient treatment to ensure that the injection of the ground water will meet the requirements of condition 2 above.

Based upon Settling Defendants' ground water modelling demonstration, Settling Defendants and EPA believe that it is unlikely that deep well injection into the lower Mt. Simon Formation would cause the exceedance of the natural background level of TDS (Total Dissolved Solids) in any portion of the Lower Eau Claire or Mount Simon that is a USDW. However, notwithstanding any other provisions of this SOW, Settling Defendants may not cause such an exceedance, and in the unlikely event that EPA determines based on the above modelling confirmation, which is based on sampling and testing taken in connection with injection well construction, that deep well injection into the lower Mt. Simon Formation would cause such an

exceedance, Settling Defendants' obligations to implement remedial action under the Consent Decree and this SOW will be terminated and considered null and void and of no further force and effect (except that Settling Defendants must maintain and/or abandon their deep well(s), monitoring wells and extraction wells, if any, in accordance with applicable requirements, properly and safely demobilize all operations, and leave all fences and signs intact).

Notwithstanding any of the above, in the unlikely event EPA determines that the lower Mount Simon Formation below the well site is a USDW, at Settling Defendants' option, Settling Defendants' obligations to implement further remedial action under the Consent Decree and this SOW shall be terminated and considered null and void and of no further force and effect (except that Settling Defendants must maintain and/or abandon their deep well(s), monitoring wells, and extraction wells, if any, in accordance with applicable requirements, properly and safely demobilize all operations, and leave all fences and sign intact).

In the event of termination of Settling Defendants' obligations to implement remedial action under the Consent Decree and SOW, all parties reserve all of their rights except that the provisions and protections of the Consent Decree as to past costs and penalties shall remain in effect.

If only one of the Facilities has conditions under which the ground water can be deep well injected without salt treatment, then the deep well injection operation shall be combined at that Facility (or on property in very close proximity thereto). Otherwise, the treatment and deep well injection operations can be implemented on each Facility (or on property in very close proximity thereto) separately, or can be combined at one of the Facilities (or on property in very close proximity thereto), at the option of the Settling Defendants. If treatment or injection of the ground water is combined between the Facilities, if treatment or injection is conducted on properties in very close proximity to one of the Facilities, or if a pipeline is constructed to transport the extracted ground water (before or after treatment) from one Facility to the other Facility or to a property in very close proximity thereto, these actions shall be considered on-site for the purposes of the Off-Site Policy. For purposes of this paragraph, the Indiana Department of Transportation Facility property located at 7306 West 15th Avenue in Gary, Indiana shall be considered to be in very close proximity to the Midco I Facility.

It is possible that the MACs (and condition 2, if applicable) can be attained by air stripping alone. However, the Settling Defendants shall undertake whatever treatment is necessary to ensure that the MACs (and condition 2, if applicable) are attained prior to deep well injection. The extracted ground

water shall not be mixed after extraction but prior to injection with ground water or surface water from any other source. After the extraction and injection well(s) are constructed, the Settling Defendants shall perform a treatability or pilot study during the ground water treatment design process to test the proposed ground water treatment system. The Settling Defendants shall monitor the ground water following treatment to verify that the MACs (and condition 2, if applicable) are met prior to deep well injection. Air emissions shall be controlled in accordance with Section II.G of this SOW.

If sampling reveals that the Settling Defendants have failed to meet the MACs (and condition 2, if applicable), they shall immediately cease (or not commence) injecting the ground water failing treatment requirements into the deep well and shall promptly notify EPA and the State, and shall submit within 30-days a plan for additional or modified treatment to meet the MACs (and condition 2, if applicable), which Settling Defendants shall implement upon approval by EPA and in accordance with a schedule approved by EPA (after consultation with the State). During the time injection into the well is suspended in accordance with this paragraph, the Settling Defendants' obligations to pump and treat the ground water shall likewise be suspended.

The injection well must be located, constructed, installed, tested, monitored, operated, closed and abandoned in accordance

with the substantive requirements and conditions for non hazardous, Class I injection wells in Subparts A, B, D and E o 40 CFR 144; Subparts A, B and F of 40 CFR 146; and other policie applicable to Class I non-hazardous well operators. However, th Settling Defendants shall not close or abandon the injection wel unless EPA (after consultation with the State) finds that th injection well will not be needed for remedial action for Midc I and Midco II in the future and provides written permission t close and abandon the well. In addition, the Settling Defendant shall comply with the following requirements:

<u>Requirements for Formation Fluid Testing to Determine Location of USDW:</u>

1. The test zones shall be properly purged prior to sampling using the following procedure:
   a. a tracer shall be used during drilling of proposed test zones;
   b. During purging from the test zones, undiluted purge fluids shall be monitored for pH, conductivity, temperature, and tracer concentration.
   c. Samples of the formation fluid shall be collected after pH, conductivity, temperature and tracer concentration have stabilized to within 10% in sequential measurements (unless waived by an EPA on-site representative), and after approval of the EPA on-site representative.
2. At least one sample and one replicate shall be collected in

each test zone.

3. The samples from the test zones shall be analyzed for at least the following parameters (total dissolved solids (TDS) is the official parameter for definition of a USDW, but the other parameters are used to check the TDS measurement):

   Total Dissolved Solids

   Specific Gravity

   Bicarbonate

   Boron

   Calcium

   Carbonate

   Chloride

   Iron

   Magnesium

   Manganese

   Potassium

   Silica

   Sodium

   Sulfate

   Strontium

Injection Well Construction, Operation, and Monitoring:

1. Formation testing and logging during the construction of the well shall meet or exceed the current industry standard for new Class I non-hazardous injection wells, and shall include an in-situ stress test designed to determine the fracture

closure pressure of the injection interval.

2. The Area of Review for the injection well shall be an area within a two mile radius of the proposed well. All wells within the Area of Review that penetrate the injection zone shall be located. For wells that are improperly sealed, completed or abandoned, the Settling Defendants shall either perform corrective actions or shall limit the injection pressure in order to ensure that USDWs will be protected.
3. Casing and cement shall meet current industry standards for new Class I non-hazardous wells, and all casing strings shall be cemented to the surface. Cement bond logs shall be run. The adequacy of the cement must be approved by EPA and corrective actions taken if determined to be necessary by EPA.
4. Wellheads for the injection wells shall include a female coupling for independent injection pressure readings.
5. Injection pressure, flow rate, and annulus pressure shall be monitored and recorded continuously.
6. A fluid level reading corresponding to the annulus fluid pressure shall be recorded daily.
7. Monthly monitoring reports shall be submitted to EPA and the State.
8. Mechanical Integrity Test: A standard annulus pressure test at least 100 psi over the maximum permitted injection pressure shall be conducted at least once every 12 months and whenever tubing is removed from the well, the packer is

reset, or when loss of mechanical integrity is suspected during the operation. A radioactive tracer survey and either a noise, temperature or oxygen activation log shall be conducted upon completion of the well and at least once every 60 months thereafter. These mechanical integrity tests shall be witnessed and approved by EPA for injection to continue.

9. Tubing and packers are required.
10. Monthly analysis of the injectate is required.
11. The annulus fluid shall include a corrosion inhibitor.
12. A positive pressure shall be maintained on the annulus that is at least 100 psi greater than the injection pressure throughout the length of the tubing.
13. An alarm and shut-off system activated by the injection pressure and annulus pressure shall be in place.

Information must be reported to EPA and the State in accordance with the substantive requirements of 40 CFR 144 and 146.

Responses to operational problems and implementation of corrective actions for the injection well must be in accordance with the substantive requirements of 40 CFR 146.64, 146.67, 144.12, 144.51(d) and 144.55. This includes the requirements for construction, monitoring, reporting, well plugging, and injection well closure as necessary to prevent movement of any contaminant into a USDW due to operation of the injection well. It also includes implementation of remedial actions to restore any USDW

that becomes contaminated as a result of the operation of the underground injection well pursuant to Section 3004(u) and 3008(h) of the 1984 Hazardous and Solid Waste Amendments, and Section 1431 of the Safe Drinking Water Act.

EPA may add conditions to the operation of the deep well or order shut down of its operation to prevent migration of fluids into underground sources of drinking water in accordance with 40 CFR 144.39 and 144.52. The Settling Defendants shall comply with these conditions or orders. In case the deep well is ordered to be shut down, the Settling Defendants shall expeditiously take actions to correct the cause of the shut down and submit proposed revisions to EPA to correct the causes of the shut down order.

D. Soil Treatment:

1. Determination of Date For Commencement of Solidification Stabilization Activities:

The Settling Defendants shall pump and treat ground water for a maximum period of 36 months before performing sampling and treatment under Section II.D.2. During the initial pump and treatment period, ground water and soil gas shall be sampled at each Facility every six months starting at the initiation of the pump and treatment operation. The monitoring shall include sampling with a soil gas probe or probes installed into the area or areas of highest VOC levels in the soil, and a well or wells

installed into the shallow portion of the Calumet aquifer in the area or areas of highest VOC levels in the ground water at each Facility. The results of this sampling shall be reported to EPA and the State within three months of the sampling event along with any interpretation necessary.

However, said sampling and treatment under Section II.D.2 shall begin between 24 and 36 months under the following conditions:

a. If in the samples collected at 18 months after initiation of the pump and treatment system, the total VOCs in the soil gas is reduced by more than 95% or by less than 20% from the measurement when the pump and treatment system started, the sampling and treatment activities in Section II.D.2 shall be started 24 months after initiation of operation of the pump and treatment system.

b. If in the samples collected at 24 months after initiation of the pump and treatment system, the total VOCs in the soil gas is reduced by more than 95% or by less than 30% from the measurement when the pump and treatment system started, the sampling and treatment activities in Section II.D.2 shall be initiated 30 months after initiation of operation of the pump and treatment system.

2. In-Situ Solidification/Stabilization (S/S) and Soil Vapor Extraction (SVE):

Following the initial period of pump and treatment, certain subsurface soils and excavated sediments and soils shall be treated by SVE and/or in-situ S/S (as defined below).

It is anticipated that the in-situ S/S system will utilize a crane-mounted mixing system. The mixing head will be enclosed in a bottom-opened container to allow closed system mixing of the treatment chemicals with the soil. The bottom-opened container will be lowered onto the soil and the mixing blades started, moving through the depth in an up and down motion, while chemicals are introduced. An induced draft fan will draw contaminated air from the container, into air pollution control devices, and then exhaust the treated air to the atmosphere. The air emissions shall be controlled in accordance with Section [illegible] of this SOW. At the completion of mixing at one location, the blades will be withdrawn and the cylinder removed. The cylinder will then be operated adjacent to and overlapping the previous cylinder location. This will be repeated until the entire area in which S/S is required is treated.

In addition, following the initial pump and treatment period and prior to or in conjunction with the S/S treatment, Settling Defendants shall perform SVE as defined below. SVE is a system used to remove volatile organic compounds (VOCs) from soils using

air extraction from the soil possibly combined with air injection. Fresh unheated air is often used, or the air may be heated or steam injected in order to accelerate the removal of the VOCs.

SVE could be conducted as a separate operation using vacuum and air injection pumps connected by pipes to a series of air injection and extraction wells. In addition, a temporary low permeability cover may be required over the area being treated. The air pressure gradient would draw VOC-contaminated air from the soil pores. The removed volatiles must be processed in a liquid-vapor separator. The air emissions shall meet the requirements of Section II.G of this SOW. If SVE is conducted as a separate operation, the SVE shall continue until there is a 97% reduction in total VOCs in the soils being treated (but not to a concentration less than ten times the detection limit of each constituent).

Alternatively, if the treatability study and pilot study to be conducted on the in-situ S/S and SVE system show that the equipment used for the S/S has potential to achieve a 90% reduction in the soil concentrations of the following VOCs: benzene, methylene chloride, trichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, 1,1-dichloroethylene, trans-1,2-dichloroethylene, and vinyl chloride, SVE could be conducted using the same equipment used for the S/S. In this case, the

fresh air (or possibly heated air or steam) would be injected into the soil while the blades of the auger mix the soil and while contaminated air is drawn off with the induced draft fan and into an air pollution control device. The air emissions must be controlled in accordance with the requirements of Section II.G if this option is used. Following the SVE operation, the same soil that was treated by vapor extraction could be treated by S/S, if required. Operation of the SVE system using the S/S equipment must continue until there is a 97% reduction in total VOCs (but not to a concentration less than three times the ambient level) during vigorous agitation of the soils as measured in off-gas by an organic vapor analyzer prior to any air pollution control device.

MINIMUM PERFORMANCE STANDARDS, PERFORMANCE GOALS AND FINAL PERFORMANCE STANDARDS FOR SOLIDIFICATION/STABILIZATION

EPA will be undertaking a treatability study testing at least ten binders being considered for use in S/S at the Midco I and Midco II Facilities. The treatability study will include five or more non-commercial binders to be submitted by the Settling Defendants subject to EPA review, and five binders from the commercial vendors. The treatability study will evaluate binders to determine whether they meet the Minimum Performance Standards as well as the Performance Goals set forth below. In addition, the potential effectiveness of using the in-situ S/S system to remove VOCs will be tested.

Based on the results of the treatability study, EPA will select Final Performance Standards (which standards shall be based upon and will consist of laboratory tests) for S/S treatment at Midco I and Midco II. These Final Performance Standards will be set so that at least three binders from the treatability study have met the Final Performance Standards, except if fewer than three binders meet a Minimum Performance Standard(s). In such event the Final Performance Standard(s) will equal the corresponding Minimum Performance Standard(s). In addition, Settling Defendants are free to use any other proprietary or non-proprietary binder that meets the Final Performance Standards.

MINIMUM PERFORMANCE STANDARDS

STABILIZATION OF METALS

Using the Synthetic Precipitation Leaching Procedure (SPLP) test (method 1312, Fluid #1, of SW-846) the following percentage reduction in the leachate concentrations shall be attained using the formula:

$SPLP_{treated}$ X DF / $SPLP_{raw\ waste}$ X 100

$SPLP_{treated}$ = concentration of constituent (i) in the leachate from sample treated by S/S

DF =dilution factor = (weight of waste being treated + weight of S/S blend added to that waste) / (weight of waste being treated)

$SPLP_{raw\ waste}$ = concentration of constituent (i) in the leachate from untreated waste sample

Alternatively, the $SPLP_{treated}$ can be reduced to the following Concentration Limits. If $SPLP_{raw\ waste}$ is below a Concentration Limit listed below, no further reduction of leachate concentration is required, although the treated sample should not increase such leachate concentration above the concentration limit.

CONSTITUENT	PERCENTAGE REDUCTION	CONCENTRATION LIMIT (ug/l)
arsenic	90	50
barium	90	2000
cadmium	95	5
chromium	95	100
copper	95	43
lead	99	15
nickel	95	100
vanadium	90	233
zinc	90	1150

STABILIZATION OF ORGANICS

Using total waste analyses (using methylene chloride extraction for semivolatile organics, and methanol extraction for volatile organics), a 50% reduction in concentrations shall be attained based on total waste analyses of the sample of untreated waste ($TWA_{raw\ waste}$) and the sample treated by S/S ($TWA_{treated}$) calculated in accordance with the formula:

$TWA_{treated}$ x DF/ $TWA_{raw\ waste}$ X 100 for the following compounds (but only if present at more than twice the quantification limit in the $TWA_{raw\ waste}$): anthracene; bis(2-ethylhexyl)phthalate; ethyl benzene; fluoranthene; naphthalene; phenanthrene; phenol; toluene; xylene.

PHYSICAL TESTS

i. Using method EPA 9100 from SW-846 (constant head, tri-axial with back pressure and air free water), the hydraulic conductivity of the material treated by S/S shall be less than or equal to 1×10^{-7}.

ii. Using method ASTM D1633-84, the unconfined compressive strength of the material treated by S/S shall be greater than 50 psi.

iii. Using ASTM D4843, the wet-dry durability test on the material treated by S/S shall result in less than a 10% weight loss.

iv. Using ASTM D4842, the freeze-thaw durability test on the material treated by S/S shall result in less than a 10% weight loss.

PERFORMANCE GOALS FOR ORGANIC COMPOUNDS

i. The following percentage reduction in concentrations shall be attained in accordance with the formula: $TWA_{treated}$ X DF / $TWA_{raw\ waste}$ X 100.

CONSTITUENT	PERCENTAGE REDUCTION
anthracene	95
bis(2-ethylhexyl)phthalate	90
ethyl benzene	90
fluoranthene	95
naphthalene	95
phenanthrene	95
phenol	95
toluene	95
xylene	95

ii. Using fourier transform infra red spectroscopy, a 20-30 reciprocal centimeter shift in vibrational frequency shall be attained between untreated sample extract and a sample of material treated by S/S for the following vibrational modes: for phthalates, the C=O of the carboxylic acid group; for phenol, the C-OH; for xylene the aromatic carbon-single alphatic carbon bond; for toluene the aromatic carbon-alphatic carbon bond.

iii. Using differential scanning calorimetry and thermogravimetric analysis, a 40% increase in the cumulative enthalpy of vaporization of all constituents shall be attained between untreated sample extract and a sample of material treated by S/S.

A field pilot study will be conducted at each Facility to verify by laboratory tests that samples from the in-situ S/S treatment meet the Final Performance Standards under expected field conditions at each Facility. Laboratory testing of samples shall be conducted during and after completion of the S/S to confirm that the S/S treatment is meeting Final Performance Standards. In addition, the pilot study shall evaluate the potential of the in-situ S/S system to achieve a 90% reduction in the soil concentrations of the following VOCs: benzene, methylene chloride, trichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, 1,1-dichloroethylene, trans-1,2-dichloroethylene, and vinyl chloride, and the ability to control air emissions from the process in accordance with the requirements of Section II.G. If SVE is to be conducted as a separate operation from in-situ S/S, a separate pilot study shall be undertaken to make the above evaluations for the SVE system. Any steps taken during the in-situ S/S and SVE pilot studies to achieve the Final Performance Standards for S/S, and to effectively extract VOCs must be taken during implementation of the S/S at the Facilities.

In the unlikely event that none of the ten binders tested during the treatability study meet all of the Minimum Performance Standards, EPA shall as appropriate either: (i) test additional binders; (ii) issue an explanation of significant differences; or (iii) reopen the amended ROD.

If the amended ROD is reopened, Settling Defendants' obligation to implement soil solidification/stabilization under the Consen Decree and this SOW shall be terminated and considered null an void and of no further force and effect. In the event of a termination of Settling Defendants' obligations to implement soi treatment remedial action under the Consent Decree and SOW, al parties reserve all their rights as to soil treatment issues.

AREAS TO BE TREATED

SVE and in-situ S/S will be completed within the minimum areas tc be treated by S/S and SVE and to the depths indicated in Figure 1 for Midco I and Figure 2 for Midco II.

Outside the minimum areas of treatment identified in Figures 1 and 2, sampling shall be conducted as defined in Attachment 5 to this SOW to determine the full extent of S/S and SVE. Using these sampling results, the cumulative risks at each sample point shall be calculated for the ingestion, direct contact, and inhalation modes of exposure using the procedures outlined in Attachment 1 to this SOW. All calculations of such risk levels will be made as if the final site cover were not there or had failed. Based on the results of these risk based calculations, treatment by SVE and S/S or by SVE alone will be conducted outside of the minimum areas to be S/S as defined in Figures 1 and 2 if the following soil treatment action levels are exceeded:

Soil Treatment Action Levels (STALs):

cumulative lifetime carcinogenic risk = 5×10^{-4}

cumulative chronic non-carcinogenic risk index = 5.0

lead concentration = 1000 mg/kg

If the STALs are exceeded, the soil within the 20 foot square or 60 foot square (if the square is not subsampled) represented by this sample will be treated to a depth of six feet at Midco I and to a depth of eight feet at Midco II, unless sampling indicates that the soil does not exceed the STALs at depths between four and six feet, in which case the soil will be treated to a depth of four feet. In locations to be treated by S/S where contaminated sediments or soils from other areas are consolidated, the total depth of S/S shall be increased by the depth of the consolidated soils. However, the ditch and the soil below the ditch along the northeastern border of Midco II shall not be treated beyond that required in Section II.B. of this SOW.

Areas that are adjacent to but outside the minimum areas to be treated by SVE and S/S outlined in Figures 1 and 2, but that are not within one of the 60-foot or 20-foot squares that are sampled, shall be treated in the same manner and to the same depth as required for the adjacent minimum areas outlined in Figures 1 and 2. If the sample from the soil pile at Midco II (as shown on Figure 2) exceeds the STALs, this pile shall be spread onto other areas that require S/S and treated by in-situ

S/S along with the soil below it. Once the soil pile is moved, the subsurface soils below the pile shall be sampled and treated if necessary.

The treatment for exceedances of STALs for areas outside of the minimum areas to be treated in Figures 1 and 2 will include S/S unless the exceedance of the STALs can be corrected solely by removing VOCs, in which case only SVE need be used.

E. Final Site Cover and Access Restrictions:

Following completion of the soil treatment, the Settling Defendants shall install a multilayer cover over the Cover Boundary area outlined in Figure 1 for Midco I, and over at least the Minimum Cover Boundary area outlined in Figure 2 for Midco II. Suitable piping shall be installed in the ditch along the northeastern boundary of Midco II. The multilayer covers shall meet or exceed the minimum requirements for RCRA closure under Subtitle C, shall be designed to provide long term minimization of infiltration, shall minimize the need for maintenance, promote drainage, minimize erosion and protect the solidified material from degradation. These requirements will be deemed satisfied by a cover which consists of multiple layers including:

- a top layer consisting of a vegetated component, and a 24 inch soil layer comprised of topsoil and/or fill soil with a surface slope of at least 3 percent and not more than 5 percent;

- a geofilter in between the upper layer of soil and the middle layer of drainage material;
- a drainage layer of either 12 inches of soil with a minimum hydraulic conductivity of 1.0 X 10^{-2} cm/sec or a geosynthetic material with equivalent performance characteristics, and with a final bottom slope of at least 3 percent;
- a low permeability layer with 24 inches of compacted soil with an in place saturated hydraulic conductivity of no more than 1.0 X 10^{-7} cm/sec.; and
- Details of the site cover design shall also be consistent with the EPA Guidance entitled TECHNICAL GUIDANCE DOCUMENT EPA/530-SW-89-047 (July 1989) FINAL COVERS ON HAZARDOUS WASTE LANDFILLS AND SURFACE IMPOUNDMENTS.

As to Midco I, the cover, fence, and final access restrictions (as defined in Section II.A) shall be extended to the boundaries shown on Figure 1. As to Midco II, the fence and final access restrictions (as defined in Section II.A) shall be extended to the boundaries shown in Figure 2. The Settling Defendants shall maintain the site covers, fences and signs until EPA and the State determine that such maintenance is no longer necessary (See Paragraph 85 of the Consent Decree). The final site cover and access restrictions must be implemented and maintained consistent with hazardous waste landfill closure and post closure requirements of RCRA (40 CFR 264.111, 264.116, 264.117, and 264.310).

As to Midco II, Attachment 5 requires some sampling of subsurface soils in areas designated as C in Figure 2 (see Attachment 5). If any of the samples in these areas exceed the STALs, the soil shall be treated in accordance with the procedures described in Section II.D.2 of this SOW. However, in lieu of in-situ S/S, soil from such areas may be excavated and consolidated within the boundaries of the minimum areas for treatment indicated on Figure 2, and the excavated soil treated by in-situ S/S along with the soils in such areas. The excavated soil must be stored on-site at each Facility in accordance with Section II.G.2 of this SOW until it is S/S. However, the excavation and consolidation option will be allowed only if it is demonstrated that VOC emissions from the excavation and consolidation will not exceed the criteria for air emissions in Section II.G of this SOW, if the exceedance of the STALS cannot be corrected by SVE, and if the total quantity excavated (under this paragraph and the following paragraph) is less than 3500 cubic yards. The excavated area must be filled in with clean fill. In addition, the cover shall be extended to all of the areas treated by S/S.

As to Midco II, Attachment 5 requires soil sampling in the areas designated as C in Figure 2. Based on the results of the soil sampling, the area-wide risk for these areas shall be calculated using the procedures defined in Attachment 1, except that the arithmetic average of the sample results excluding samples of areas that are treated or excavated in this area shall be used

instead of the individual sample results. If the area wide risk using the soil samples exceed the sediment/soil CALs defined in Section II.B, then the site cover described in this section shall be extended to this area. Alternatively, the areas causing the exceedance of the sediment/soil CALs (except that all areas exceeding the STALs must also be treated as discussed above), may be treated by SVE, or excavated and consolidated onto the main portion of the Facility, and covered along with the rest of the Facility. The excavated soil must be stored on-site at each Facility in accordance with Section II.G.2 of this SOW until the site cover is installed. However, the excavation and consolidation option will be allowed only if it is demonstrated that VOC emissions from the excavation and consolidation will not exceed the criteria for air emission in Section II.G of this SOW, and if the total quantity excavated (under this paragraph and the preceding paragraph) is less than 3500 cubic yards. The excavated area must be filled in with clean fill.

F. Long Term Monitoring, Cover Repair and Reactivation of Ground Water Extraction, Treatment and Deep Well Injection Systems: Ground water monitoring at each Facility shall be conducted for fifteen years following the date of the Certification of Completion of Remedial Action for that Facility pursuant to Part III, Task IV.D of this SOW and Paragraph 85 of the Consent Decree, and thereafter until EPA and the State determine that such monitoring is no longer necessary (see Paragraph 85 of the

Consent Decree). From the initiation of monitoring in accordanc with Section II.C and until ground water CALs (or an alternativ ground water CAL if a technical impracticability petition ha been approved by EPA pursuant to paragraph 12.a.(iv) of th Consent Decree) are achieved as set forth in Section II.C, groun water monitoring shall be conducted in accordance with Sectio II.C of this SOW. Thereafter, ground water monitoring under thi Section shall be conducted in accordance with the technica procedures of 40 CFR 264.98, and where necessary pursuant tc 264.98(g) and 40 CFR 264.99.[4] If a ground water CAL (or ar alternative ground water CAL if a technical impracticability petition has been approved by EPA pursuant to paragraph 12.a.(iv) of the Consent Decree) is exceeded during this latter period, the site cover for the Facility shall be repaired as needed and operation of the ground water extraction, treatment and underground injection system will be reactivated and shall continue until the ground water CALs (Section II.C.) are acc.- attained for a period of three consecutive years. These actions must be consistent with the substantive requirements for RCRA corrective action (40 CFR 264.100), except that the relevant ground water protection standards shall be the ground water CALs as defined in this SOW and the Consent Decree rather than concentration limits specified pursuant to 40 CFR 264.92.

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[4] The references in 40 CFR 264 to "owner or operator" should not be considered to render the Settling Defendants owner or operators by virtue of these references.

Settling Defendants shall also monitor and maintain remedy components at each Facility including the deep well(s), solidified/stabilized material, and the final site covers and shall continue to do so notwithstanding issuance of any Certification of Completion of Remedial Action.

Settling Defendants may, at any time after fifteen (15) years following the issuance of the Certification of Completion of Remedial Action for that Facility, petition EPA and the State pursuant to paragraph 85c of the Consent Decree to modify or terminate the above described monitoring or maintenance obligations for that Facility.

G. Control of Air Emissions, On-Site Storage of Contaminated Soils and Sediments, and Waste Handling:

1. Air Emissions:

a. Air emissions from each Facility for the i) ground water treatment system, ii) in-situ S/S system, iii) SVE using the S/S system, and iv) SVE separate from the S/S system, shall be measured during the pilot studies for such systems. Air emissions during the pilot studies shall at a minimum be controlled using carbon adsorption or another treatment process that is equally effective.

b. Air emissions at each Facility from the S/S system and from any SVE using the S/S system shall be controlled using carbon

adsorption or another treatment process that is equally effective.

c. Air emissions at each Facility from the (i) ground water treatment system, (ii) the soil S/S system, (iii) SVE using the S/S system, (iv) SVE separate from the S/S system, or (v) any soil excavation at Midco II shall be controlled to the extent necessary to assure that each operation does not have the potential to result in exposures to a hypothetical resident located at the Facility boundary that would cause an estimated cumulative, incremental, lifetime carcinogenic risk exceeding 1.0×10^{-7}, or from causing a non-carcinogenic risk index greater than 1.0. The risk levels will be calculated in accordance with the procedures outlined in Attachment 4. Ambient air monitoring and air emission monitoring shall be conducted to determine whether this criteria is being met. The air emission monitoring data shall be input into an air model to estimate the potential exposure rates in order to determine whether controls such as carbon adsorption or other controls will be required for the emission sources. For the soil S/S system and SVE using the S/S system such controls (if any) shall be in addition to the controls required by paragraph b. For purposes of monitoring for this paragraph, approved methods include: i) measurement of VOCs in water for use in mass balance calculations for determining ground water treatment emissions; ii) reference to published

literature for puposes of measuring VOC emissions from systems employing carbon treatment, if approved by EPA.

d. In addition to the requirements of paragraphs b and c above, if actual emissions of volatile organic compounds (VOCs) as defined under the Clean Air Act[5] (based on measurements in pilot studies or from actual operations of the systems) from (i) the ground water treatment, (ii) the soil S/S (following carbon treatment or equivalent), (iii) the SVE using the S/S system (following carbon treatment or equivalent), and (iv) the SVE separate from the S/S system (following carbon treatment or equivalent, if utilized) cumulatively exceed 3 pounds per hour at a Facility, the air emissions from vents in these sources shall be controlled by carbon adsorption or another treatment process that is equally effective.

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5 VOC definition: Any organic compound emitted which participates in atmospheric photochemical reactions. This includes any organic compound other than the following compounds: methane, ethane, methyl chloroform (1,1,1-trichloroethane), CFC-113 (trichlorotrifluoroethane), methylene chloride, CFC-11 (trichlorofluoromethane), CFC-12 (dichlorodifluoromethane), CFC-22 (chlorodifluoromethane), FC-23 (trifluoromethane), CFC-114 (dichlorotetrafluoroethane), CFC-115 (chloropentafluoroethane), HCFC-123 (dichlorotrifluoroethane), HFC-134a (tetrafluoroethane), HCFC-141b (dichlorofluoroethane), HCFC-142b (chlorodifluoroethane). For purposes of determining compliance with this paragraph, VOCs will be measured by approved methods. Approved methods include: i) measurement of VOCs in water for use in mass balance calculations for determining ground water treatment emissions; ii) reference to published literature for purposes of measuring VOC emissions from systems employing carbon treatment, if approved by EPA. Where such a method also inadvertently measures compounds with negligible photochemical reactivity, these negligible reactive compounds may be excluded when determining compliance with the emission requirements.

e. If emission data from the pilot studies or data collected during operation of the i) ground water treatment system or ii) the SVE as a separate operation from in-situ S/S, indicate that the criteria in paragraphs c or d are being or will be exceeded as a result of operation of such systems without emission controls, then air emissions from such systems shall be controlled to meet these criteria, including at a minimum carbon adsorption or another treatment process that is equally effective. If subsequent data during the operation of the ground water treatment system indicates that the criteria in paragraphs c and d will no longer be exceeded without controls, the controls may be discontinued so long as these criteria are no longer exceeded.

f. Continuous monitoring of the air emissions for an indicator or indicators of organic compounds shall be performed in the off-gas (following air emission treatment processes, if any) for the ground water treatment, the S/S operation and the SVE operations.

g. Air monitoring shall be conducted during other operations that may promote release of volatile organic compounds or particulates. For purposes of monitoring for this paragraph, approved methods include: i) measurement of VOCs in water for use in mass balance calculations for determining ground water treatment emissions; ii) reference to published

literature for puposes of measuring VOC emissions from systems employing carbon treatment, if approved by EPA.

h. The effective stack height for air emission controls from the ground water treatment, S/S system, and SVE system shall be at least 30 feet above ground level at each Facility unless EPA approves otherwise.

For any carbon adsorption unit that is being or has been used for control of air emissions for the ground water treatment system, the S/S system, or the SVE conducted with the S/S system, access to the unit shall be restricted using a fence or other means approved by EPA within three feet of the column unless EPA approves otherwise. For any carbon adsorption unit that is being or has been used for control of air emissions for SVE conducted as a separate operation from the S/S, access to the unit shall be restricted using a fence or other means approved by EPA within ten feet of the unit.

Spent carbon that has been used for control of air emissions shall be stored on-site for at least 45 days prior to its transport off-site unless EPA approves otherwise.

i. If carbon adsorption is used to control the air emissions, it must be replaced or regenerated as needed to prevent breakthrough of organic compounds.

j. In addition, the emissions must be controlled and monitored to the extent necessary to comply with applicable OSHA regulations and State of Indiana air regulations.

k. Fugitive dust must be controlled in compliance with Title 326 Indiana Administrative Code 6-4 (326 IAC 6-4).

l. EPA can order the shut down of the operations causing an air emission that does not comply with the above requirements. In this case, within 14 days of the shut down order, the Settling Defendants shall cease the operations causing the exceedance and any interrelated operations (e.g. pump, treat and injection) and submit a plan to EPA and the State for modifying or changing the operation or the air pollution control equipment to comply with the requirements. Also, if the Settling Defendants find that the air emission control requirements are not being attained, they shall cease the operations causing the exceedance and immediately notify EPA and the State, and within 14 days submit a plan for modifying or changing the operation or the air pollution control equipment to comply with the requirements. The Settling Defendants shall implement the plan approved by EPA (after consultation with the State).

2. On-Site Storage of Soils and Sediments:

The excavated sediments and soil beneath the sediments (see Section II.B) shall be consolidated and stored on-site until the S/S operation (see Section II.D) is conducted. Storage shall be performed as follows:

a. Sediments and soils shall be placed on top of the soils in the minimum areas to be S/S shown in Figures 1 and 2.
b. The contaminated soil/sediment piles shall be generally trapezoidal in cross section with side slopes below the angle of repose of the sediments.
c. The piles shall be surrounded with a bentonite-soil berm with a minimum height of one-foot to prevent run in.
d. The pile shall be completely covered with a 15 mil. high density polyethylene cover (or equivalent) to prevent infiltration, water erosion and wind erosion.
e. The berm and the cover shall be inspected monthly and repaired or replaced as necessary in order to prevent run-on and run-off from the pile and to prevent wind erosion.

When the S/S is conducted (see Section II.D), the excavated sediments and soils (see Section II.B) shall be consolidated on-site and treated by in-situ S/S along with the contaminated soils.

3. Waste and Debris Handling:

Any residuals from the ground water or soil treatment processes shall be considered to be RCRA hazardous waste. Therefore, these residuals must be stored on-site, and disposed of or treated on-site or off-site in accordance with RCRA regulations, including the Land Disposal Restrictions (LDRs). It is possible that metals sludge from the ground water treatment process could be treated by S/S on-site if LDRs are met.

Sampling residuals must be stored on-site, and disposed of or treated on-site or off-site in accordance with RCRA regulations, including the LDRs. Liquid sampling residuals that meet the MACs or are treated to meet MACs can be disposed of in one of the Facilities' deep well. Residual contaminated soils from sampling, and soils and treated materials from the treatability study shall be placed on-site over soils to be treated by in-situ S/S, and treated by in-situ S/S in accordance with Section II.D.2. Other solid sampling residuals can be placed under the site cover.

Any debris (such as tree trunks or crushed drums that can not be properly incorporated into the solidified mass) encountered during the S/S process or during excavations must be properly handled and stored on-site, and subsequently properly disposed of off-site or contained under the final cover, if degradation of the debris will not cause site cover maintenance problems. Any

containerized or drummed liquid wastes encountered during th remedial action shall be properly stored on-site and properl disposed of off-site.

Any treatment or disposal off-site must also be in complianc with DOT and RCRA requirements (including LDRs), other applicabl State and Federal regulations, and EPA's off-site policy.

H. ARARs:

The previous sections and this section of this SOW identify al ARARs that are known by EPA, the State of Indiana and the Settling Defendants to be potentially applicable to the remedial actions under this SOW. Settling Defendants shall comply with all ARARS including without limitation the following:

1. Settling Defendants shall, during the predesign phase, conduct a Wetlands Assessment and prepare and implement a wetlands mitigation plan consistent with the requirements of Executive Order 11990, Protection of Wetlands, 40 CFR 6, Appendix A; and Clean Water Act Section 404, 40 CFR 230 and 231. The wetlands mitigation plan will be designed to mitigate those wetlands impacted by the remedial action by replacing such wetlands with wetlands off-site. EPA has determined that twelve (12) acres of suitable wetlands must be created off-site to satisfy this requirement. The Wetlands Assessment and mitigation plans shall be subject to EPA's approval in consultation with the State, the

Army Corps of Engineers, and the Department of the Interior. Pursuant to Section 121(e)(1) of CERCLA, such approval and consultation shall be in lieu of obtaining any permit for any on-site work.

The requirements of this paragraph will be deemed satisfied if: 1) the Consent Decree is amended in accordance with an exercise by Settling Defendants of the option described in paragraph 88 of the Consent Decree; 2) the Natural Resource Trustees and EPA approve the land Settling Defendants propose to be purchased through the exercise of their option; and 3) Settling Defendants comply with all their obligations required pursuant to the option and any Consent Decree Amendment.

2. The Migratory Bird Treaty Act, 16 USC Section 703 applies to these Facilities.

III. SCOPE OF THE REMEDIAL DESIGN/REMEDIAL ACTION (RD/RA) PROCESS

The Remedial Design/Remedial Action (RD/RA) process shall consist of four tasks:

Task I.: RD/RA Work Plan

A. Investigation and Monitoring Plans

B. Quality Assurance Project Plans

C. Facility Access

D. Permits and Approvals

E. Consistency with Future Land Use Plans

F. Health and Safety Plans

Task II: Remedial Design

A. Design Tasks

1. Deep Underground Injection Well Application Package (UIWAP)
2. Pre-Design Reports
3. Preliminary Design Packages
4. Prefinal Design Packages
5. Final Design Packages

Prefinal and Final Design Packages include:

B. Operation and Maintenance Plan

C. Cost Estimate

D. Project Schedule

E. Construction Quality Assurance Plan

F. Health and Safety Plan

Task III: Remedial Action Construction

A. Preconstruction Inspection and Meeting

B. Prefinal Inspection

C. Final Inspection

Task IV: Reports and Submissions

A. Progress Reports

B. Annual Court Reports

C. Construction Completion Reports

D. Notification of Completion of Remedial Action and Final Report

E. Notification of Failure to Meet Cleanup Action Levels or Performance Standards

F. Schedules

Task 1 RD/RA Work Plan:

The Settling Defendants shall prepare a RD/RA Work Plan which shall describe the overall management strategy for performing the design, construction, operation, maintenance and monitoring of the remedial action Work in accordance with the Consent Decree and SOW. The plan shall describe the responsibility and authority of organizations and the personnel conducting the remedial actions. The RD/RA Work Plan shall also include a description of qualifications of the personnel directing the RD, including contractor personnel. The Investigation and Monitoring Plans, Quality Assurance Project Plan, and Health and Safety Plan for the investigation and monitoring shall also be a part of the

RD/RA Work Plan. The Investigation and Monitoring Plans and Quality Assurance Project Plans shall address determination of the extent of contamination, compliance points, and the quantity and timing of sampling for testing the effectiveness of the Remedial Actions.

The RD/RA Work Plan shall include an overall schedule for and plan for completion of the RD/RA including the following tasks:

- Obtaining access required to implement the remedial actions;
- Obtaining any necessary permits or approvals from regulatory agencies;
- Providing initial Facility security and access restrictions;
- Close out of previous investigations;
- Working with local governmental officials to make the design of the remedial actions consistent with future land use plans;
- Preparation and submission of Investigation and Monitoring Plans;
- Preparation and submission of wetland mitigation plan;
- Preparation and submission of an Underground Injection Well Application Package (UIWAP) for a deep injection well;
- Preparation and submission of Quality Assurance Project Plans;
- Preparation and submission of Health and Safety Plans;
- Preparation and submission of Operation and Maintenance Plans;
- Completion of the pre-design investigation activities;
- Preparation and submission of pre-design reports and remedial design packages including provisions for U.S. EPA and IDEM

review and approval;

- Implementation of the remedial actions;
- Preparation and submission of a Long Term Monitoring Plan;
- Implementation of long term monitoring.

A. Investigation and Monitoring Plan:

The Settling Defendants shall prepare plans detailing site investigation and monitoring activities as required in the SOW in order to design and implement the remedial actions defined in this SOW (other than the deep well injection, which will be addressed through the Underground Injection Well Application Package described in Section III. Task II.A.1). In addition, incidental investigations and monitoring incidental to the activities already set forth in the SOW may be required pursuant to this paragraph. These plans shall provide a schedule for accomplishing these activities. These plans shall include the following major activities:

- soil sampling to determine the extent of soil treatment (see Section II.D, and Attachment 5);
- soil sampling to evaluate the extent of sediments excavation (see Section II.B);
- ground water sampling to determine the area of ground water recovery (see Section II.C);
- pump tests (if needed in connection with design of the ground water extraction system under Section II.C);
- tests for design of the site cover (see Section II.E);

- pilot studies for the air, water and soil treatment systems (see Sections II.C, II.D, and II.G;
- ground water monitoring to evaluate the progress of the remedial action and attainment of the ground water CALs (see Section II.C);
- monitoring to evaluate the progress of the SVE operation and attainment of the criteria for discontinuation of the SVE (see Section II.D.2);
- air monitoring (see Section II.G);
- conducting a wetlands assessment (see Section II.H.1);
- testing to determine when sampling for soil treatment and soil treatment shall be initiated (see Section II.D)
- monitoring to evaluate compliance with ground water treatment requirements (see Section II.C).

The Plans shall also include procedures for abandonment of monitoring wells that are no longer in use, and for cleanup of any sampling residuals from previous site investigations.

B. Quality Assurance Project Plan:

Facility specific Quality Assurance Project Plans (QAPPs) shall be prepared for the investigation, testing, and monitoring activities that involve data collection. The purpose of the QAPPs is to ensure that formal procedures are prescribed for the activities affecting the manner and quality of data, and to define the extent, frequency and schedule for sampling,

evaluation and reporting. The format and issues addressed in the QAPP shall be in accordance with U.S. EPA guidance documents.

C. Facility Access:

Settling Defendants shall use their best efforts to obtain Facility access agreements required to implement the remedial action as required under Paragraph 23 of the Consent Decree, prior to the initiation of remedial action or additional studies. Facility access shall extend for the duration of the clean-up and include allowances for any operation and maintenance considerations.

D. Permits and Approvals:

The Settling Defendants shall identify and expeditiously apply for and pursue approval of all permits and approvals from local, State, and Federal agencies required for implementation of remedial design and remedial action activities. This includes approval by the City of Gary to close off Blaine Street.

E. Consistency with Future Land Use Plans:

The Settling Defendants shall meet with City of Gary officials and other governmental officials as necessary to determine their future plans for development of the area on and around the Facility. This includes plans for development of the property north of Midco I especially as it relates to the Blaine Street access road. Meetings shall also be held with affected property

owners as needed to determine their plans for future usage of the property.

F. Health and Safety Plans:

Facility-specific Health and Safety Plans (HSPs) shall be prepared for the investigation, testing, design, construction, operation and maintenance activities. It shall identify the hazards that these activities may present to on-site personnel, personnel working on nearby properties, Facility visitors, trespassers, and to nearby residents. It shall address physical, chemical and any other hazards posed by the activities. It shall describe how any identified hazard shall be controlled and monitored.

The HSPs shall address the applicable regulatory requirements including the requirements of the Occupational Safety and Health Administration contained in 29 CFR 1910 and the health and safety requirements of Section II.G of this SOW. It shall also be consistent with the EPA Standard Operation Safety Guides. It shall include information on: engineering procedures for contaminant control; personnel responsibilities; personal protective equipment and levels of protection; personal hygiene, work zone definitions; general work rules as well as task specific safety procedures; site security measures; environmental and personnel monitoring procedures; evaluation and response to environmental and personnel monitoring data; health related

information on chemicals of concern; decontamination of personnel and equipment; handling and disposal of contaminated equipment, materials and residuals; safety training; medical surveillance, and contingency measures to be undertaken in case of an emergency.

Addenda to the plans described in Task I may be required during the design process.

Task II: Remedial Design:

The Settling Defendants shall prepare final construction plans and specifications to implement the Remedial Actions as defined in the Description of the Remedial Action (Part II of this SOW). The design reports, and construction plans and specifications shall be completed in a manner consistent with relevant portions of the Superfund Remedial Design and Remedial Action Guidance. Reports may be prepared and submitted separately for the SVE system, the S/S operation, final site cover, the ground water pump and treatment system, and the deep underground injection well system.

The Settling Defendants shall develop detailed and comprehensive design plans and specifications which include but are not limited to the following:

1. Discussion of the design strategy and the design basis, including;

a. Compliance with any applicable or relevant and appropriate requirements; and

b. Minimization of environmental and public impacts.

2. Discussion of the technical factors of importance including:

a. Use of currently accepted environmental control measures and technology;

b. The constructability of the design; and

c. Use of currently acceptable construction practices and techniques.

3. Description of assumptions made and detailed justification of these assumptions;

4. Discussion of the potential sources of error and references to potential operation and maintenance problems;

5. Detailed drawings of the proposed design including;

a. Qualitative flow sheets; and

b. Quantitative flow sheets.

6. Tables listing equipment and specifications;

7. Tables giving material and energy balances;

8. Appendices including;

a. Sample calculations (one example presented and explanations of significant design calculations);

b. Derivation of equations; and

c. Results of laboratory or field tests.

A. Design Tasks:

The Settling Defendants shall meet regularly with EPA and the State to discuss design issues. The design of the Remedial Action(s) shall include the following.

1. Deep Underground Injection Well Application Package (UIWAP): A package shall be prepared for approval of the construction and operation of the underground injection well(s). Among other information, this Package shall include maps of wells in the Area of Review, name and depth of USDWs or plans to identify the same, maps and cross sections of geologic structure of area, geologic data on injection and confining zones, the modeling required in Section II.C of the SOW, proposed operating data, proposed formation and formation fluid testing program (see Section II.C), proposed injection procedures, proposed construction procedures, proposed construction details, characteristics of injection fluid, plans for well failures, proposed monitoring program, proposed plugging and abandonment plan, a schedule for the construction activities, testing activities and submittals and general information on Facility access, permits and future development effects of the underground injection well(s).

It shall also include a Construction Quality Assurance Plan, an Operation and Maintenance Plan and a Health and Safety Plan in accordance with Part III, Tasks II.B, II.E, and II.F.

2. Pre-Design Reports:

Pre-Design Reports shall be prepared for the remedial activities other than the deep underground injection well, which shall be covered by the UIWAP described above. The objective of the Pre-Design Report is to describe the engineering parameters and institutional concerns of the selected remedial actions, and to provide the data and evaluation required by this SOW to design the remedial actions set forth in this SOW.

Each Report shall incorporate and utilize additional information obtained from the pre-design investigation as well as from work on Facility access, permitting and future development. It will also describe Facility access arrangements that have been made, permits and approvals that have been obtained, and the future development plans of the local government and of affected property owners. It shall include an updated schedule for submission of the Preliminary, Intermediate, Prefinal and Final Design Packages, as well as additional work needed to arrange for access, regulatory permits and approvals, and to determine future development plans that may affect the remedial action. The Pre-Design Report shall follow the outline in Attachment 6.

For the SVE system (either as a separate system or using the S/S equipment), the Pre-Design Report shall include preliminary design data, flow diagrams, and maps showing the location and layout of the system including pollution control devices,

monitoring devices, on-site office and other significant sit equipment and support facilities. The Pre-Design Report shal also include the data and evaluation described in Section II.D o the SOW to demonstrate the effectiveness of the SVE system, an the data and evaluation described in Section II.G to determin the degree of air treatment required.

For the S/S operation, the Pre-Design Report shall include th results of the soil sampling to determine the extent of S/ needed, the data and evaluation described in Section II.G t determine the degree of air treatment required, and th performance standards and goals as described in Section II.D. It shall include documentation demonstrating that the S/S binder proposed to be used will attain the Final Performance Standard prescribed by EPA pursuant to Section II.D. It shall als include a sketch of the process equipment, information on it effectiveness and preliminary design information on the equipment for air pollution control.

For the ground water extraction system, the Pre-Design Report shall include the anticipated layout of the ground water extraction wells, the anticipated hydrology of the system, preliminary design data and the pre-design investigation data.

For the ground water treatment system, the Pre-Design Report shall include a flow diagram and preliminary design data for the

treatment system, including the air pollution controls, if any. It shall include any data and evaluations performed pursuant to Section II.G to determine the degree of air treatment required, if any.

3. Preliminary Design Packages:

Preliminary Design Packages (30% completion) shall be prepared and submitted to the EPA and the State for all remedial actions other than the deep well injection, which shall be covered by the UIWAP. At this stage, the Settling Defendants shall have field verified the existing conditions of the facility. These packages shall address the technical requirements of the project and outline them so that they may be reviewed to determine that the final design should provide remedial action that will meet the requirements and objectives identified in the Consent Decree and SOW, and implementing details in the RD/RA Work Plan and Pre-Design Report. Supporting data and documentation shall be provided with the design documents defining the functional aspects of the project. The construction drawings shall be organized and clear. The scope of the technical specifications shall be outlined in a manner reflecting the final specifications. Preliminary design calculations shall be included.

4. Prefinal Design Packages:

The Prefinal Design Packages shall be submitted at 95% completion. It shall include prints, specifications, design analysis and design calculations. It shall also include a phased schedule for implementation of the remedial actions including dismantling or abandonment, and a process to continuously update the schedule. It shall include provisions for a Pre-Construction conference including the parties involved in the remedial action to establish relationships among the parties and to help clarify the schedule, expectations, scope, requirements, roles and responsibilities, procedures for handling disputes, emergency procedures, and other issues for the project.

The Prefinal Design submittal shall consist of the Design Plans and Specifications, Operation and Maintenance Plan, Capital and Operating and Maintenance Cost Estimate, Project Schedule, Construction Quality Assurance Plan and the Health and Safety Plan.

Before submitting the project specifications, the Settling Defendants shall:

a. Coordinate and cross-check the specifications and drawings; and

b. Complete the proofing of the edited specifications and required cross-checking of all drawings and specifications.

These activities shall be completed prior to the 95% prefinal

submittal to the Agency.

The Settling Defendants shall prepare, and include in the technical specifications governing treatment systems, contractor requirements for providing: appropriate service visits by experienced personnel to supervise the installation, adjustment, start up and operation of the treatment systems, and training covering appropriate operational procedures once the startup has been successfully accomplished.

5. Final Design:

The Settling Defendants shall submit a Final Design according to the schedule in Section III, Task IV.F. The Final Design submittal consists of the Final Design Plans and Specifications (100% complete), the Settling Defendants' Final Construction Cost Estimate, the Final Operation and Maintenance Plan, Construction Quality Assurance Plan, Final Project Schedule and Final Health and Safety Plan (see Task II - paragraphs B - F below). The quality of the design documents should be such that the Settling Defendants would be able to include them in a bid package and invite contractors to submit bids for the construction project.

A Long Term Monitoring Plan shall be submitted along with the Final Design. This Plan shall provide for monitoring the effectiveness and protectiveness of the remedial actions in accordance with the requirements of Section II.F of the SOW after

operation of the ground water pump and treatment system is discontinued. This Plan shall at least include sampling of representative ground water sampling points to detect ground water contamination twice per year. This Plan shall be approved separately from the Final Design.

B. Operation and Maintenance Plan:

The Settling Defendants shall prepare an Operation and Maintenance Plan to cover both implementation and long term maintenance of the Remedial Actions. An initial Draft Operation and Maintenance Plan shall be submitted simultaneously with the Prefinal Design Document submission and the Final Operation and Maintenance Plan with the Final design Documents. The plan shall be composed of the following elements:

1. Description of normal operation and maintenance (O&M);
    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 laboratory tests and their interpretation;

c. Required Data Collection, Quality Assurance Project Plan (QAPP);

d. Schedule of monitoring frequency and date, if appropriate, when monitoring may cease; and

e. Description of triggering mechanisms for groundwater/surface water monitoring results.

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 cleanup standards; and

b. Analysis of vulnerability and additional resource requirements 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.

C. Cost Estimate:

The Settling Defendants shall refine the cost estimate developed in the FS to reflect the more detailed/accurate design plans and specifications being developed. The cost estimate shall include both capital and operation and maintenance costs. An Initial Cost Estimate shall be submitted simultaneously with the Prefinal Design submission and the Final Cost Estimate with the Final Design Document.

D. Project Schedule:

The Settling Defendants shall develop a Project Schedule for construction and implementation of the Remedial Actions which identifies timing for initiation and completion of all critical path tasks. Settling Defendants shall specifically identify dates for completion of the project and major interim milestones. An Initial Project Schedule shall be submitted simultaneously with the Prefinal Design Document submission and the Final Project Schedule with the Final Design Document.

E. Construction Quality Assurance Plan:

The Settling Defendants shall submit as part of the pre-final design document a draft Construction Quality Assurance Plan. The Settling Defendants shall finalize the Construction Quality Assurance Plan incorporating comments received on the draft Construction Quality Assurance Plan and submit with the final design. The CQA plan is a facility specific document which must be submitted to the Agency for approval prior to the start of the construction. At a minimum, the CQA plan should include the elements summarized below.

1. Responsibility and Authority:

   The Settling Defendants shall describe in detail in the CQA Plan the responsibility and authority of the organizations (i.e. technical consultants, construction firms, etc.) and key personnel involved in the construction of the remedial actions. The Settling Defendants shall also identify a CQA

officer and the necessary supporting inspection staff.

2. Construction Quality Assurance Personnel Qualifications:

The Settling Defendants shall provide the qualifications, training and experience of the CQA officer and supporting inspection personnel to fulfill their identified responsibilities.

3. Inspection Activities:

The Settling Defendants shall summarize in the CQA plan the observations and tests that will be used to monitor the construction and/or installation of the components of the Remedial Actions. The plan shall include the scope and frequency of each type of inspection. Inspections shall include, but not be limited to air quality and emissions monitoring records, waste disposal records (e.g., RCRA transportation manifests), compliance with environmental requirements, and compliance with all health and safety procedures.

4. Sampling Requirements:

The Settling Defendants shall present in the CQA plan the sampling activities, sample size, sample locations, frequency of testing, criteria for acceptance and rejection, and plans for correcting problems as addressed in the project specifications.

5. Documentation

The Settling Defendants shall describe in the CQA plan the

reporting requirements for CQA activities. This shall include such items as daily summary reports, inspection data sheets, problem identification and corrective measures reports, design acceptance reports, and final documentation. Provisions for the final storage of records shall be presented in the CQA plan.

F. Health and Safety Plan:

The Settling Defendants shall submit a Health and Safety Plan to address the activities to be performed at the facility to implement the Remedial Action(s), and which shall meet the requirements for a Health and Safety Plan described in Task I.F.

Task III: REMEDIAL ACTION CONSTRUCTION:

The Setting Defendants shall construct and implement the Remedial Actions in accordance with the requirements of the Consent Decree and this SOW as implemented in the approved design, schedule and the CQA plan, including the Force Majeure provisions of Section XIII of the Consent Decree. The Settling Defendants shall also implement the elements of the approved operation and maintenance plan and conduct the following meetings and inspections:

A. Preconstruction Inspections and Meetings:

The Settling Defendants shall conduct preconstruction inspections and meetings to:

1. Review methods for documenting and reporting inspection data;

2. Review methods for distributing and storing documents and reports;
3. Review work area security and safety protocol;
4. Discuss any modifications of the construction quality assurance plan to address any site-specific considerations; and
5. Conduct a site walk-around to explain and review the design criteria, plans, and specifications, 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 Inspections:

Upon preliminary completion of appropriate portions of the construction, Settling Defendants shall notify 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 project site. The objective of the inspection is to determine whether the relevant portion of the project construction is complete and consistent with the Consent Decree, SOW, and RD/RA Project Plan. Any outstanding construction items discovered during the inspection shall be identified and noted. Additionally, treatment equipment shall be operationally tested by Settling Defendants. Retesting will be completed where

deficiencies are revealed. The Settling Defendants shall require the vendor to certify that the equipment has performed to meet the purpose and intent of the specifications. A copy of the certification shall be provided to EPA and the State. The Settling Defendants shall outline in the Prefinal Inspection Report the outstanding construction items, actions required to resolve items, completion date for these items, and date for final inspection.

C. Final Inspections:

Upon completion of any outstanding construction items, the Settling Defendants shall notify EPA and the State for the purposes of conducting a final inspection. The final inspection shall consist of a walk-through inspection of the project site. The Prefinal Inspection Report will 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 and shall be submitted in the Construction Completion Report.

Task IV: Other Reports and Submissions:

The Settling Defendants shall prepare plans, specifications, and reports as set forth in Tasks I through Task IV to document the design, construction, operation, maintenance, and monitoring of the Remedial Action. Other documentation shall include, but not be limited to the following:

A. Progress Reports:

Monthly progress reports shall be submitted in accordance with the provisions of Paragraph 27 of the Consent Decree. After EPA issues a Certificate of Completion pursuant to Paragraph 85 of the Consent Decree, semi-annual progress reports shall be submitted in accordance with the provisions of Paragraph 27 of the Consent Decree.

B. Annual Court Reports:

Annual Court Reports shall be submitted in accordance with Paragraph 30 of the Consent Decree.

C. Construction Completion Reports:

The Settling Defendants shall at the completion of the final inspections for appropriate portions of the construction submit a Construction Completion Report to EPA and the State. The Report shall document that the project is consistent with the design specifications, including modification approved by EPA in consultation with the State, and that the Remedial Action is expected to perform adequately. The Report shall include, but not be limited to the following elements:

a. Synopsis of the Remedial Action and certification of the design and construction;

b. Explanation of any modifications to the plans and why these were necessary for the project;

c. Documentation that the pertinent remedy is operational; and

d. Explanation of the operation and maintenance (including monitoring) to be undertaken at the facility as outlined in Task IIB.

D. Notification of Completion of Remedial Action and Final Reports:

The Settling Defendants shall after the completion of soil S/S, in-situ SVE, ground water extraction and treatment, injection of the treated ground water into a deep well, excavation and treatment of sediment areas, wetlands mitigation, installation of site cover defined in Section II.E, and demonstration of attainment of CALs (alternative CALs in the event that a petition is granted pursuant to Paragraph 12.a.(iv) of the Consent Decree), Treatment Action Levels, and performance standards in accordance with this Consent Decree and SOW, submit a Notification of Completion of Remedial Action for that Facility, and a final report to EPA and the State. A separate notification and report may be submitted for each Facility. The report shall document that the project is consistent with the design specifications including modifications approved by EPA in consultation with the State, that Work was performed adequately, and that the cleanup action levels and performance standards have been met. The report shall be prepared and certified as true and accurate by a registered professional engineer and the Settling Defendants' Project Coordinator, and shall include appropriate supporting documentation including, but not be limited to the

following elements:

a. Synopsis of the Work and documentation of the design and construction;

b. Explanation of any modifications to the plans and why these were necessary for the project;

c. Listing of the cleanup action levels, STALs and performance standards as established in the Consent Decree, including the SOW, and also explaining any EPA approved modification to these cleanup and performance standards, and treatment action levels;

d. Results of facility monitoring, indicating that the Work has met or exceeded the cleanup action levels, STALs and performance standards; and

e. Explanation of the operation and maintenance (including monitoring) to be undertaken at the facility as outlined in Sections II.F, II.C and III.Task II.B.

EPA shall review the Final Remedial Action Report(s), and may issue Certification(s) of Completion of Remedial Action in accordance with Paragraph 85 of the Consent Decree.

E. Notification of Failure to Meet Cleanup Action Levels or Performance Standards and the Requirements Triggered by the STALs:

If sampling reveals that the remedial action Work will not result in attainment of a CAL, a Performance Standard, or the

requirements triggered by the STALs, Settling Defendants shall promptly notify EPA, and submit a Response Plan.

F. Schedules:

The schedule for some submittals are listed below. Other submittals shall be submitted in accordance with EPA approved schedules provided in other documents required for this project.

Submission of Draft RD/RA Work Plan --- 60 days after the entry of Consent Decree.

Submission of Final RD/RA Work Plan --- 30 days after EPA comment on Draft Work Plans.

Design Phases:

- **Submission of UIWAP (initial submittal)** --- 90 days after entry of Consent Decree.
- **Submission of Predesign Report for Ground Water Extraction System** --- 120 days after approval of the RD/RA Work Plan.
- **Implementation of pilot study for the ground water treatment systems** --- to be established in the RD/RA Work Plan.
- **Submission of a Predesign Report for the Ground Water Treatment** --- to be established in the RD/RA Work Plan.
- **Implementation of pilot study for the S/S system** --- to be established in the RD/RA Work Plan.
- **Submission of Predesign Report for S/S System** --- within 365

days of initiation of the ground water extraction and treatment system.

- **Submission of Predesign Report for SVE** --- to be established in the RD/RA Work Plan.
- **Submission of Predesign Report for cover design** --- to be established in the RD/RA Work Plan.
- **Major Milestones for construction and implementation of the remedial action** --- to be established in the Final Design Package and the UIWAP.
- **Submission of Final Design (100% completion)** --- 60 days after receipt of EPA comments on the Prefinal design.

ATTACHMENTS

1. PROCEDURES FOR CONDUCTING RISK BASED CALCULATIONS FOR SOILS AT MIDCO I AND MIDCO II

2. PROCEDURES FOR CONDUCTING RISK BASED CALCULATIONS FOR DETERMINATION OF GROUND WATER CLEANUP ACTION LEVELS AT MIDCO I AND MIDCO II

3. HEALTH BASED LEVELS AND SOLUBILITIES FOR CONSTITUENTS OF CONCERN IN DELISTING PETITIONS JULY 1991

4. PROCEDURE FOR CONDUCTING RISK CALCULATIONS FOR AIR EMISSIONS

5. PROCEDURES FOR DETERMINING THE EXTENT OF TREATMENT FOR SOILS AND DEBRIS AT THE MIDCO I AND MIDCO II SITES

6. SUGGESTED OUTLINE FOR PRE-DESIGN REPORT

ATTACHMENT 1

PROCEDURES FOR CONDUCTING RISK BASED CALCULATIONS FOR SOILS AND SEDIMENTS AT MIDCO I AND MIDCO II

Risk Calculations

Risk based calculations shall be conducted for each sample for both carcinogenic and non-carcinogenic risks. The calculation shall be the sum of the estimated risks produced by each constituent detected in the sample for the ingestion, dermal contact, and inhalation routes of exposure using a residential development scenario.

The carcinogenic risk based calculation for each exposure route shall be the summation of the lifetime average exposure rate for each constituent times that constituent's carcinogenic potency factor (slope factor). This is summarized by the following equation:

$$CR_s = \Sigma\ (OI)_i(OSF)_i + \Sigma\ (DI)_i(DSF)_i + \Sigma\ (II)_i(ISF)_i$$

CR_s = Cumulative lifetime carcinogenic risk for each sample

Σ = Summation of the carcinogenic risk for each constituent detected in the sample

OI_i = Lifetime exposure rate to constituent i via ingestion

DI_i = Lifetime exposure rate to constituent i via derm. contact

II_i = Lifetime exposure rate to constituent i via inhalation

OSF_i = Oral slope factor or carcinogenic potency factor (CPF) of constituent i

DSF_i = Dermal slope factor or carcinogenic potency factor of constituent i

ISF_i = Inhalation slope factor or carcinogenic potency factor of constituent i

The non-carcinogenic risk based calculation for each exposure route shall be the summation of the non-carcinogenic risk indexes for each constituent. The non-carcinogenic risk index is the ratio of the averaged exposure rate divided by the reference dose. This is summarized by the following equation:

$$NI_s = \Sigma\ (OCDI_i)/(ORfD)_i + \Sigma\ (DCDI)_i/(DRfD)_i + \Sigma\ (ICDI)_i(IRfD)_i$$

NI_s = Cumulative chronic non-carcinogenic risk index for each sample

$OCDI_i$ = Chronic daily intake of constituent i for the ingestion route of exposure

$DCDI_i$ = Chronic daily intake of constituent i for the dermal contact route of exposure

$ICDI_i$ = Chronic daily intake of constituent i for the inhalation route of exposure

$ORfD_i$ = Chronic oral reference dose

$DRfD_i$ = Chronic dermal reference dose

$IRfD_i$ = Chronic inhalation reference dose

Constituents that are not detected shall not be included in the risk calculations. The chemical analyses shall at least attain the quantitation limits necessary to evaluate attainment of soil CALs. However, quantitation limits lower than the detection limits listed in Table 1-7 of the Feasiblity Studies for Midco I and Midco II will not be required. Compounds detected below background concentrations shown in Table 1 shall not be used in the risk calculations. No OSF, ISF, ORfD or IRfD is presently available for lead. Therefore, the soil

treatment action level for lead is set at 1000 mg/kg in the soil, and the sediment/soil CAL is set at 500 mg/kg.

If NI_s exceeds 5.0 for the STALs or 1.0 for the soil/sediment CALs, the organ specific NI_s shall be calculated in a manner consistent with EPA guidance. Then the highest organ specific NI_s shall be used to evaluate whether the criteria for soil treatment is or is not exceeded.

The procedures for the calculations for each exposure route are summarized below:

<u>FOR THE INGESTION ROUTE OF EXPOSURE</u>:

CARCINOGENIC RISK CALCULATION

$CR_{si} = \Sigma\ (OI)_{si}(OSF)_i$

$OI_i = (2.34\ mg/kg/d)(C_i)$

CR_{si} = Cumulative lifetime carcinogenic risk for each sample for the ingestion route of exposure

OI_i = Lifetime exposure rate to constituent i for the ingestion route of exposure

OSF_i = Oral slope factor or carcinogenic potency factor (CPF) of compound i. These are listed in Table 2. The CPFs in Table 2 are from the U.S. EPA "Health Effects Assessment Summary Tables", April 1989, OERR 9200.6-303-(89-2), except for the carcinogenic polyaromatic hydrocarbons, which are from the U.S. EPA Health Effects Assessment Group.

2.34 mg/kg/d = lifetime averaged soil intake based on the following assumptions:

- The soil intake averaged over 70 years (25550 days) corresponding to children age 2-6, with

a body weight of 17 kg, and an ingestion rate of 0.2 grams of soil per day for 5 years, equal to 8.4×10^{-4} g/kg/d.

- The soil intake averaged over 25550 days corresponding to children age 7-12, with a body weight of 29 kg, and an ingestion rate of 0.1 grams of soil per day for 6 years, equal to 3.0×10^{-4} g/kg/d.

- The soil intake averaged over 25550 days corresponding to adults, with a body weight of 70 kg, and an ingestion rate of 0.1 grams of soil per day for 58 years, equal to 12×10^{-4} g/kg/d.

$(8.4 + 3.0 + 12) \times 10^{-4}$ g/kg/d $\times 10^{3}$ mg/g = 2.34 mg/kg/d

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil.

NON-CARCINOGENIC RISK INDEX CALCULATION

$NI_{si} = \Sigma\ (C)_i(11.8\ \text{mg/kg/d})/ORfD_i)$

NI_{si} = Cumulative chronic non-carcinogenic risk index for the ingestion route of exposure

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

11.8 mg/kg/d = Soil intake for children ages 2-6, based on a bodyweight of 17 kg and an ingestion rate of 0.2 grams of soil per day for five years

$ORfD_i$ = Chronic oral reference dose. The oral reference doses for this Decree are listed in Table 2. The RfDs listed in Table 2 are from the U.S. EPA "Health Effects Assessment Summary Tables", April 1989, OERR 9200.6-303-(89-2)

FOR THE DIRECT CONTACT ROUTE OF EXPOSURE:

CARCINOGENCIC RISK CALCULATION

$CR_{sd} = \Sigma (DI)_i(DSF)_i$

$DI_i = (C)_i(DF)_i(14.53 \text{ mg/kg/d})$

CR_{sd} = Cumulative lifetime carcinogenic risk for each sample for the dermal contact route of exposure

DI_i = Lifetime exposure rate to compound i for the dermal contact route of exposure

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

DSF_i = Dermal slope factor or carcinogenic potency factor (CPF) of constituent i. These are listed in Table 2. The dermal CPFs in Table 2 were adjusted from the oral CPFs by dividing the oral CPF by the chemical-specific oral absorption factor that represents the percentage of ingested chemical that is actually absorbed. The absorption factors are also listed in Table 2.

DF_i = Desorption factor. This is a chemical-specific value that takes into account the desorption of a constituent from the soil matrix. The following desorption factors shall be used: volatile organic compounds = 0.25; semivolatile organic compounds = 0.10; inorganics = 0.01.

14.53 mg/kg/d = Lifetime soil to skin adherence based on the following assumptions:

- The soil adherence averaged over 70 years (25550 days) corresponding to children age 2-6, with a body weight of 17 kg, an exposed body surface area of 3160 cm^2, a soil-to skin adherence factor of 0.9 mg/cm^2 (Exposure Factors Handbook, Technical Report, U.S. EPA, 1989, Contract No. 68-02-4254) of soil per day, for 138 days per year, for 5 years, equal to 4.52 mg/kg/d. The exposed body surface area includes arms, legs and hands (50th percentile, children aged 3-4, from Exposure Factors Handbook, 1989).

- The soil adherence averaged over 70 years

(25550 days) corresponding to children age 7-12, with a body weight of 29 kg, an exposed body surface area of 4970 cm^2, a soil-to skin adherence factor of 0.9 mg/cm^2 of soil per day, for 138 days per year, for 6 years, equal to 5.00 mg/kg/d. The exposed body surface area includes arms, legs and hands (50th percentile, children aged 9-10 from Exposure Factors Handbook, 1989).

- The soil adherence averaged over 70 years (25550 days) corresponding to adults, with a body weight of 70 kg, an exposed body surface area of 3120 cm^2, a soil-to skin adherence factor of 0.9 mg/cm^2 of soil per day, for 55 days per year, for 58 years equal to 5.01 mg/kg/d. The exposed body surface area includes arms and hands (50th percentile adults from Exposure Factors Handbook, 1989).

NON-CARCINOGENIC RISK INDEX CALCULATION

$NI_{sd} = \Sigma (C)_i(DF)_i(63.25 \text{ mg/kg/d})/(DRfD_i)$

NI_{sd} = Cumulative chronic non-carcinogenic index for the direct contact route of exposure

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

DF_i = Desorption factor. Use definition previously provided for the carcinogenic risk calculation

63.25 mg/kg/d = The soil adherence corresponding to children age 2-6, with a body weight of 17 kg, an exposed body surface area of 3160 cm^2, a soil-to skin adherence factor of 0.9 mg/cm^2 of soil per day, for 138 days per year, for 5 years.

$DRfD_i$ = Chronic dermal reference dose. The chronic dermal reference doses for this Decree are listed in Table 2. The chronic dermal reference doses listed in Table 2 were adjusted from the oral reference doses by multiplying the oral reference doses by the chemical-specific oral absorption factor that represents the percentage of ingested chemical that is actually absorbed. The oral absorption factors are also listed in Table 2.

FOR THE INHALATION ROUTE OF EXPOSURE:

CARCINOGENIC RISK CALCULATION

$CR_{si} = \Sigma (II)_i(ISF)_i$

$II_i = (C)_i(D)_i(VP)_i(MW)_i(0.033)$

CR_{si} = Cumulative carcinogenic risk for each sample for the inhalation route of exposure

II_i = Lifetime exposure rate to constituent i for the inhalation route of exposure

ISF_i = Inhalation slope factor or carcinogenic potency factor (CPF) for constituent i. The inhalation CPFs are listed in Table 2 and are from: U.S. EPA, 1989, Health Effects Summary Tables, OERR 9200.6-303-(89-2).

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

D_i = Diffusion coefficient of constituent i in the air, in cm^2/sec

VP_i = Vapor pressure of constituent i, in mm Hg

MW_i = Molecular weight of constituent i, in g/mole

$$0.033 = \frac{(INR)(ET)(EF)(ED)(A)(P^{4/3})(1000\ mg/g)}{(BW)(AT)(h)(u)(w)(L)(R)(T)}$$

INR = Inhalation rate in m^3/hour: 0.76 from 1-6 years; 0.89 from 7-12 years; 0.83 for adults

ET = Exposure time in hours/day: 21.1 from 1-6 years; 18.3 from 7-12 years; 21.1 for adults

EF = Exposure frequency in days/year: 350 for all age groups

ED = Exposure duration in years: 6 years from 1-6 years; 6 years from 7-12 years; and 58 years for adults

A = 1 E+6 cm^2 (a box 1 meter wide and 100 meters long)

P = Total soil porosity: 0.35

BW = Body weight in kg.: 17 kg from 1-6 year; 29 kg. from 6-12 years; and 70 kg adult

AT = Averaging time: 25550 days (365 days/year X 70 years)

h = Mixing height: 1.83 meters

w = Mixing width: 1 meter

u = Wind speed: 2.4 meters/sec.

L = Effective depth of soil cover: 30 cm.

R = Gas constant: 62,361 mm Hg/gmole/°K

T = Temperature: 290 °K

NON-CARCINOGENIC RISK INDEX CALCULATION

$NI_{ai} = \Sigma (C)_i(D)_i(VP)_i(MW)_i(0.0938)/(IRfD_i)$

NI_{ai} = Cumulative chronic non-carcinogenic index for the inhalation route of exposure

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

D_i, VP_i, and MW_i are as defined above

$$0.0938 = \frac{(INR)(ET)(EF)(ED)(A)(P^{4/3})(1000\ mg/g)}{(BW)(AT)(h)(u)(w)(L)(R)(T)}$$

INR = Inhalation rate in m^3/hour: 0.76 for 1-6 year olds

ET = Exposure time in hours/day: 21.1 for 1-6 year olds

ED = Exposure duration in years: 6 years

BW = Body weight in kg.: 17 kg for 1-6 year olds

AT = Averaging time: 2190 days (365 days/year X 6 years)

A, P, EF, P, h, w, u, L, R, and T are as defined above

$IRfD_i$ = Inhalation reference dose for constituent i. The inhalation CPFs are listed in Table 2 and are from: U.S. EPA, 1989, Health Effects Summary Tables, OERR 9200.6-303-(89-2).

TABLE 1 OF ATTACHMENT 1

MIDCO I AND II - BACKGROUND SOIL CONCENTRATIONS *

COMPOUND	95% UCL (ug/kg)	COMPOUND	95% UCL (ug/kg)	COMPOUND	95% UCL (ug/kg)
ALUMINUM	8,175,837	1,2-DICHLOROETHANE	0	DIETHYLPHTHALATE	27.1
ANTIMONY	1,290	2-BUTANONE	6.7	FLUORENE	0
ARSENIC	14,014	1,1,1-TRICHLOROETHANE	0	N-NITROSODIPHENYLAMINE	0
BARIUM	80,492	1,1,2,2-TETRACHLOROETHANE	0	PENTACHLOROPHENOL	0
BERYLLIUM	0	TRICHLOROETHENE	0	PHENANTHRENE	131
CADMIUM	2,769	BENZENE	0	ANTHRACENE	0
CALCIUM	10,662,779	2-HEXANONE	0	DI-N-BUTYLPHTHALATE	0
CHROMIUM (III)	19,260	4-METHYL-2-PENTANONE	0	FLUORANTHENE	255
CHROMIUM (VI)	19,260	TETRACHLOROETHENE	0	PYRENE	248
COBALT	4,197	TOLUENE	2.0	BUTYLBENZYLPHTHALATE	112
COPPER	48,876	CHLOROBENZENE	0	BENZO(A)ANTHRACENE	158
IRON	13,673,722	ETHYLBENZENE	0	BIS(2-ETHYLHEXYL)PHTHALATE	985
LEAD	145,843	STYRENE	0	CHRYSENE	238
MAGNESIUM	3,386,934	TOTAL XYLENES	0	DI-N-OCTYLPHTHALATE	36.4
MANGANESE	117,133	PHENOL	0	BENZO(B)FLUORANTHENE	241
MERCURY	288	1,4-DICHLOROBENZENE	0	BENZO(K)FLUORANTHENE	154
NICKEL	17,348	2-METHYLPHENOL	0	BENZO(A)PYRENE	137
POTASSIUM	1,002,938	4-METHYLPHENOL	0	INDENO(1,2,3-CD)PYRENE	103
SELENIUM	0	CRESOL	0	DIBENZ(A,H)ANTHRACENE	0
SILVER	447	NITROBENZENE	0	BENZO(G,H,I)PERYLENE	108
SODIUM	81,517	N-NITROSODIPROPYLAMINE	0	ALDRIN	0
THALLIUM	1,477	ISOPHORONE	0	DIELDRIN	0
TIN	1,581	2,4-DIMETHYLPHENOL	0	ENDRIN	0
VANADIUM	20,553	BENZOIC ACID	0	4,4'-DDD	29.5
ZINC	312,974	2,4-DICHLOROPHENOL	0	4,4'-DDT	127
CYANIDE	0	NAPHTHALENE	0	CHLORDANE	[illegible]
METHYLENE CHLORIDE	9.4	4-CHLORO-3-METHYLPHENOL	0	AROCLOR-1242	0
ACETONE	13.9	2-METHYLNAPHTHALENE	0	AROCLOR-1248	0
1,1-DICHLOROETHANE	0	ACENAPHTHYLENE	0	AROCLOR-1254	0
TRANS-1,2-DICHLOROETHENE	0	ACENAPHTHENE	0	AROCLOR-1260	0
CHLOROFORM	0	DIBENZOFURAN	0	4,4-DDE	[illegible]

* 95% UCL = 95 percent upper confidence limit of the average background soil concentrations. From the Feasibility Study (both sites have the same soil background concentrations).

TABLE 2 OF ATTACHMENT 1

CHEMICAL SPECIFIC RISK FACTORS

CHEMICAL	CPF-oral $(mg/kg/d)^{-1}$	Chronic Oral RfD (mg/kg/d)	Inhalation CPF $(mg/kg/d)^{-1}$	Chronic Inhalation RfD (mg/kg/d)	Oral Absorption Factor	Dermal CPF[a] $(mg/kg/d)^{-1}$	Chroni Derma RfD (mg/kg/
antimony	NA	4.00E-04	NA	NA	0.05	NA	2.00E-0
arsenic	1.75E+00	1.00E-03	5.00E+01	NA	0.98	1.79E+00	9 80E-0
barium	NA	5.00E-02	NA	1.00E-04	0.10	NA	5 00E-0
beryllium	NA	5.00E-03	8.40E+00	NA	0.001	NA	5 00E-0
cadmium	NA	1.00E-03	6.10E+00	NA	0.06	NA	6 00E-0
chromium(III)	NA	1.00E+00	NA	NA	0.01	NA	1 00E-0
chromium(VI)	NA	5.00E-03	4.10E+00	NA	0.05	NA	2 50E-0
manganese	NA	2.00E-01	NA	3.00E-04	0.05	NA	1 00E-0
mercury	NA	3 00E-04	NA	NA	0.15	NA	4 50E-05
nickel	NA	2.00E-02	8 40E-01	NA	0.05	NA	1 00E-03
selenium	NA	3.00E-03	NA	1.00E-03	0 60	NA	1 80E-03
thallium	NA	7.00E-05	NA	NA	0.05	NA	3 50E-06
tin	NA	6.00E-01	NA	NA	0.05	NA	3 00E-02
vanadium	NA	7.00E-03	NA	NA	0.05	NA	3 50E-04
zinc	NA	2.00E-01	NA	NA	0 50	NA	1 00E-01
cyanide	NA	2.00E-02	NA	NA	0.45	NA	9 00E-03
methylene chloride	7 50E-03	6.00E-02	1.40E-02	3.00E+00	1.00	7 50E-03	6 00E-[illegible]
acetone	NA	1.00E-01	NA	NA	0 90	NA	[illegible]
1 1-dichloroethane	NA	1 00E-01	NA	1.00E-01	0 70	NA	[illegible]
1 1 dichloroethene	6 00E-01	9 00E-03	1.20E+00	NA	0 93	6 45E-01	[illegible]
chloroform	6 10E-03	1.00E-02	8.10E-02	NA	1 00	6 10E-03	[illegible]
1 2 dichloroethane	9.10E-02	NA	9 10E-02	NA	1 00	9 10E-02	NA
2-butanone	NA	5 00E-02	NA	9 00E-02	0 90	NA	[illegible]
1 1 1-trichloroethane	NA	9 00E-02	NA	3 00E-01	0 90	NA	[illegible]
carbon tetrachloride	1 30E-01	7 00E-04	1.30E-01	NA	0 80	1 63E-01	[illegible]
1 1 2 2 tetrachloroethane	2 00E-01	NA	2 00E-01	NA	0 90	2 22E-01	NA
1 2 dichloropropane	6 80E-02	NA	NA	NA	0 90	6 67E-02	NA
trichloroethene	1 10E-02	NA	1 30E-02	NA	0 95	1 16E-02	NA
1 1 2-trichloroethane	5 70E-02	4 00E-03	5 70E-02	NA	0 90	6 33E-02	3 60E-03
benzene	2 90E-02	NA	2 90E-02	NA	1 00	2 90E-02	NA
4 methyl-2-pentanone	NA	5 00E-02	NA	NA	0 90	NA	4 50E-02

CHEMICAL SPECIFIC RISK FACTORS

CHEMICAL	CPF-oral $(mg/kg/d)^{-1}$	Chronic Oral RfD (mg/kg/d)	Inhalation CPF $(mg/kg/d)^{-1}$	Chronic Inhalation RfD (mg/kg/d)	Oral Absorption Factor	Dermal CPF[a] $(mg/kg/d)^{-1}$	Chronic Dermal RfD (mg/kg/
tetrachloroethene	5.10E-02	1.00E-02	3.30E-03	NA	0.90	5.67E-02	9.00E-03
toluene	NA	3.00E-01	NA	1.00E+00	1.00	NA	3.00E-01
chlorobenzene	NA	3.00E-02	NA	5.00E-03	0.31	NA	9.30E-03
ethylbenzene	NA	1.00E-01	NA	NA	0.82	NA	8.20E-02
xylenes	NA	2.00E+00	NA	4.00E-01	1.00	NA	2.00E+00
phenol	NA	6.00E-01	NA	NA	0.90	NA	5.40E-01
1,4-dichlorobenzene	2.40E-02	NA	NA	7.00E-01	1.00	2.40E-02	NA
1,2-dichlorobenzene	NA	4.00E-01	NA	4.00E-02	0.90	NA	3.60E-01
cresol	NA	5.00E-02	NA	NA	0.90	NA	4.50E-02
nitrobenzene	NA	5.00E-04	NA	6.00E-04	0.90	NA	4.50E-04
isophorone	4.10E-03	1.50E-01	NA	NA	0.90	4.56E-03	1.35E-01
benzoic acid	NA	4.00E+00	NA	NA	0.40	NA	1.60E+00
2,4-dichlorophenol	NA	3.00E-03	NA	NA	0.90	NA	2.70E-03
1,2,4-trichlorobenzene	NA	2.00E-02	NA	3.00E-03	0.90	NA	1.80E-02
napthalene	NA	4.00E-01	NA	NA	1.00	NA	4.00E-01
4-chloroaniline	3.50E-02	4.00E-03	NA	NA	0.90	3.89E-02	3.60E-03
diethylphthalate	NA	8.00E-01	NA	NA	0.15	NA	1.20E [illegible]
N-nitrosodiphenylamine	4.90E-03	NA	NA	NA	0.90	5.44E-03	NA
pentachlorophenol	NA	3.00E-02	NA	NA	0.90	NA	[illegible]
di-N-butylphthalate	NA	1.00E-01	NA	NA	0.85	NA	[illegible]
benzidine	2.30E+02	3.00E-03	2.30E+02	NA	0.90	2.56E+02	[illegible]
butylbenzylphthalate	NA	2.00E-01	NA	NA	0.15	NA	[illegible]
benzo(a)anthracene	1.15E-01	NA	NA	NA	0.50	2.30E-01	NA
bis(2-ethylhexl)phthalate	1.40E-02	2.00E-02	NA	NA	0.15	9.33E-02	[illegible]
chrysene	1.15E-01	NA	NA	NA	0.50	2.30E-01	NA
benzo(b)fluoranthene	3.45E+00	NA	NA	NA	0.15	6.90E+00	NA
benzo(a)pyrene	1.15E+01	NA	NA	NA	0.50	2.30E+01	NA
indeno(1,2,3-cd)pyrene	1.15E-01	NA	NA	NA	0.50	2.30E-01	NA
dibenz(a,h)anthracene	1.15E+01	NA	NA	NA	0.50	2.30E+01	NA
aldrin	1.70E+01	3.00E-05	1.70E+01	NA	0.50	3.40E+01	1.50E-05
dieldrin	1.60E+01	5.00E-05	1.60E+01	NA	0.50	3.20E+01	2.50E-05
endrin	NA	3.00E-04	NA	NA	0.50	NA	1.50E-04

CHEMICAL SPECIFIC RISK FACTORS

CHEMICAL	CPF-oral $(mg/kg/d)^{-1}$	Chronic Oral RfD (mg/kg/d)	Inhalation CPF $(mg/kg/d)^{-1}$	Chronic Inhalation RfD (mg/kg/d)	Oral Absorption Factor	Dermal CPF[a] $(mg/kg/d)^{-1}$	Chroni Derma RfD (mg/kg/
4,4'-DDT	3.40E-01	5.00E-04	3.40E-01	NA	0.50	6.80E-01	2.50E-0
chlordane	1.30E+00	5.00E-05	1.30E+00	NA	0.50	2.60E+00	2.50E-0
aroclor-1242	7.70E+00	NA	NA	NA	0.50	1.54E+01	NA
araclor-1248	7.70E+00	NA	NA	NA	0.50	1.54E+01	NA
aroclor-1254	7.70E+00	NA	NA	NA	0.50	1.54E+01	NA
araclor-1260	7 70E+00	NA	NA	NA	0.50	1.54E+01	NA
PCBs	7 70E+00	NA	NA	NA	0.95	8 11E+00	NA

NA Not Available
CPF Carcinogenic Potency Factor
RfD Reference Dose
[a] Dermal risk factors are calculated as follows:

$$\frac{\text{Oral CPF}}{\text{oral absorption factor}} = \text{Dermal CPF}$$

$$\text{Oral RfD} * \text{Oral Absorption Factor} = \text{Dermal RfD}$$

Attachment 2

PROCEDURES FOR CONDUCTING RISK BASED CALCULATIONS FOR DETERMINATION OF GROUND WATER CLEAN UP ACTION LEVELS AT MIDCO I AND MIDCO II

Risk based calculations shall be conducted for each sample. The calculation shall be the sum of the estimated risks produced by each constituent in the sample.

The carcinogenic risk based calculation for each sample is simply the summation of a lifetime averaged exposure rate via ingestion of the ground water for each constituent times that constituent's oral carcinogenic potency factor (slope factor), plus the summation of a lifetime averaged exposure rate via inhalation for each volatile organic compound times that volatile organic compound's inhalation carcinogenic potency factor (slope factor).

This is summarized in the following equation:

$$CR_s = \Sigma\ (OI)_i(OSF)_i + \Sigma\ (II)_i(ISF)_i$$

$$OI_i = (3.09 \times 10^{-2}\ l/kg/d)\ C_i$$

$$II_i = (9.74 \times 10^{-2}\ l/kg/d)\ C_i$$

CR_s = Cumulative lifetime carcinogenic risk for a sample

Σ = Summation of the carcinogenic risk from each constituent detected in the sample.

OI_i = Lifetime averaged exposure rate via ingestion for constituent i

OSF_i = Oral carcinogenic potency factor (or slope factor) of constituent i. These are listed in Table 2 of Attachment 1.

II_i = Lifetime averaged exposure rate via inhalation for constituent i.

ISF = Inhalation carcinogenic potency factor (or slope factor) of constituent i. These are listed in Table 2 of Attachment 1.

3.09×10^{-2} l/kg/d = lifetime averaged ground water ingestion rate based on the following assumptions:

- The ground water intake averaged over 70 years (25550 days) corresponding to children age 2-6, with a body weight of 17 kg, and an ingestion rate of 1 liter of ground water per day for 5 years, equal to 4.2×10^{-3} l/kg/d.

- The ground water intake averaged over 70 years corresponding to children age 7-12 with a body weight of 29 kg, and an ingestion rate of 1 liter of ground water per day for 6 years, equal to 3.0×10^{-3} l/kg/d.

- The ground water intake averaged over 70 years corresponding to adults, with a body weight of 70 kg, and an ingestion rate of 2 liters of ground water per day for 58 years, equal to 23.7×10^{-3} l/kg/d.

$(4.2 + 3.0 + 23.7) \times 10^{-3}$ l/kg/d $= 3.09 \times 10^{-2}$

9.74×10^{-2} l/kg/d = lifetime averaged ground water exposure rate via inhalation based on the following assumptions:

- Calculate the lifetime ground water inhalation intake while bathing. In order to do this, it is assumed that all subpopulations (adults, children age 7-12 and children age 2-6) bathe for 20 minutes each day and stay an additional 10 minutes inside the closed-door bathroom, where the concentration in the air of the compound volatilized from the ground water used for bathing increases from zero to the actual ground water concentration at the end of the bathing period, and then decreases to zero during the additional 10 minutes in the bathroom. To account for this increase/decrease in concentration, a factor of 0.38 is used in the equation to calculate the intake. The actual ground water concentration can then be used to calculate the risk. Additional assumptions include: (1) each bath will consume

200 liters of water; (2) the volume of the shower stall is 3 m^3; and (3) the volume of the bathroom is 10 m^3. Also, the volume of air inhaled per hour is: 0.55 m^3 for adults, 0.6 m^3 for children age 7-12, and 0.49 m^3 for children age 2-6.

The inhalation intake can be calculated as:

$$0.38\ [(200\ 1/3\ m^3) \times (20\ min/60\ min/day) + (200\ 1/10\ m^3) \times (10\ min/60\ min/day)] \times [(0.55\ m^3 \times 58\ yrs)/(70\ kg \times 70\ yrs) + (0.60\ m^3 \times 6\ yrs)/(29\ kg \times 70\ yrs) + (0.49\ m^3 \times 4\ yrs)/(16\ kg \times 70\ yrs)] = 9.74 \times 10^{-2}\ l/kg/d.$$

C_i = Concentration of constituent i in the sample.

The cumulative chronic non-carcinogenic risk index is calculated as follows:

$$NI_s = \Sigma\ ((C_i)(3.09 \times 10^{-2}\ l/kg/d)/ORfD_i) + \Sigma\ ((C_i)(9.74 \times 10^{-2}\ l/kg/d)/IRfD_i)$$

NI_s = Cumulative chronic non-carcinogenic risk index.

Σ = Summation of chronic non-carcinogenic risk for all constituents detected in the sample that affect the same target organ.

$ORfD_i$ = Oral reference dose of constituent i. The reference doses for this Consent Decree are listed in Table 2 of Attachment 1.

$IRfD_i$ = Inhalation reference dose of constituent i. The reference doses for this Consent Decree are listed in Table 2 of Attachment 1.

Compounds detected below the background concentrations listed in the Table 1 of this Attachment will not be included in either the carcinogenic or non-carcinogenic risk based calculations.

The Primary Maximum Contaminant Levels (MCLs) are from 40 CFR 141. New primary MCLs will automatically be added to the

ground water CALs when they are promulgated.

The Ambient Water Quality Criteria (AWQC) for protection of aquatic life to be used in this Decree are listed in Table 2 of this Attachment. The ground water CALs for the AWQC are calculated by multiplying the AWQC from Table 2 by 3.9 for Midco I and 3.6 for Midco II.

The CAL can not be less than the background concentrations listed in Table 1, nor be less than the analytical detection limits. The analyses shall at least attain the quantification limits necessary to evaluate attainment of the ground water CALs. However, quantification limits below the lowest practical quantification limits listed for each compound in Appendix IX of 40 CFR 264 shall not be required. If only one constituent is detected in a ground water sample that is calculated to potentially cause a lifetime, incremental carcinogenic risk of 1×10^{-5} or greater, and an MCL has been promulgated for this constituent pursuant to 40 CFR 141, then that constituent will not be used in either the carcinogenic nor the non-carcinogenic risk calculations, and the CAL for that constituent will be either the MCL or the AWQC times the appropriate factor for that site, whichever is less.

TABLE 1 OF ATTACHMENT 2

GROUND WATER BACKGROUND CONCENTRATIONS*

Compound	95 % UCL Nidco I	95 % UCL Nidco II
ARSENIC	6.00E+00	1.51E+01
BARIUM	1.18E+02	1.07E+02
BERYLLIUM		
CADMIUM		1.50E-01
CHROMIUM (III)	8.00E+00	7.50E+00
CHROMIUM (VI)	8.00E+00	7.50E+00
COPPER		2.52E+01
IRON	3.88E+03	1.53E+04
LEAD		5.60E+00
MANGANESE	1.60E+03	4.64E+02
MERCURY		2.50E-01
NICKEL	5.80E+01	1.23E+01
SELENIUM		
SILVER		4.60E+00
THALLIUM		
VANADIUM	4.33E+00	
ZINC		1.47E+03
CYANIDE	1.04E+01	1.58E+02
VINYL CHLORIDE	1.32E+00	2.20E+00
CHLOROETHANE		
METHYLENE CHLORIDE	1.30E+00	1.90E+00
ACETONE		6.90E+00
CARBON DISULFIDE		
1,1-DICHLOROETHENE		
1,1-DICHLOROETHANE		
TRANS-1,2-DICHLOROETHENE	1.60E-01	6.10E+00
CHLOROFORM		
1,2-DICHLOROETHANE		
2-BUTANONE		
1,1,1-TRICHLOROETHANE		
1,2-DICHLOROPROPANE		
TRICHLOROETHENE		
BENZENE		4.00E-02
2-HEXANONE		
4-METHYL-2-PENTANONE		
TETRACHLOROETHENE		
TOLUENE		
ETHYLBENZENE		
XYLENES		
PHENOL		
BIS(2-CHLOROETHYL)ETHER		
BIS(2-CHLOROISOPROPYL)ETHER		
BENZYL ALCOHOL		
CRESOL		
NITROBENZENE		
ISOPHORONE		
2,4-DIMETHYLPHENOL		
BENZOIC ACID		
2,6-DICHLOROPHENOL		
NAPHTHALENE		
2-METHYLNAPHTHALENE		
ACENAPHTHENE		
4-NITROPHENOL		
2,4-DINITROTOLUENE		
DIETHYLPHTHALATE		
FLUORENE		
4-NITROANILINE		
PHENANTHRENE		
DI-N-BUTYLPHTHALATE		3.00E-01
N-NITROSODIPHENYLAMINE	2.60E-01	
PENTACHLOROPHENOL		
BIS(2-ETHYLHEXYL)PHTHALATE	1.50E+00	
DI-N-OCTYLPHTHALATE		
HEPTACHLOR EPOXIDE		
LINDANE		
DIELDRIN		
ENDRIN		
PCBs		

95 % UCL = 95 percent upper confidence limit of the average background ground water concentration at each site from the Feasibility Study for each site.

*All values are given in ug/l.

TABLE 2 OF ATTACHMENT 2

MIDCO I AND II - WATER QUALITY CRITERIA TO BE MET IN THE GROUND WATER

Compound	MIDCO I Surface Water Water Quality Criteria (ug/l)		MIDCO I WQC to be met (ug/l)	MIDCO II Surface Water Water Quality Criteria (ug/l)		MIDCO II WQC to be met (ug/l)
ARSENIC	4.80E+01		1.87E+02	4.80E+01		1.73E+02
BERYLLIUM	5.30E+00		2.07E+01	5.30E+00		1.91E+01
CADMIUM	1.20E+00-6.00E+00	H	4.68E+00	2.90E+00-4.49E+00	H	1.04E+01
CHROMIUM (III)	2.20E+02-1.19E+03	H	8.58E+02	5.58E+02-8.68E+02	H	2.01E+03
CHROMIUM (VI)	1.10E+01		4.29E+01	1.10E+01		3.96E+01
COPPER	1.30E+01-7.30E+01	H	5.07E+01	3.33E+01-5.28E+01	H	1.20E+02
IRON	1.00E+03		3.90E+03	1.00E+03		3.60E+03
LEAD	3.50E+00-4.80E+01	H	1.37E+01	1.49E+01-2.96E+01	H	5.36E+01
MERCURY	1.20E-02		4.68E-02	1.20E-02		4.32E-02
NICKEL	1.68E+02-9.57E+02	H	6.55E+02	4.40E+02-6.94E+02	H	1.58E+03
SELENIUM	3.50E+01		1.37E+02	3.50E+01		1.26E+02
SILVER	1.20E-01		4.68E-01	1.20E-01		4.32E-01
THALLIUM	4.00E+01		1.56E+02	4.00E+01		1.44E+02
ZINC	3.42E+02-1.89E+03	H	1.33E+03	8.78E+02-1.37E+03	H	3.16E+03
CYANIDE	5.20E+00		2.03E+01	5.20E+00		1.87E+01
PENTACHLOROPHENOL	1.30E+01	pH	5.07E+01			
HEPTACHLOR EPOXIDE	3.80E-03		1.48E-02	3.80E-03		1.37E-02
DIELDRIN	1.90E-03		7.41E-03			
ENDRIN	2.30E-03		8.97E-03			
PCBs	1.40E-02		5.46E-02			

WQC = freshwater chronic water quality criteria for the protection of aquatic life; H = hardness dependent, values shown are for the range of hardness present in surface water samples; pH = value is pH dependent (pH = 7.8 used).

Reference: Quality Criteria for Water 1986. U.S. EPA. EPA 440/5-86-001. May 1, 1986.

HEALTH-BASED LEVELS AND SOLUBILITIES FOR CONSTITUENTS OF CONCERN IN DELISTING PETITIONS
July 1991

CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)
83 32 9	Acenaphthene	2	26	3.42
67 64 1	Acetone	4	4	1.0×10^{6}
75 05 8	Acetonitrile	2×10^{-1}	4	1.0×10^{6}
98 86 2	Acetophenone	4	4	5.5×10^{3}
107 02 8	Acrolein	5×10^{-1}	37	5×10^{5}
79 06 1	Acrylamide	Treatment Technique	42	$>1 \times 10^{6}$
107 13 1	Acrylonitrile	6×10^{-5}	5	7.9×10^{4}
309 00 2	Aldrin	2×10^{-6}	5	1.8×10^{-1}
62 53 3	Aniline (Benzeneamine)	6×10^{-3}	5	3.5×10^{4}
7440 36 0	Antimony	1×10^{-2}	27	
140 57 8	Aramite	1×10^{-3}	26	
7440 38 2	Arsenic	5×10^{-2}	13	
7440 39 3	Barium	1	13	
56 55 3	Benz(a)anthracene	1×10^{-5}	16	5.7×10^{-3}
71 43 2	Benzene	5×10^{-3}	14	1.75×10^{3}
92 87 5	Benzidine	2×10^{-7}	5	4.0×10^{2}
50 32 8	Benzo(a)pyrene	2×10^{-4}	27	1.2×10^{-3}
205 99 2	Benzo(b)fluoranthene	2×10^{-5}	8	1.4×10^{-2}
100 51 6	Benzyl alcohol	1×10^{1}	26	4×10^{4} ([illegible]
100 44 7	Benzyl chloride	2×10^{-4}	5	3.3×10^{3}
7440 41 7	Beryllium	1×10^{-3}	27	
111 44 4	Bis(2-chloroethyl)ether	3×10^{-5}	5	1.02×10^{4}
108 60 1	Bis(2-chloroisopropyl ether)	1	4	1.7×10^{3}
117 81 7	Bis(2-ethylhexyl)phthalate	3×10^{-3}	5	4×10^{-1}
75 27 4	Bromodichloromethane	3×10^{-4}	5	4.7×10^{3}
74 83 9	Bromomethane	5×10^{-2}	4	1.0×10^{3}
85 68 7	Butyl benzyl phthalate	7	4	2.9
88 85 7	2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	7×10^{-3}	27	5×10^{3}
7440 43 9	Cadmium	5×10^{-3}	42	
75 15 0	Carbon disulfide	4	4	2.94×10^{3}
56 23 5	Carbon tetrachloride	5×10^{-3}	14	7.57×10^{2}
57 74 9	Chlordane	2×10^{-3}	42	5.6×10^{-1}
106 47 8	p-Chloroaniline	1×10^{-1}	4	3.9×10^{3}
108 90 7	Chlorobenzene	1×10^{-1}	42	4.66×10^{2}
510 15 6	Chlorobenzilate	7×10^{-1}	4	1×10^{4}
126 99 8	2-Chloro-1,3-butadiene (Chloroprene)	7×10^{-1}	26	3×10^{2}
124 48 1	Chlorodibromomethane	4×10^{-4}	5	4.4×10^{3} ([illegible]
67 66 3	Chloroform	6×10^{-3}	5	8.2×10^{3}
95 57 8	2-Chlorophenol	2×10^{-1}	4	2.85×10^{4} ([illegible]
107 05 1	3-Chloropropene (Allyl chloride)	2×10^{-3}	36	1×10^{2}

HEALTH-BASED LEVELS AND SOLUBILITIES FOR CONSTITUENTS OF CONCERN IN DELISTING PETITIONS
July 1991

CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)	
7440 47 3	Chromium	$1x10^{-1}$	42		
218 01 9	Chrysene	$2x10^{-4}$	8	$1.8x10^{-3}$	
319 77 3	Cresols	2	4	$3.1x10^{4}$	
57 12 5	Cyanide	$2x10^{-1}$	27		
94 75 7	2,4-Dichlorophenoxyacetic Acid (2,4-D)	$7x10^{-2}$	42	$8.9x10^{2}$	
72 54 8	DDD	$1x10^{-4}$	5	$1x10^{-1}$	
72 55 9	DDE	$1x10^{-4}$	5	$4x10^{-2}$	
50 29 3	DDT	$1x10^{-4}$	5	$5x10^{-3}$	
2303 16 4	Diallate	$6x10^{-4}$	26	$1.4x10^{1}$	
53 70 3	Dibenz(a,h)anthracene	$7x10^{-7}$	8,17	$5.0x10^{-4}$	
96 12 8	1,2-Dibromo-3-chloropropane	$2x10^{-4}$	42	$1.0x10^{3}$	
74 95 3	Dibromomethane	$4x10^{-1}$	4	$1.3x10^{4}$	2
84 74 2	Di-n-butyl phthalate	4	4	$1.3x10^{1}$	
95 50 1	1,2-Dichlorobenzene	$6x10^{-1}$	42	$1.0x10^{2}$	
106 46 7	1,4-Dichlorobenzene	$7.5x10^{-2}$	14	$7.9x10^{1}$	
91 94 1	3,3'-Dichlorobenzidine	$8x10^{-5}$	5	4	
75 71 8	Dichlorodifluoromethane	7	4	$2.8x10^{2}$	
75 34 3	1,1-Dichloroethane	$4x10^{-4}$	26	$5.5x10^{3}$	
107 06 2	1,2-Dichloroethane	$5x10^{-3}$	14	$8.52x10^{3}$	
75 35 4	1,1-Dichloroethylene	$7x10^{-3}$	14	$2.25x10^{3}$	
156 59 2	cis-1,2-Dichloroethylene	$7x10^{-2}$	42	$3.5x10^{3}$	6
156 60 5	trans-1,2-Dichloroethylene	$1x10^{-1}$	42	$6.3x10^{3}$	6
75 09 2	Dichloromethane	$5x10^{-3}$	27	$2.0x10^{4}$	6
120 83 2	2,4-Dichlorophenol	$1x10^{-1}$	4	$4.6x10^{3}$	6
78 87 5	1,2-Dichloropropane	$5x10^{-3}$	42	$2.7x10^{3}$	6
542 75 6	1,3-Dichloropropene	$2x10^{-4}$	5	$2.8x10^{3}$	6
60 57 1	Dieldrin	$2x10^{-6}$	5	$1.95x10^{-1}$	6
84 66 2	Diethyl phthalate	$3x10^{1}$	4	$8.96x10^{2}$	6
56 53 1	Diethylstilbesterol	$7x10^{-8}$	26	$1.3x10^{4}$	15
60 51 5	Dimethoate	$7x10^{-3}$	4	$2.5x10^{4}$	6
119 90 4	3,3'-Dimethoxybenzidine	$3x10^{-3}$	26	$2x10^{3}$	1
119 93 7	3,3'-Dimethylbenzidine	$4x10^{-6}$	26	$7x10^{1}$	1
57 97 6	7,12-Dimethylbenz(a)-anthracene	$1x10^{-6}$	20	$4.4x10^{-3}$	6
105 67 9	2,4-Dimethylphenol	$7x10^{-1}$	4	$5.9x10^{2}$	9
131 11 3	Dimethyl phthalate	$4x10^{1}$	26	$4.3x10^{3}$	2
99 65 0	1,3-Dinitrobenzene	$4x10^{-3}$	4	$4.7x10^{2}$	6
51 28 5	2,4-Dinitrophenol	$7x10^{-2}$	4	$5.6x10^{3}$	6
121 14 2	Dinitrotoluene	$5x10^{-5}$	5,21	$1.32x10^{3}$	6
117 84 0	Di-n-octyl phthalate	$7x10^{-1}$	26	3	22
123 91 1	1,4-Dioxane	$3x10^{-3}$	5	$4.31x10^{5}$	6

HEALTH-BASED LEVELS AND SOLUBILITIES FOR CONSTITUENTS OF CONCERN IN DELISTING PETITIONS
July 1991

CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)	
122 39 4	Diphenylamine	$9x10^{-1}$	4	$5.76x10^{1}$	
122 66 7	1,2-Diphenylhydrazine	$4x10^{-5}$	5	$1.84x10^{3}$	
298 04 4	Disulfoton	$1x10^{-3}$	4	$2.5x10^{1}$	[illegible]
115 29 7	Endosulfan	$2x10^{-3}$	4	$5.3x10^{-1}$	[illegible]
72 20 8	Endrin	$2x10^{-4}$	13	$2.5x10^{-1}$	[illegible]
106 89 8	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	Treatment Technique	42	$6.0x10^{4}$	
110 80 5	2-Ethoxy ethanol	$1x10^{1}$	26	$1x10^{5}$	
100 41 4	Ethyl benzene	$7x10^{-1}$	42	$1.52x10^{2}$	
60 29 7	Ethyl ether	$2x10^{1}$	4	$6.05x10^{4}$	1
106 93 4	Ethylene dibromide	$5x10^{-5}$	42	$4.3x10^{3}$	
97 63 2	Ethyl methacrylate	3	26	$7x10^{2}$	1
62 50 0	Ethyl methanesulfonate	$1x10^{-6}$	28	$3.69x10^{5}$	
52 85 7	Famphur	$1x10^{-3}$	41	$1.43x10^{2}$	1
206 44 0	Fluoranthene	1	4	$2.06x10^{-1}$	
86 73 7	Fluorene	1	4	1.69	
16984 48 8	Fluoride	4	39		
64 18 6	Formic acid	$7x10^{1}$	4	$1x10^{6}$	
76 44 8	Heptachlor	$4x10^{-4}$	42	$1.8x10^{-1}$	
1024 57 3	Heptachlor epoxide (alpha, beta, gamma isomers)	$2x10^{-4}$	42	$3.5x10^{-1}$	[illegible]
118 74 1	Hexachlorobenzene	$1x10^{-3}$	27	$6.0x10^{-3}$	[illegible]
87 68 3	Hexachlorobutadiene	$4x10^{-4}$	5	$1.5x10^{-1}$	[illegible]
77 47 4	Hexachlorocyclopentadiene	$5x10^{-2}$	27	2.1	[illegible]
67 72 1	Hexachloroethane	$3x10^{-3}$	5	$5.0x10^{1}$	[illegible]
70 30 4	Hexachlorophene	$1x10^{-2}$	4	$4x10^{-3}$	[illegible]
319 84 6	alpha-HCH	$6x10^{-6}$	26	1.63	[illegible]
319 85 7	beta-HCH	$2x10^{-5}$	26	$2.4x10^{-1}$	[illegible]
193 39 5	Indeno(1,2,3,cd)pyrene	$2x10^{-4}$	8	$5.3x10^{-4}$	[illegible]
78 83 1	Isobutanol	$1x10^{1}$	4	$7.6x10^{4}$	[illegible]
78 59 1	Isophorone	$9x10^{-3}$	5	$1.2x10^{4}$	[illegible]
143 50 0	Kepone	$2x10^{-6}$	29	7.6 (24°C)	[illegible]
7439 92 1	Lead	$1.5x10^{-2}$	44		
58 89 9	Lindane (gamma-HCH)	$2x10^{-4}$	42	7.8	[illegible]
7439 97 6	Mercury	$2x10^{-3}$	42		
126 98 7	Methacrylonitrile	$4x10^{-3}$	4	$2.5x10^{4}$	[illegible]
67 56 1	Methanol	$2x10^{1}$	4	$>1x10^{6}$	[illegible]
72 43 5	Methoxychlor	$4x10^{-2}$	42	$4x10^{-2}$ (24°C)	[illegible]
74 87 3	Methyl chloride	$3x10^{-3}$	26	$6.5x10^{5}$	6
56 49 3	3-Methylcholanthrene	$4x10^{-6}$	30		
78 93 3	Methyl ethyl ketone	2	4	$2.68x10^{5}$	6
108 10 1	Methyl isobutyl ketone	2	4	$1.91x10^{4}$	2

HEALTH-BASED LEVELS AND SOLUBILITIES FOR CONSTITUENTS OF CONCERN IN DELISTING PETITIONS
July 1991

CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)
80 62 6	Methyl methacrylate	3	43,26	2.0×10^{1}
298 00 0	Methyl parathion	9×10^{-3}	4	6×10^{1}
91 20 3	Naphthalene	1×10^{-1}	26	3.4×10^{1}
91 59 8	2-Naphthylamine	4×10^{-5}	31	5.86×10^{2}
7440 02 0	Nickel	1×10^{-1}	27	
98 95 3	Nitrobenzene	2×10^{-2}	4	1.9×10^{3}
79 46 9	2-Nitropropane	4×10^{-6}	26	1.7×10^{5}
924 16 3	N-Nitroso-di-n-butylamine	6×10^{-6}	5	6.7×10^{3}
55 18 5	N-Nitrosodiethylamine	2×10^{-7}	5	4.1×10^{5}
62 75 9	N-Nitrosodimethylamine	7×10^{-7}	5	2×10^{2}
156 10 5	N-Nitrosodiphenylamine	7×10^{-3}	5	4.0×10^{1}
621 64 7	N-Nitrosodi-n-propylamine	5×10^{-6}	5	9.9×10^{3}
10595 95 6	N-Nitrosomethylethylamine	2×10^{-6}	26	2×10^{4}
100 75 4	N-Nitrosopiperidine	8×10^{-6}	32	$>1 \times 10^{6}$
930 55 2	Nitrosopyrrolidine	2×10^{-5}	5	$>1 \times 10^{6}$
152 16 9	Octamethyl pyrophosphoramide	7×10^{-2}	26	$>1 \times 10^{6}$
56 38 2	Parathion	2×10^{-1}	26	2.4×10^{1} (20°C)
608 93 5	Pentachlorobenzene	3×10^{-2}	4	1.35×10^{-1}
82 68 8	Pentachloronitrobenzene	1×10^{-1}	4	7.11×10^{-2}
87 86 5	Pentachlorophenol	1×10^{-3}	19	1.4×10^{2}
108 95 2	Phenol	2×10^{1}	4	9.3×10^{4}
298 02 2	Phorate	7×10^{-3}	40	5×10^{1}
1336 36 3	Polychlorinated biphenyls	5×10^{-4}	42	3.1×10^{-2}
23950 58 5	Pronamide	3	4	1×10^{2}
129 00 0	Pyrene	1	4	1.32×10^{-1}
110 86 1	Pyridine	4×10^{-2}	4	4×10^{4}
94 59 7	Safrole	1×10^{-4}	33	1.5×10^{3}
7782 49 2	Selenium	5×10^{-2}	42	
7440 22 4	Silver	5×10^{-2}	13	
57 24 9	Strychnine and salts	1×10^{-2}	4	1.56×10^{2}
100 42 5	Styrene	1×10^{-1}	42	3×10^{2}
95 94 3	1,2,4,5-Tetrachlorobenzene	1×10^{-2}	4	6
630 20 6	1,1,1,2-Tetrachloroethane	1×10^{-3}	26	2.9×10^{3}
79 34 5	1,1,2,2-Tetrachloroethane	2×10^{-4}	5	2.9×10^{3}
127 18 4	Tetrachloroethylene	5×10^{-3}	42	1.5×10^{2}
58 90 2	2,3,4,6-Tetrachlorophenol	1	4	1×10^{3}
3689 24 5	Tetraethyl dithiopyrophosphate	2×10^{-2}	4	3×10^{1}
7440 28 0	Thallium	2×10^{-3}	27	
108 88 3	Toluene	1	42	5.35×10^{2}
95 80 7	Toluene-2,4-diamine	9×10^{-5}	34	4.77×10^{4}

HEALTH-BASED LEVELS AND SOLUBILITIES FOR CONSTITUENTS OF CONCERN IN DELISTING PETITIONS
July 1991

CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)
823 40 5	Toluene-2,6-diamine	7	7	$1.3x10^5$
95 53 4	o-Toluidine	$1x10^{-4}$	26	$7x10^2$
106 49 0	p-Toluidine	$2x10^{-4}$	26	$7.4x10^3$ (21°C)
8001 35 2	Toxaphene	$3x10^{-3}$	42	$5x10^{-1}$
93 72 1	2,4,5-TP (Silvex)	$5x10^{-2}$	42	$1.4x10^2$
75 25 2	Tribromomethane (Bromoform)	$4x10^{-3}$	5	$3.01x10^3$
120 82 1	1,2,4-Trichlorobenzene	$9x10^{-3}$	27	$3.0x10^1$
71 55 6	1,1,1-Trichloroethane	$2x10^{-1}$	14	$1.5x10^3$
79 00 5	1,1,2-Trichloroethane	$5x10^{-3}$	27	$4.5x10^3$
79 01 6	Trichloroethylene	$5x10^{-3}$	14	$1.1x10^3$
75 69 4	Trichlorofluoromethane	$1x10^1$	4	$1.1x10^3$
95 95 4	2,4,5-Trichlorophenol	4	4	$1.19x10^3$
88 06 2	2,4,6-Trichlorophenol	$3x10^{-3}$	5	$8.0x10^2$
93 76 5	2,4,5-Trichlorophenoxy-acetic acid (2,4,5-T)	$4x10^{-1}$	4	$2.4x10^2$(30°C)
96 18 4	1,2,3-Trichloropropane	$2x10^{-1}$	4	$4x10^3$
76 13 1	1,1,2-Trichloro-1,2,2-trifluoroethane	$1x10^3$	4	$1x10^1$
99 35 4	sym-Trinitrobenzene	$2x10^{-3}$	4	$3.5x10^2$
126 72 7	Tris(2,3-dibromopropyl) phosphate	$3x10^{-5}$	35	$1.2x10^2$
7440 62 2	Vanadium	$2x10^{-1}$	26	
75 01 4	Vinyl chloride	$2x10^{-3}$	14	$2.67x10^3$
1330 20 7	Xylene (mixed)	$1x10^1$	42	$1.98x10^2$
7440 66 6	Zinc	7	26	

Attachment 4

PROCEDURE FOR CONDUCTING RISK CALCULATIONS FOR AIR EMISSIONS

The carcinogenic risk calculations shall be the summation of a lifetime averaged exposure rate for each constituent times that constituent's inhalation carcinogenic potency factor. This is summarized in the following equation:

$$CR = \Sigma\ (II)_i\ (ISF)_i$$

CR = Cumulative lifetime carcinogenic risk.

Σ = Summation of the carcinogenic risk of each constituent in the air emission.

II_i = Lifetime averaged exposure rate to compound i. More information from the design will be needed to determine II_i for each process or combination of processes. However, the values for INR, ET, EF, ED, BW, and AT from Attachment 1 shall be used for exposures to residents. In addition IR for workers shall be 1.3 cubic meters per hour.

ISF_i = Inhalation carcinogenic potency factor (or slope factor) for compound i. The ISFs are listed in Table 2 of Attachment 1.

The chronic non-carcinogenic risk index is calculated as follows:

$$NI = \Sigma\ (II)_i/RfD_i$$

NI = Cumulative chronic non-carcinogenic index

Σ = Summation of chronic non-carcinogenic risk for all constituents affecting the same target organ

II_i = Chronic exposure rate of constituent i. More process specific information is needed to calculate this number.

RfD_i = Inhalation reference dose of constituent i. The RfD_i are listed in Table 2 of Attachment 1.

Attachment 5

PROCEDURES FOR DETERMINING THE EXTENT OF TREATMENT FOR SOILS AND DEBRIS AT THE MIDCO I AND MIDCO II SITES

To define the extent of the treatment by S/S and/or by SVE outside of the minimum area for treatment outlined in Figure 1 for Midco I and Figure 2 for Midco II, the Settling Defendants shall collect samples on a square grid with 60 foot centers established at each site. At each site, the location of the initial grid point shall be determined by the random number technique, and the rest of the grid points measured from the initial point. The grid shall cover the whole soil sample collection area shown in Figure 1 for Midco I and Figure 2 for Midco II excluding the minimum area for treatment. Split spoon samples shall be collected at each grid point from 1-3 and 4-6 foot depths.

In addition to this grid sampling, one composite sample shall be collected from the pile of contaminated soil in the north corner of Midco II. This composite sample shall be collected using a three dimensional simple random sampling strategy (Test Methods for Evaluating Solid Waste. U.S. EPA, SW-846, Volume 2, 1986.)

The following parameters shall be considered in determining whether the STALs (defined in Paragraph 12.a.(i) of the Consent Decree and in Section II.D.2 of the SOW) are exceeded at each sampling point:

METALS: total chromium, chromium (VI), lead, antimony, nickel, barium, cadmium, selenium, copper, iron, zinc, vanadium, manganese;

OTHER INORGANICS: arsenic, cyanide;

VOLATILE ORGANIC COMPOUNDS (VOCs): methylene chloride, trichloroethylene, tetrachloroethylene, 2-butanone, acetone, toluene, 1,1,1 trichoroethane, benzene, xylene, ethyl benzene, methyl isobutyl ketone, 1,1-dichloroethylene, 1,2 dichloroethylene, vinyl chloride;

ACID/BASE/NEUTRAL FRACTION: benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3)pyrene, dibenz(a,h)anthracene, bis(2-ethylhexyl)phthalate, diethyl phthalate, di-n-butyl phthalate, isophorone, phenol;

PESTICIDE/PCB FRACTION: chlordane, aldrin, dieldrin, polychlorinated biphenyls.

At Settling Defendants' option, a portable gas chromatograph (GC) may be used in the field to screen the soil samples. In this case, if the results from the GC indicate that the STALs will be exceeded in the sample, then, at the Settling Defendants option, no additional analyses need be performed on that sample, and the 60 foot or 20 foot square surrounding that sampling point will be treated as described below and in Section II.D. of the SOW for grid sampling points that exceed the STALs.

Soil samples from points that are not determined to exceed STALs based on the GC results shall be submitted for a detailed analysis. The analyses for each sample shall be conducted in the following sequence based on holding times subject to QA/QC constraints imposed by the EPA, Region V, Quality Assurance Office: 1) VOC fraction; 2) Acid/Base/Neutral fractions; 3) pesticide/PCBs fraction; 4) metals and other inorganics. At the Settling Defendants' option, subsequent analyses in the sequence need not be performed once it is determined that the sample exceeds the STALs.

The Settling Defendants shall propose the GC screening procedures and detailed analytical procedures for determining whether or not the STALs are exceeded at the grid points. All sampling and analytical procedures must be approved by EPA.

For any of the grid sampling points that exceed the STALs, the Settling Defendants have the option of:

(a) Treating the entire area within the 60 foot square centered at the grid point in accordance with Section II.D.2 of the SOW.

(b) Conducting further sampling and treatment as follows:

(1) The 60-foot square centered at the grid point shall be subdivided into nine squares measuring 20 by 20 feet. The center 20-foot square, where the grid point is located shall be treated in accordance with Section II.D.2 of the SOW.

(2) Samples at 1-3 and 4-6 foot depth shall be collected at the center of each of the eight surrounding 20 foot squares. These samples shall be analyzed using the same procedures as approved by EPA for the samples from the site-wide grid. If any of these samples exceed the STALs, the entire area within these 20 foot squares shall be treated in accordance with Section II.D.2 of the SOW.

(3) Samples at 1-3 and 4-6 foot depth shall be collected at the center of each 20 foot square that is along side a 20-foot square determined to exceed the STALs based on

the previous sampling. These samples shall be analyzed using the same procedures as approved by EPA for the samples from the site-wide grid. If any of these samples exceed the STALs, the entire area within these squares shall be treated in accordance with Section II.D.2 of the SOW.

(4) The process in (b)(3) above shall be repeated until each 20 foot square along side a square containing a sample that exceeds the STALs, has been sampled, even if this requires sampling of 20-foot squares that are part of 60-foot squares whose center grid point sample results are less than the STALs.

SUGGESTED OUTLINE FOR PRE-DESIGN REPORT

1. Site Description

2. Summary of Selected Remedy

   - Description of remedy & rationale for selection
   - Performance Expectations
   - Site topographic map & preliminary layouts
   - Preliminary design criteria & rationale
   - Preliminary process diagrams
   - General operation and maintenance requirements
   - Long-term monitoring requirements

3. Summary of Remedial Investigation and Impact on Selected Remedy

   - Field studies
     (Air, surface water, ground water, geology)

   - Laboratory studies
     (Bench scale, Pilot scale)

4. Design/Implementation Precautions

   - Special technical problems
   - Additional engineering data required
   - Permits & regulatory requirements
   - Access, easements, rights-of-way
   - Health & safety requirements
   - Community relations activities

SUGGESTED OUTLINE FOR PRE-DESIGN REPORT

5. Cost Estimates & Schedules

   - Implementation cost estimate (Order of Magnitude, + 50%/- 30%)

   - Preliminary annual O&M cost estimate and duration

   - Project schedule (design, construction, permits & access)

6. Appendices

   - Reports, data summaries, etc.

2

DRAFT PROPOSED

DECLARATION FOR RECORD OF DECISION AMENDMENT

SITE NAME AND LOCATION

Midco I
Gary, Indiana

STATEMENT OF BASIS AND PURPOSE

This decision document presents a description of an amendment to the selected remedial action for Midco I developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent possible the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision document amends the Record of Decision dated June 30, 1989.

This decision is based on the contents of the administrative record for the Midco I site. The attached index identifies the items which comprise the administrative record for this Record of Decision Amendment. This administrative record will be further updated at a later date in order to incorporate and respond to public comments.

The State of Indiana is expected to concur in this amendment to the remedy selection by U.S. EPA for the Midco I site [this sentence will be revised to reflect State concurrence once it is received].

ASSESSMENT OF THE SITE

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

DESCRIPTION OF THE SELECTED REMEDY (AS AMENDED)

The primary reasons for amending the selected remedy at Midco I relate to: 1) a change in the method for determining how much soil will be treated; 2) further definition of the degree of treatment of contaminated ground water that EPA will require prior to deep well injection including a proposal to delist the extracted ground water (the ground water contains listed hazardous wastes as defined in the Resource Conservation and Recovery Act) through this Record of Decision Amendment provided that the extracted ground water is treated to meet specified maximum allowable concentrations (MACs) prior to disposing of the extracted ground water by deep well injection.

The selected remedial action includes:

- On-site treatment of a minimum of approximately 5,200 cubic yards of contaminated soil and waste material, and possibly more dependent upon the results of further sampling, by soil vapor extraction and in-situ solidification/stabilization.

- Excavation and on-site solidification/stabilization of contaminated sediments from the surrounding wetlands.

- Installation and operation of a ground water pumping system to intercept contaminated ground water from the site. Contingency measures have been added in case it is technically impractical from an engineering perspective to meet the ground water cleanup action levels.

- Installation and operation of a treatment system (as required) to remove hazardous substances from the extracted ground water, and deep well injection of the extracted ground water following any required treatment. Ground water treatment will be required to the extent necessary to attain maximum allowable concentrations (MACs), which are levels equivalent to those required for delisting a hazardous waste under the Resource Conservation and Recovery Act (RCRA). Treatment beyond the MACs will be required under certain conditions if either the Lower Eau Claire or Mount Simon Formation (which are more than approximately 1800 feet below the surface of the site) is an underground source of drinking water (USDW) as defined in 40 CFR 144.3. Alternatively, the ground water could be treated to remove hazardous substances followed by reinjection of the ground water into the Calumet aquifer in a manner that will prevent spreading of the salt plume.

- Construction of a cover over the entire site that is consistent with the closure requirement under Subtitle C of RCRA

- Restriction of site access, and deed restrictions.

- Long term monitoring and maintenance.

The ground water treatment or underground injection portions of the remedial action may be combined with the remedial action for Midco II. For example, the ground water from Midco I may be transported to Midco II for treatment or injection, or vice versa. In these cases, the combined treatment or injection shall constitute an on-site action, for purposes of the Off-site Policy and compliance with applicable or relevant and appropriate standards.

DECLARATION

The selected remedy, as modified herein, and including the contingency measures in case EPA determines that it is technically impracticable to meet the ground water cleanup action levels, is protective of human health and the environment, and is cost effective. The selected remedy also attains Federal and State requirements that are applicable or relevant and appropriate to this remedial action, except that some primary Maximum Contaminant Levels will be waived for portions of the Calumet aquifer, provided that it is demonstrated that it is technically impracticable from an engineering perspective to attain these standards and appropriate contingency measures are implemented.

This remedy satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility or volume as a principal element, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

Because this remedy will result in hazardous substances remaining on-site, pursuant to Section 121 (c) of CERCLA, a review will be conducted at the site within five years after commencement of the remedial action and at least every five years thereafter to ensure that the remedy continues to provide adequate protection of human health and the environment.

_____
Date

_____
Valdas V. Adamkus
Regional Administrator
Region V

SUMMARY FOR RECORD OF DECISION AMENDMENT

MIDCO I, GARY, INDIANA

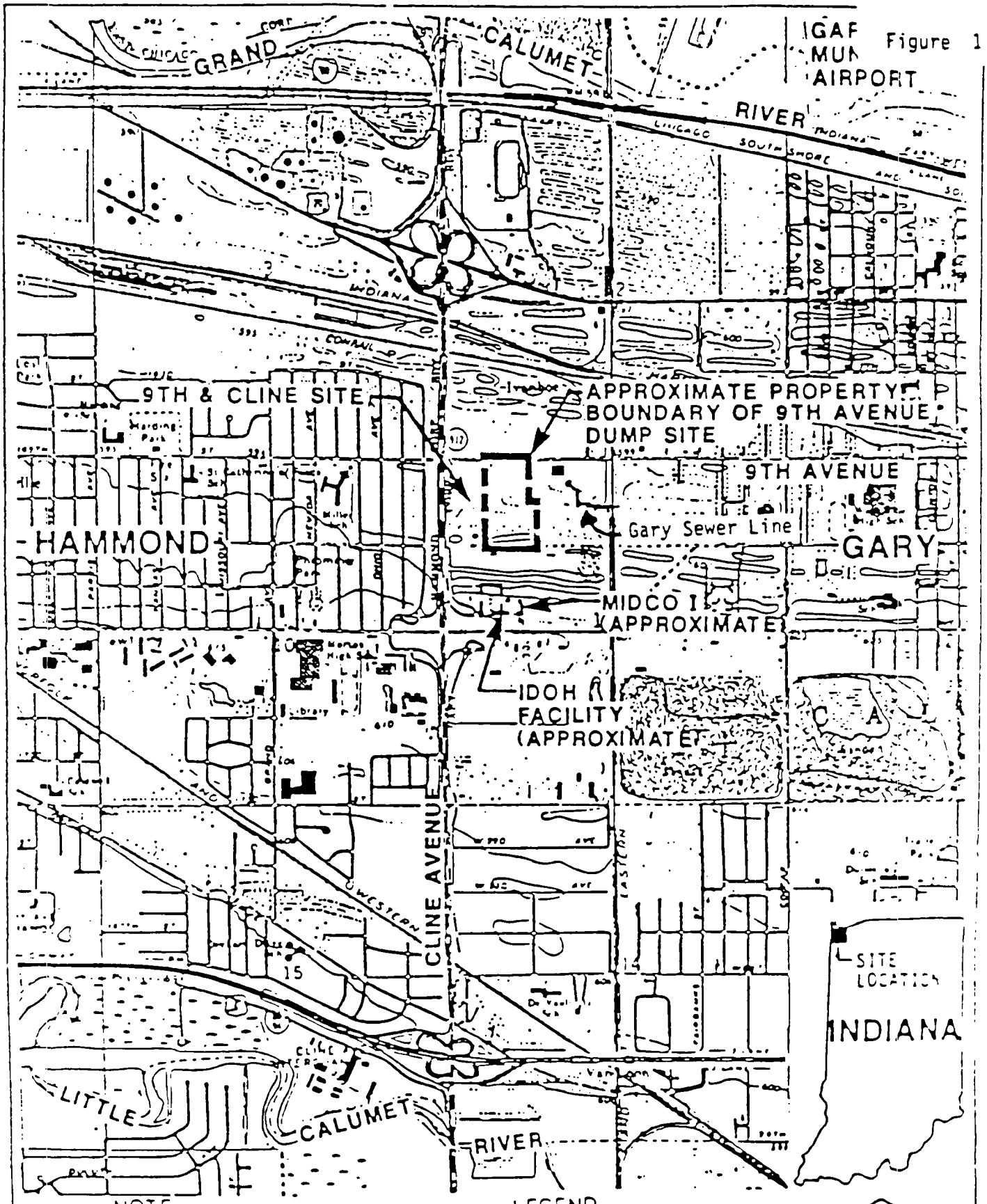
I. INTRODUCTION (for more detailed information on the site location, site description, and the site history, enforcement activities and community relations prior to June 30, 1989 refer to the Record of Decision (ROD) signed on June 30, 1989, Sections I-III)

Midco I operations were primarily conducted on an approximately four acre area at 7400 W. 15th Avenue (see Figures 1 and 2) from approximately 1973 through 1979. Operations included storage and disposal of thousands of drums and a number of tanks of chemical wastes on the site. Many of these wastes were from the paint industry, and many contained hazardous substances. During the operations, wastes were dumped and spilled onto and into the ground at the site. A large fire in December 1976 destroyed thousands of drums containing chemicals on the site, and resulted in additional spillage of chemicals onto the site.

The United States Environmental Protection Agency (EPA) installed a fence around the site in 1981, and completed a removal action in 1982 that included removal of all surface wastes including thousands of drums of chemical wastes and a number of tanks containing chemical wastes. In addition, the top six inches to one foot of contaminated soil was removed and a clay cover placed over much of the site. The contaminated ground water, and subsurface soil and debris below the soils excavated were not addressed in the removal action.

A Remedial Investigation/Feasibility Study (RI/FS) was completed by a group of potentially responsible parties (PRPs) (generally PRPs are entities who owned or operated Midco I or sent or transported hazardous substances to the Midco I site) under EPA oversight from 1985 to 1989. The Indiana Department of Environmental Management (IDEM) also participated in oversight of the RI/FS. The RI showed that portions of the subsurface soils, including natural soils and fill material, located within the area outlined in Figure 2 are highly contaminated by a large number of hazardous substances (including volatile organic compounds (VOCs), semivolatile organic compounds, PCBs, metals and cyanide). The fill material consists of sandy soil, granular material, and some cinders and gravel mixed with a lot of cultural debris including crushed drums, paint waste, wood, concrete, bricks, and other materials. Ground water below the site is highly contaminated with VOCs, semivolatile organic compounds, metals and cyanide, but at the time of sampling the contaminated ground water did not extend very far from the site cover boundaries outlined in Figure 2. Some surface sediments have also been contaminated. Some of the ground water affected

Figure 1



NOTE

SITE LOCATION MAP WAS REPRODUCED FROM THE U.S.G.S. 7.5 MINUTE QUAD. MAP, HIGHLAND, INDIANA, 1968, PHOTO REVISED 1980. REFER TO STANDARD U.S.G.S. TOPOGRAPHIC MAP SYMBOLS.

LEGEND

APPROXIMATE PROPERTY BOUNDARY

north

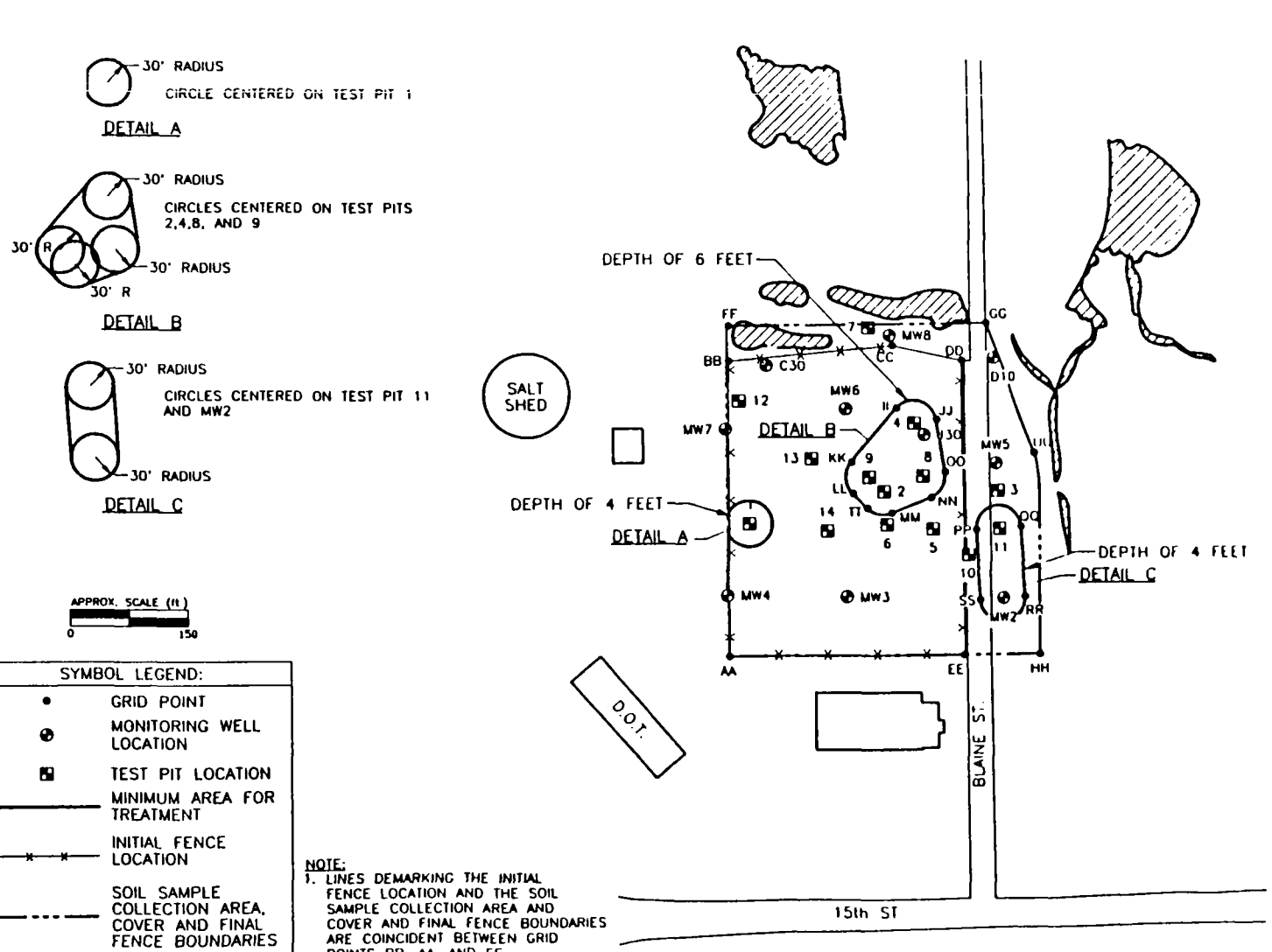
FIGURE 1-1

SCALE: 1" = 2000'

SITE LOCATION MAP

WARZYN

FIGURE 2



NOTE:
1. LINES DEMARKING THE INITIAL FENCE LOCATION AND THE SOIL SAMPLE COLLECTION AREA AND COVER AND FINAL FENCE BOUNDARIES ARE COINCIDENT BETWEEN GRID POINTS BB, AA, AND EE.

FIGURE 2

MIDCO I REMEDIATION
MIDCO I
GARY, INDIANA

ALTERNATIVE 10

ERI

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by the Midco I operations is highly saline.

After preparing a Proposed Plan and considering public comments, EPA selected the final remedial actions for the site in the Record of Decision (ROD) signed on June 30, 1989. IDEM concurred in the selected remedy. The final remedial actions were to address the remaining contamination at the site including contaminated subsurface soil, contaminated ground water and contaminated surface sediments. The major components of the remedy selected by EPA in the 1989 ROD included:

- On-site treatment of an estimated 12,400 cubic yards of contaminated soil and waste material by a combination of vapor extraction (SVE) and solidification/stabilization (S/S) followed by on-site deposition of the solidified material.

- Excavation and on-site S/S of approximately 1200 cubic yards of contaminated sediments from surrounding wetlands.

- Installation and operation of a ground water pumping system to intercept contaminated ground water from the site.

- Installation and operation of a deep, Class I, underground injection well for disposal of the contaminated ground water; or if a no-migration petition is not approved by EPA, treatment of contaminated ground water to remove hazardous substances followed by deep well injection; or treatment of the contaminated ground water to remove hazardous substances followed by reinjection of the ground water into the Calumet aquifer in a manner that would prevent spreading of the salt plume.

- Installation of a final site cover, access restrictions, deed restrictions, and monitoring.

EPA with participation by IDEM conducted a 120 day negotiation period with the PRPs from May until September 1989, but no agreement was reached. In November 1989, EPA issued a Unilateral Administrative Order to a group of PRPs requiring them to implement the remedial action called for in the ROD. This Order became effective on December 29, 1989. However, the PRPs did not agree to implement the Order without addition of conditions that were unacceptable to EPA. On January 8, 1990, the United States filed an Amended Complaint seeking to enforce the Unilateral Administrative Order, as well as to recover EPA's response costs, punitive damages, and fines.

In 1991, EPA determined that the arsenic data from the Midco I Remedial Investigation was largely unusable because of an interference by high concentrations of aluminum in many of the samples (see Section III). Because arsenic was an important

factor in determining the extent of soil treatment by S/S at Midco I, EPA considered the new information on the arsenic data to be fundamental new information. EPA has therefore reconsidered the 1989 ROD's provisions relating to the extent of soil treatment by S/S, and has at the same time in this ROD Amendment applied new Agency regulations (e.g. the revised NCP issued March 8, 1990, 40 CFR 300.430(a)(iii) "(A) EPA expects to use treatment to address the principal threats posed by the site wherever practicable..... (B) EPA expects to use engineering controls such as containment for waste that poses a relatively low long-term threat....") dealing with the extent of soil treatment at Superfund sites. This ROD Amendment also provides further detail regarding the implementation of various other components of the 1989 ROD. The revisions to the 1989 ROD are discussed in more detail later in this document.

EPA, IDEM, and a group of PRPs have since reached a proposed settlement consistent with this ROD Amendment. This settlement has been embodied in a Consent Decree that is being submitted for public comment concurrently with this proposed ROD Amendment. A detailed Statement of Work that would implement the remedial action that is the subject of the ROD Amendment is incorporated in the Consent Decree that is being lodged with the Federal District Court in Hammond, Indiana for public comment. This ROD Amendment incorporates the elements of the proposed remedial action, as well as providing updated information on the site.

The remedy selected in this ROD Amendment includes the following major components:

- On-site treatment of a minimum of approximately 5,200 cubic yards of contaminated soil and waste material, and possibly more dependent upon the results of further sampling, by SVE and in-situ S/S.

- Excavation and on-site S/S of contaminated sediments from the surrounding wetlands.

- Installation and operation of a ground water pumping system to intercept contaminated ground water from the site. Contingency measures shall be implemented in case it is determined that it is technically impracticable from an engineering perspective to attain the ground water cleanup action level.

- Installation and operation of a treatment system (as required) to remove hazardous substances from the extracted ground water, and deep well injection of the extracted ground water following any required treatment. Ground water treatment will be required to the extent necessary to attain maximum allowable concentrations (MACs), which are levels equivalent to those required for delisting a hazardous waste

under the Resource Conservation and Recovery Act (RCRA). Treatment beyond the MACs will be required under certain conditions if either the Lower Eau Claire or Mount Simon Formation (which are more than approximately 1800 feet below the surface of the site) is an underground source of drinking water (USDW) as defined in 40 CFR 144.3. Alternatively, the ground water could be treated to remove hazardous substances followed by reinjection of the ground water into the Calumet aquifer in a manner that will prevent spreading of the salt plume. See Section V.A of this ROD Amendment Summary.

- Construction of a cover over the entire site that is consistent with the closure requirement under Subtitle C of RCRA, access restriction, deed restrictions, and monitoring.

The ROD Amendment is similar to the 1989 ROD to the extent that it utilizes the same remedial technologies for soil and ground water remediation (ie. soil solidification/stabilization, soil vapor extraction, ground water extraction, treatment and deep well injection, and final site cover). The ROD Amendment utilizes different methods from the 1989 ROD for determining the amount of soil that must be treated, further defines the requirements for an effective site cover over soils with low levels of contamination that are not being treated, and further defines the requirements for treatment of ground water prior to deep well injection. It is expected that less soil and ground water treatment (see Section V.A) will be required under the ROD Amendment. In spite of this, the ROD Amendment achieves a level of protection of public health and the environment that is not considered significantly different from what would have been achieved by the 1989 ROD. The ROD Amendment's provisions provide such protection by providing for treatment of principal threats (that is the highly contaminated soils) and mandating an effective site cover over untreated soils that pose a relatively low long-term threat. The site cover will substantially reduce the threat from the soils presenting a relatively low long-term threat: for the direct contact threat by covering the soil with a five foot thick cover; and for the threat of further ground water contamination from the soils above the water table by reducing infiltration through the soils and production of leachate. To maintain its effectiveness, the site cover and solidified/ stabilized material will have to be monitored and maintained.

In contrast, the 1989 ROD provided for treatment of soils posing a relatively low long-term threat by SVE and S/S. This may have resulted in permanent treatment of some additional contaminants and would have resulted in a reduction of leaching and control of the direct contact threat by the treatment and a cover. However, in spite of this additional treatment, unrestricted future usage of the site would not have been allowed because long term maintenance and monitoring of the solidified/ stabilized material

and the cover would have been required. Any reduction in protectiveness from the change in the ROD Amendment's soil treatment action levels (see Section V.C) from the 1989 ROD's soil cleanup action levels (see Section IV) are compensated for by taking into account the risk reducing effect from the site cover over untreated soils posing low level threats. The ROD Amendment includes new requirements for the final site cover to ensure its effectiveness. Because the risk reduction and reduction in toxicity or mobility of the additional treatment required in Alternative 8 compared to Alternative 10 is small, it is not considered to be cost effective compared to Alternative 10.

A Proposed Plan has been prepared that briefly describes the remedial alternatives analyzed by EPA, proposes the revised alternative, and summarizes the information relied upon to select this alternative. This proposed ROD Amendment as well as the Proposed Plan will be subject to a public notice, public comment period, and the opportunity for a public meeting, in accordance with the requirements of 40 CFR 300.435(c). In addition, the ROD Amendment and supporting information will be made available to the public in the Administrative Record for this action.

II. PURPOSE OF ROD AMENDMENT

The major purpose of this ROD Amendment is to modify the 1989 ROD's provisions relating to the extent of soil treatment by S/S, as a result of new information on the arsenic data. At the same time, the ROD Amendment applies new EPA regulations (e.g. the revised NCP issued March 8, 1990, 40 CFR 300.430(a)(iii) "(A) EPA expects to use treatment to address the principal threats posed by the site wherever practicable.... (B) EPA expects to use engineering controls, such as containment for waste that poses a relatively low long-term threat....") dealing with the extent of soil treatment at Superfund sites.

This ROD Amendment provides for direct treatment of soils at what are believed to be the more highly contaminated areas of the site, which are the source of the principal threats to ground water, air and dermal contact. Large volumes of soils presenting a relatively low long-term threat will not be treated since (in the context of the conditions at this site) the threats from such soils can be reliably controlled using an effective site cover.

A minimum of approximately 5,200 cubic yards (depicted in Figure 2) will be treated without further sampling, and additional amounts may have to be treated depending upon the results of further sampling.

The action levels for additional soil treatment outside of the areas outlined in Figure 2 are as follows:

cumulative lifetime carcinogenic risk	= 5×10^{-4}
cumulative chronic non-carcinogenic risk index	= 5.0
lead concentration (mg/kg)	= 1000

These action levels were selected taking into account treatment of the minimum area for treament identified in Figure 2, site characteristics and hazardous substances, and current EPA regulations, policies, and guidance. The cover will be over the entire site and will be consistent with RCRA Subtitle C closure requirements. The extent and quality of the site cover under the 1989 ROD was left open (depending upon the success of the treatment).

Another purpose of this ROD Amendment is to further define the requirements for treatment prior to deep well injection of the extracted ground water, including a proposal to delist extracted ground water (following treatment as required) meeting specified maximum allowable concentrations (MACs) in accordance with "A Guide To Delisting of RCRA Wastes For Superfund Remedial Responses" (September 1990) so that the ground water can be injected into the lower Mount Simon formation in compliance with the requirements of RCRA and the Underground Injection Control Program (see Section V.A for further explanation of MACs). In effect, treatment to the MACs would take the place of the 1989 ROD's requirement of treatment to RCRA Land Disposal Restriction (LDR) treatment standards prior to the deep well injection. Treatment beyond the MACs will be required under certain conditions (see Section V.A) if either the Lower Eau Claire or Mount Simon Formation (which are more than approximately 1800 feet below the surface of the site) is an underground source of drinking water (USDW) as defined in 40 CFR 144.3.

This ROD Amendment also further defines the remedial action as follows:

definition of phases and sequencing for ground water and soil treatment;

further definition of performance standards for S/S;

a decision that the in-situ S/S option allowed in the 1989 ROD will be implemented rather than the excavation option;

a decision that the option of deep well injection without prior treatment, which would require EPA approval of a no-migration petition will no longer be considered (Alternative 7);

contingency measures have been added in case it is

technically impracticable to attain the ground water cleanup action levels;

further definition of construction requirements for the site cover;

a determination that air emissions during in-situ S/S and during SVE conducted with the in-situ S/S equipment shall be controlled by carbon adsorption or by another technology that is equally effective;

a determination that in addition to the above if cumulative air emissions from all operations other than excavation at the Facility exceed 3 pounds per hour, carbon adsorption or another technology that is equally effective shall be used in the ground water treatment system and all SVE.

further definition of actions that will be taken to comply with the requirements for protection of wetlands in Executive Order 11990 and Section 404 of the Clean Water Act.

This ROD Amendment also provides updated information on the site in the following section.

III. SITE CHARACTERISTICS AND SUMMARY OF RISKS (this Section updates information on site characteristics and risk in Sections V and VI of the 1989 ROD)

Some new information has been obtained regarding Midco I, and new conditions have occurred on the site since the 1989 ROD was signed. This new information and new conditions are reported in this portion of the ROD Amendment.

Subsequent to completion of the 1989 ROD, EPA became aware that the arsenic concentrations reported for some soil and sediment samples in Midco I the Remedial Investigation, could be inflated due to an analytical interference from high aluminum concentrations in these samples. This was significant because any arsenic concentrations exceeding background would exceed the 1×10^{-6} carcinogenic risk level and require soil treatment by SVE and S/S under the 1989 ROD. In response, EPA investigated this concern and determined that the higher arsenic soil concentrations reported in the RI were unreliable. As a result the actual extent of soil treatment by SVE and S/S required in the 1989 ROD would likely have been considerably less than estimated in the Feasibility Study dated February 1989.

From an EPA audit of some of the soil data, EPA determined that the arsenic measurements in soil samples with aluminum

concentrations greater than 10,000 mg/kg should be considered unusable because an adequate background correction for the aluminum interference was not applied. At Midco I, three soil boring samples (all within the fenced area outlined in Figure 2), three test pit samples and ten surface sediment samples exceeded aluminum concentrations of 10,000 mg/kg. These samples generally had the highest arsenic results. See also Section III of the Midco II Summary for Record of Decision Amendment for more information on the validity of the arsenic data.

If the arsenic values in the soil samples with aluminum concentrations greater than 10,000 mg/kg are excluded from the risk calculations, the estimated averaged, site-wide, lifetime, cumulative, carcinogenic risk due to ingestion of soils using the future development scenario decreases from 6.8×10^{-5}, as reported in the 1989 ROD, to 5.9×10^{-5} (Table 4-22 of the Addendum to Public Comment Feasibility Study, February 10, 1989). The non-carcinogenic risk index for exposure to soils would not change from the number reported in the 1989 ROD. The revised soil risks without arsenic were taken into account in determining the minimum areas for S/S defined in Section V.C, and Figure 2 of this ROD Amendment.

The 1989 ROD provided for excavation and treatment of contaminated sediments that were outside the fenced portion of the site. Unfortunately since the time when the 1989 ROD was signed, some of the sediment areas that had been designated for excavation have been filled in. EPA has initiated actions to identify the party or parties responsible for this filling and to determine whether it is an ongoing action.

To update the risk assessment calculation procedures for soil risks, EPA asked Planning Research Corporation (PRC) to conduct additional risk calculations using the data from the Midco I Remedial Investigation. The risks reported in the 1989 ROD did not include dermal contact or inhalation modes of exposure to the soils. The results of PRC's calculation are presented in a letter report dated June 21, 1991. The risks were calculated using the average soil concentrations in samples from test pits dug into what was suspected to be the most contaminated areas of the site during the Remedial Investigation, and using a dermal contact and inhalation mode of exposure as well as the ingestion mode of exposure used in the Remedial Investigation. It was assumed that a home with a basement would be built on the site and that as a result the residents would be exposed to soil gas from the site. Very high carcinogenic risks to on-site residents were calculated due to inhalation exposures to volatile organic compounds including: methylene chloride (risk = 1.9); trichloroethylene (risk = 0.23); and benzene (risk = 0.019). Very high non-carcinogenic risks to on-site residents were also calculated due to inhalation exposures to volatile organic compounds including: methylene chloride (risk index = 290); 2-

butanone (risk index = 68); and toluene (risk index = 6000). Not including arsenic or the inhalation mode of exposure, the calculations indicate a cumulative carcinogenic risk from the dermal contact and ingestion modes of exposure to be 8 X 10^{-4}; and the cumulative non-carcinogenic risk index to be 7.5. The calculations indicate a cumulative carcinogenic risk to hypothetical construction workers to be 5.8 X 10^{-6}, and a cumulative non-carcinogenic risk index of 4.2. These revised risk calculations provide further support of EPA's remedial action decisions for the Midco I site.

Since the 1989 ROD was completed, the United States Fish and Wildlife Service (F&W) completed a report entitled: "Summary Addendum Report for the Midco I, Midco II, and Ninth Avenue Dump Hazardous Waste Sites in Gary, Lake County, Indiana", September 1990. In this report, F&W concluded that "the various contaminated habitats/media at Midco I, Midco II, and the 9th Avenue Dump sites present a threat to fish and wildlife resources utilizing or exposed to them." This additional documentation provides further support of EPA's remedial action decisions for the Midco I site.

IV. DESCRIPTION OF THE REMEDY SELECTED IN THE 1989 ROD (ALTERNATIVE 8): GROUND WATER PUMPING, TREATMENT AND DEEP WELL INJECTION WITH SOIL VAPOR EXTRACTION AND SOLIDIFICATION/ STABILIZATION

The remedy selected in the 1989 ROD (Alternative 7 or 8) combined either ground water Alternative 4A (Alternative 7) or 4B (Alternative 8), with soil treatment Alternative 5E. Implementation of Alternative 7 was contingent upon EPA approval of a no-migration petition pursuant to 40 CFR 268.6 and 40 CFR 148 Subpart C. After the ROD was approved, EPA obtained information from review of the Inland Steel and U.S. Steel no-migration petitions that indicated that it is very unlikely that a no-migration petition would be approved for deep well injection at the Midco I site. Therefore, the subsequent discussion uses only Alternative 8.

Alternative 8 included installation and operation of ground water extraction wells to intercept the contaminated ground water that exceeds the ground water cleanup action levels (CALs) identified in Section X of the 1989 ROD, and installation of a Class I hazardous waste underground injection well into the Mount Simon formation for disposal of the highly saline waste water.

The extracted ground water was to have been treated to remove hazardous substances to the extent required by EPA prior to the deep well injection. While the extent of treatment that would be required by EPA was not fully defined, it was anticipated that

this would at least require meeting Land Disposal Restriction (LDR) treatment standards for listed hazardous waste categories F001, F002, F003, F005, F007, F008, F009. This was anticipated to require treatment of the extracted ground water by air stripping and carbon adsorption. However, Alternative 8 included provisions for treating to drinking water standards if required in order to gain approval of the deep well injection. Treating to drinking water standards was anticipated to require metals precipitation, and cyanide oxidation in addition to the air stripping and carbon adsorption.

In the 1989 ROD, no mention was made of delisting the ground water because at that time no guidance was available on the level of treatment required to delist ground water. It was anticipated that delisting the ground water would require more stringent treatment than meeting the LDR treatment standards.

Another option that was allowed under Alternative 8 was treatment of the hazardous substances followed by reinjection of the treated ground water back into the Calumet aquifer in a manner that would not spread the salt plume in the Calumet aquifer. The pump, treatment and injection system would be operated until ground water CALs are attained in the Calumet aquifer.

Contaminated subsurface soils located above the water table were to have been treated by soil vapor extraction (SVE) and solidification/stabilization (S/S). In addition, S/S would be conducted on highly contaminated materials below the water table that could be handled by localized dewatering. Contaminated soils below the water table that were not treated would be slowly remediated by the ground water extraction system through ground water flushing. At the end of the action, all soils located above the water table exceeding the soil CALs (Section X of the 1989 ROD) had to be treated by SVE and S/S. The soil CALs were based on contaminant concentrations that would allow for unrestricted future usage of the site, and were defined as follows:

cumulative lifetime carcinogenic risk $= 1 \times 10^{-6}$
cumulative chronic non-carcinogenic index $= 1.0$

Under Alternative 8, the S/S of the subsurface soils could have been conducted either by excavation followed by S/S, or by in-situ S/S. If the excavation option was used, then SVE was required to be conducted before the S/S operation to an extent required to achieve the air emission criteria defined in Section X of the 1989 ROD, and to attain LDR treatment standards. SVE was required prior to in-situ S/S to the extent necessary to achieve the air emissions criteria in Section X of the 1989 ROD, to assure that leachate from the solidified mass would not cause exceedance of the ground water CALs, and to allow S/S to proceed successfully.

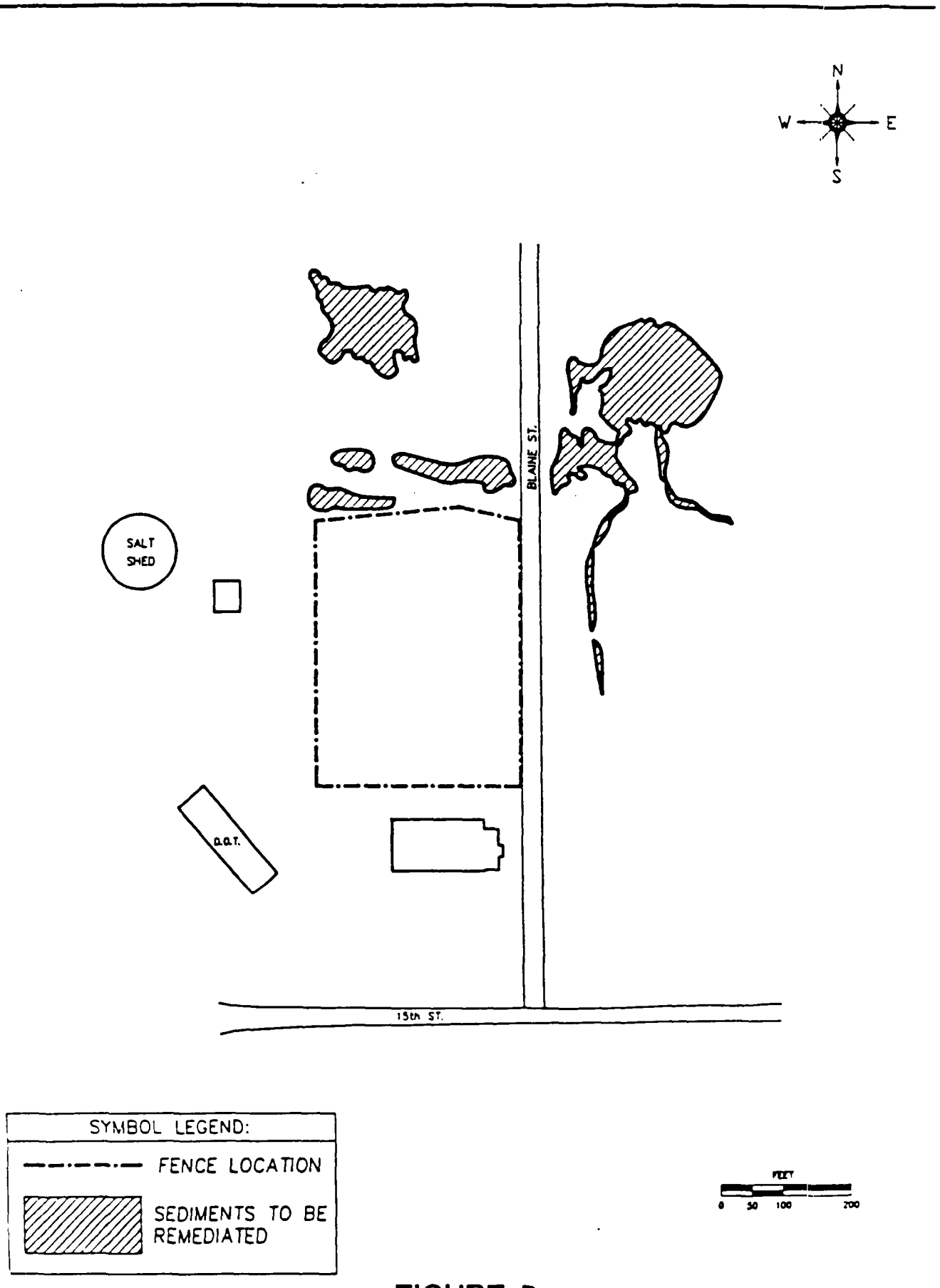

FIGURE 3

SEDIMENTS TO BE REMEDIATED (FOR ALTERNATIVE 5)
MIDCO I
GARY, INDIANA

Sediments in the areas shown in Figure 3, would be excavated and treated on-site by S/S along with the contaminated soils.

Following the S/S, the area treated by S/S would be covered to meet the requirements of RCRA if the excavation and S/S option was used, otherwise the quality of the site cover would depend on the success of the S/S operation. Ground water use restrictions, access restrictions and long term monitoring were also required.

V. DESCRIPTION OF NEW ALTERNATIVE (ALTERNATIVE 10): GROUND WATER PUMPING, TREATMENT AND DEEP WELL INJECTION WITH SOIL VAPOR EXTRACTION AND SOLIDIFICATION/STABILIZATION

A. Ground Water Pumping, Treatment and Disposal

Like Alternative 8 in the 1989 ROD, the new Alternative 10 includes installation and operation of a ground water extraction system to intercept the contaminated ground water that exceeds the ground water CALs, and installation of a deep underground injection well for disposal of the ground water. As stated before, Alternative 10 proposes to delist extracted ground water by meeting specified maximum allowable concentrations (MACs) in accordance with "A Guide To Delisting of RCRA Wastes For Superfund Remedial Responses" (September 1990) so that the ground water can be injected into the lower Mount Simon formation in compliance with the requirements of RCRA and the Underground Injection Control Program. Although the 1989 ROD did not mention delisting of the ground water, it is probable that this same delisting procedure would have been used under Alternative 8, because Alternative 8 was worded broadly enough to allow this procedure, for the same reasons that it is now being proposed for Alternative 10.

The MACs are defined below. For purposes of compliance with RCRA, treatment to the MACs would take the place of the 1989 ROD's requirement of treatment to RCRA LDR treatment standards prior to the deep well injection.

In accordance with the delisting guidance, a Superfund waste can be delisted if it attains or is treated to attain levels that will not cause exceedance of health based levels (HBLs) used for delisting decisions at a hypothetical receptor well using generic assumptions and an appropriate ground water transport model such as the vertical and horizontal spread (VHS) model. The HBLs are set at concentrations of constituents that provide protection for drinking water usage (primary Maximum Contaminant Levels (MCLs) from 40 CFR Part 141 are the HBLs when available, otherwise the HBL is set at the 10^{-6} carcinogenic risk level or the level that will not cause a non-carcinogenic risk assuming that 2 liters per

day is ingested over a 70 year lifetime). The HBLs for this action are listed in Appendix I. The VHS model is often accepted in the RCRA delisting program for use in estimating the extent to which toxicant leaching from a Subtitle D landfill will be diluted within a surficial aquifer before it reaches a hypothetical receptor well 500 feet down gradient. While these modeling conditions are not designed to fit the conditions for deep well injection at Midco I, they will be used for the delisting demonstration in this ROD Amendment because the delisting determination is generic and is not a site specific determination, and because the results using these modelling conditions are conservative for the disposal in a deep well in this location.

Using the VHS model, the dilution factor derived from the model depends on the volume of the liquid entering the ground water. Because the volume of ground water that will be deep well injected is large, the resulting dilution factor using the model is 6.3. It follows that the Midco I ground water can be delisted if the hazardous substances contained in it are or are treated to be less than 6.3 times the HBLs. The quantity 6.3 times the HBLs will be referred to as the maximum allowable concentrations (MACs). Under Alternative 10, EPA proposes to delist the extracted ground water through this ROD Amendment by providing for treatment of the extracted ground water to below the MACs prior to deep well injection. This delisting satisfies the substantive requirements of 40 CFR 260.20 and 260.22.

The Midco I FS dated February 10, 1989 and the reviews conducted for the FS provide documentation that the ground water can be treated to the MACs. Related information is included in a report entitled Midco I and II Delisting Demonstration, May 16, 1991. In addition, a pilot study shall be conducted using the actual extraction well network. Information from the pilot study will be used to properly design the treatment system to assure that the MACs will be met in the treated ground water. After initiation of the operation, sampling will be conducted on the treated ground water to verify that MACs are being met. This sampling shall be fully defined during the design phase of this project. Since the ground water will be delisted, the deep underground injection well for Alternative 10 will meet the requirements for a non-hazardous injection well rather than requirements for a hazardous injection well. In particular, siting requirements in 40 CFR 146.62 will not be an applicable or relevant and appropriate requirement (ARAR) for Alternative 10.

Some MACs are higher than the LDR treatment standards for the same compound, and some are lower. Generally for the less toxic compounds, the MACs are less stringent than the LDR treatment standards, while for the more toxic compounds the MACs are more stringent. This is summarized for some compounds of concern at Midco I in the following comparison:

COMPOUND	MACS (MG/L)	LDR (MG/L)
acetone	25.2	0.05
chlorobenzene	0.63	0.15
ethylbenzene	4.4	0.05
methylene chloride	0.0315	0.2
methyl ethyl ketone	12.6	0.05
tetrachloroethylene	0.0315	0.079
toluene	6.3	1.12
1,1,1-trichoroethane	1.26	1.05
trichloroethylene	0.0315	0.062
xylene	63	0.05
cyanide	1.26	1.9
chromium	0.63	0.32
lead	0.95	0.04
nickel	0.63	0.44

More compounds are regulated under the delisting procedures than have applicable LDR treatment standards.

The end result of using the delisting procedures is that, while the action is still protective, it may be possible that the MACs can be attained by air stripping alone, while compliance with the LDR treatment standards was expected to require treatment by carbon adsorption in addition to air stripping. However, it is possible that further treatment by carbon adsorption and metal precipitation, or alternative treatment processes will be required to meet the MACs. Waivers of some siting requirements for deep well injection of hazardous wastes (40 CFR 146.62) will not be required once the ground water is delisted.

After the ground water has been delisted and has met the MACs, it will be injected into the lower Mount Simon Formation without further treatment by means of a deep well constructed according to Class I non-hazardous underground injection well requirements if either of the conditions (1 or 2) below is met:

1. Neither the Lower Eau Claire nor the Mount Simon Formations

below the well site is a USDW as defined in 40 CFR 144.3.

2. The injection of the ground water will not cause (for each constituent for which a Safe Drinking Water Act Maximum Contaminant Levels (MCL) exists): a) the exceedance of Safe Drinking Water MCLs at the point of entry of the injected ground water into any portion of the Lower Eau Claire Formation or Mount Simon Formation that is a USDW pursuant to 40 CFR 144.3; or b) the exceedance of natural background levels present in any portion of the Lower Eau Clair or Mount Simon Formation that is a USDW pursuant to 40 CFR 144.3--whichever level is least stringent.

Preliminary modelling indicates that injection of the ground water meeting the MACs into the lower Mount Simon Formation will meet the requirements of 2 above. However, this must be confirmed using information from sampling and testing conducted at the injection well location. If the sampling and testing confirms that the technical premises of the preliminary modelling are reasonably conservative, the delisted ground water meeting the MACs will be injected without further treatment. However, if additional treatment is required to ensure that the requirements of 2 above will be met, sufficient treatment will be provided to ensure that the injection of the ground water will meet the requirements of condition 2 above.

Based on preliminary modelling of the deep well injection, EPA believes that it is unlikely that deep well injection into the lower Mount Simon Formation would cause the exceedance of natural background levels of TDS in the lowermost USDW. However, in the unlikely event that it is determined based on modelling that deep well injection into the lower Mount Simon Formation would cause such an exceedance, this ROD amendment may be reconsidered. This ROD may also have to be reconsidered in the unlikely event that the lower Mount Simon Formation is a USDW.

Alternative 10 also includes the following:

1. Like Alternative 8, Alternative 10 includes the option of treatment of the extracted ground water for hazardous substances followed by reinjection of the treated ground water into the Calumet aquifer, if the reinjection is conducted in a manner that will not cause spreading of the salt plume.

2. <u>Midco I, Midco II, and the Ninth Avenue Dump may be treated as one site for purposes of permitting and compliance with EPA's Off-site Policy.</u>

   Where two or more noncontiguous facilities are reasonably related on the bases of geography or on the basis of the threat or potential threat to the public health or the

environment, the two facilities may be treated as one for purposes of permitting and compliance with EPA's Off-site Policy (see Section 104(d)(4) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA)). Midco I and Ninth Avenue Dump are located within 200 yards of each other and are 2.5 miles from Midco II. All three facilities are located in the same industrial area on former wetlands that have been partially filled. Midco I and Midco II were part of the same disposal and treatment operation. All three facilities had organic solvents, heavy metals and other hazardous substances disposed on the facility. In addition, Midco I and Midco II have the same requirements for treatment and deep underground injection of the ground water. Therefore, based on the similar geography and threat, the three facilities may be treated as one facility for purposes of permitting and compliance with EPA's Off-site Policy if ground water treatment or deep well injection is combined with Midco II or Ninth Avenue Dump at the Midco I or Midco II sites, or if a pipeline is constructed to transport the extracted ground water (before or after treatment) from Midco I to Midco II or vice versa. Since combined treatment, deep well injection, and transport in a pipeline between facilities would be considered on-site actions, permits and compliance with EPA's Off-site Policy for these actions will not be required since the substantive and administrative requirements of the permits will be incorporated into the review process for this CERCLA action (see Section 121(e) of CERCLA and 40 CFR 300.400(e)).

3. It will be advantageous to place the deep injection well(s) outside of the main areas of contamination from the Midco I and Midco II site because this may lessen the potential for contamination of aquifers below the Calumet Aquifer during the installation of the well, and it will be advantageous to place the deep injection well and ground water treatment facility outside of the main areas of contamination from the Midco I and Midco II sites because that may lessen the potential for conflict with the construction and operations for soil treatment and the site cover. Therefore construction and operation of the deep injection well, and ground water treatment facility on areas in very close proximity but outside of the areas of contamination will be on-site (consistent with the NCP 40 CFR 300.400(e)(1). This will include property at the Indiana Department of Transportation facility located at 7306 West 15th Avenue in Gary, Indiana.

4. The injection well must be constructed, installed, tested, monitored, operated, closed and abandoned in accordance with the substantive requirements and conditions of Subparts A, B, D, and E of 40 CFR 144, and Subparts A, B, and F of and

40 CFR 146.

5. Responses to operational problems and implementation of corrective actions must be in accordance with the substantive requirements of 40 CFR 146.64, 146.67, 144.12, 144.51(d) and 144.55. This includes the requirements for construction, monitoring, reporting, well plugging, and injection well closure as necessary to prevent movement of any contaminant into a USDW, due to operation of the injection well. It also includes implementation of remedial actions to restore any USDW that becomes contaminated as a result of the operation of the underground injection well pursuant to Section 3004(u) and 3008(h) of the 1984 Hazardous and Solid Waste Amendments, and Section 1431 of the Safe Drinking Water Act.

6. Air emissions from an air stripper (or similar device) shall meet the requirements defined in Section V.D.

7. Until the extracted ground water meets the MACs, the extracted ground water shall be managed as a hazardous waste in accordance with the substantive requirements of RCRA.

B. Ground Water Cleanup Action Levels (CALs) and Contingency Measures in Case of Technical Impracticability:

The ground water CALs in Alternative 10 are unchanged from Alternative 8. The ground water CALS are summarized below and calculated in accordance with procedures defined in Appendix II:

Ground water throughout the Calumet aquifer affected by Midco I that exceed any of the following risk-based levels will be recovered and treated (except as provided for in the procedures defined in Appendix II). The ground water pump, treatment and injection system shall be operated until the hazardous substances throughout the Calumet aquifer affected by Midco I have been reduced below each of these risk-based levels (except as provided for in the procedures defined in Appendix II). Applying the CALs throughout the contaminated plume is consistent with F.R., Vol. 53, No. 245, P. 51426.

Cumulative Lifetime Carcinogenic Risk = 1×10^{-5}
Cumulative Non-carcinogenic Index = 1.0
Primary Maximum Contaminant Levels (40 CFR 141)
Chronic Ambient Water Quality Criteria for aquatic life (AWQC) multiplied by a factor of 3.9

The ground water CALs have been selected to be protective for use of the aquifer for residential purposes including drinking water consumption, and to protect aquatic life from recharge of ground water affected by the Midco I site.

Based on information in the Administrative Record, EPA believes that a ground water extraction system can attain the ground water CALs. However, the technical practicability of achieving the ground water CALs from an engineering perspective throughout the Calumet aquifer cannot be fully determined until the extraction system has been implemented and the plume response monitored over time. Before concluding whether it is technically impracticable to attain the ground water CALs, modifications to the design and operation of ground water extraction system will be considered, including:

a) discontinuing operation of extraction wells in areas where ground water CALs are attained;

b) alternative pumping at wells to eliminate stagnation points and to increase contaminant reductions;

c) varied or intermittent operation of the system (pulse pumping) to allow aquifer equilibration and encourage adsorbed contaminants to partition into ground water;

d) physical repositioning of extraction wells to capture alternative flow line/transport pathways to increase contaminant reductions;

If a ground water extraction system cannot meet the ground water CALs after ten years of operation and it is determined based on a demonstration that it is technically impracticable from an engineering perspective to attain the ground water CALs even considering the potential changes to the design and operation of the system listed above, the ground water CALs may be changed to the lowest acheivable levels. In addition, the selected remedy may include the contingency measures described below.

a) additional institutional controls to prevent human access to contaminated ground water (institutional controls may include deed restrictions sought voluntarily from owners or compelled to the extent authorized under any applicable local and State laws);

b) low-level pumping as a long-term gradient control or containment measure to prevent recharge of the surrounding wetlands from exceeding the Ambient Water Quality Criteria for aquatic life, and to prevent human access to the ground water exceeding the CALs that are based on drinking water usage.

Any ARARs based on the primary MCLs that exceed the lowest achievable levels attainable by the ground water extraction technology, will be waived by EPA, if EPA in the future makes a finding of technical impracticability.

C. Soil Treatment:

Alternative 10, like Alternative 8, includes provisions for treatment of the subsurface soils by SVE and in-situ S/S. Highly contaminated subsurface soil located above the water table and some below the water table will be treated by soil vapor extraction (SVE) and/or solidification/stabilization (S/S) as described below. Contaminated soils below the water table that are not treated by S/S will be slowly remediated by the ground water extraction system through ground water flushing. Following is a description of the soil treatment requirements in order of the phases for the soil treatment.

1. Ground water pump and treatment:

The pump and treatment system will operate for a period of up to 36 months before direct soil treatment by in-situ S/S or SVE is initiated. The purpose of this is to attempt to reduce volatile organic compounds (VOCs) prior to the direct soil treatment operations.

2. In-situ S/S and SVE:

Following the initial period of pumping and treatment and successful completion of a treatability study and pilot study on S/S and SVE, portions of the subsurface soils shall be treated by SVE and in-situ S/S. At least the soils in the areas and to the depths labeled minimum area for treatment on the map in Figure 2 (which are believed to include the more highly contaminated soils) will be treated first by SVE and then by in-situ S/S. In addition, soils outside the mapped areas will be sampled to determined whether further SVE and S/S will be conducted.

Sampling will be conducted as defined in Appendix III to determine the full extent of soil treatment outside of the mapped areas. Using these sampling results, the cumulative risks at each sample location will be calculated for the ingestion, dermal contact, and inhalation modes of exposure using the procedures outlined in the Appendix IV. Based on these results, treatment by SVE and S/S will be conducted outside of the minimum area to be treated delineated in Figure 2 if the following soil treatment action levels are exceeded:

Soil Treatment Action Levels:

cumulative lifetime carcinogenic risk	$= 5 \times 10^{-6}$
cumulative chronic noncarcinogenic risk index	= 5.0
lead concentration (mg/kg)	= 1000

These action levels were selected taking into account treatment of the minimum area for treatment identified in Figure 2, site

characteristics and hazardous substances, and current EPA regulations, policies and guidance.

If these action levels are exceeded for a sample, the soil within the 20 foot square or 60 foot square (if the square is not subsampled) represented by this sample will be treated to a depth of 6 feet, unless sampling indicates that the soil does not exceed the action levels at depths between 4 and 6 feet, in which case the soil will be treated to a depth of 4 feet.

The treatment will be first by SVE and then by S/S unless the exceedance of the Soil Treatment Action Level can be corrected by removing VOCs, in which case only SVE need be used.

If the treatability study and a pilot study to be conducted on the in-situ S/S and SVE system show that the equipment used for the S/S has potential to achieve a 90% reduction in the soil concentrations of the following VOCs: benzene, methylene chloride, trichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, 1,1-dichloroethylene, trans-1,2-dichloroethylene, and vinyl chloride, and that the air emission requirements in Section V.D can be satisfied using the S/S equipment, SVE could be conducted using the same equipment and air pollution controls as used for the S/S.[1] In this case, the fresh air (or possibly heated air or steam) would be injected into the soil while the blades of the auger mix the soil and while the contaminated air is drawn off with the induced draft fan into an air pollution control device. Following the SVE operation, the same soil that was treated by SVE could be treated by S/S. The SVE must continue until there is a 97% reduction in total VOCs (but not less than three times the ambient level) in the off-gas prior to any air pollution control device during vigorous agitation of the soils. Air emissions must be controlled in accordance with the requirements defined in Section V.D.

Alternatively, SVE would be conducted as a separate operation from S/S using vacuum and air injection pumps connected by pipes to a series of air injection and extraction wells. In addition, a low permeability cover may be required over the area being treated. The air pressure gradient would draw VOC-contaminated air from the soil pores. The removed VOCs would be required to be processed in a liquid-vapor separator and the air emissions would have to meet the requirements in Section V.D. The SVE must continue until treatment by in-situ S/S can be conducted in compliance with the air emission requirements in Section V.D, and there is a 97% reduction in total VOCs in the soils being treated

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[1] In conjunction with the treatability study on S/S discussed in this section, EPA is conducting treatability tests simulating use of in-situ equipment for conducting the SVE.

(but not to a concentration less than ten times the detection limit of each constituent).

It is anticipated that the in-situ S/S system would utilize a crane-mounted mixing system. The mixing head would be enclosed in a bottom-opened cylinder to allow closed system mixing of the treatment chemicals with the soil. The bottom-opened cylinder would be lowered onto the soil and the mixing blades started, moving through the depth in an up and down motion, while chemicals are introduced. An induced draft fan would draw the contaminated air from the container into an air pollution control device and exhaust the treated air to the atmosphere. Because there is potential for causing substantial VOC emissions, the contaminated air must be treated by carbon adsorption or by another treatment process that is equally effective, and meet the criteria in Section V.D. At the completion of mixing at one location, the blades would be withdrawn and the cylinder removed. The cylinder would then be operated adjacent to and overlapping the previous cylinder. This would be repeated until the entire area is treated.

The formulations and ratios of reagents used for the S/S process will be established to provide permanent treatment, substantially reduce release of contaminants due to leaching, substantially reduce permeability, and to assure long term durability of the solidified material.

EPA is currently undertaking a treatability study on approximately ten binders being considered for use in S/S at Midco I. Those binders selected for use at the Facility must meet the below listed Minimum Performance Standards. In addition, based on the results of the treatability study, EPA may establish Final Performance Standards that are more stringent than or supplementary to the Minimum Performance Standards.

MINIMUM PERFORMANCE STANDARDS

STABILIZATION OF METALS

Using the Synthetic Precipitation Leaching Procedure (SPLP) test (method 1312 of SW-846 using extraction fluid #1) the following percentage reduction in the leachate concentrations shall be attained using the formula:

$$SPLP_{treated} \times DF / SPLP_{raw\ waste} \times 100$$

$SPLP_{treated}$ = concentration of constituent (i) in the leachate from sample treated by S/S

DF = dilution factor = (weight of waste being treated + weight of S/S blend added to that waste) / (weight of

waste being treated)

$SPLP_{raw\ waste}$ = concentration of constituent (i) in the leachate from untreated waste sample

Alternatively, the $SPLP_{treated}$ can be reduced to the following Concentration Limits. If a parameter in the untreated sample is below its Concentration Limit listed below, no further reduction in leachate concentration is required, although the treated sample should not increase in leachate concentration to above the Concentration Limit.

CONSTITUENT	PERCENTAGE REDUCTION	CONCENTRATION LIMIT (ug/l)
arsenic	90	50[2]
barium	90	2000[2]
cadmium	95	5[2]
chromium	95	100[2]
copper	95	43[3]
lead	99	15[2]
nickel	95	100[2]
vanadium	90	233[4]
zinc	90	1150[5]

[2] These values are from the final or proposed Primary Maximum Contaminant Standards, 40 CFR Part 141.

[3] This value equals the 4-day average fresh water ambient water quality criteria for copper for protection of aquatic life times 3.6 at a hardness equal to 100 mg/l. The 4-day average fresh water ambient water quality criteria is from Ambient Criteria for Water 1986, EPA 440/5-86-001. The factor 3.6 is the estimated factor for dilution of the ground water by the surface water at Midco II. Use of the estimated dilution factor for Midco II is slightly more conservative than using the estimated dilution factor for Midco I.

[4] This value was calculated for a non-carcinogenic risk index equal to unity due to vanadium alone using the reference dose and procedures outlined in Appendix II.

[5] This value is equal to the 24-hour average fresh water ambient water quality criteria for zinc for protection of aquatic life times 3.6. The ambient water quality criteria value is from Quality Criteria for Water 1986, EPA 440/5-86-001. The factor 3.6 is the estimated dilution of ground water by the surface water at Midco II. Use of estimated the dilution factor for Midco II is slightly more conservative that use of the estimated dilution factor for Midco I.

STABILIZATION OF ORGANICS

Using total waste analyses (using methylene chloride extraction for semivolatile organics, and methanol extraction for volatile organics), a 50% reduction in concentrations shall be attained based on total waste analyses of the sample of untreated waste ($TWA_{raw\ waste}$) and the sample treated by S/S ($TWA_{treated}$) calculated in accordance with the formula: $TWA_{treated}$ X DF / $TWA_{raw\ waste}$ X 100 for the following compounds: anthracene; bis(2-ethylhexyl) phthalate; ethyl benzene; fluoranthene; naphthalene; phenanthrene; phenol; toluene; xylene.

PHYSICAL TESTS

i. Using method EPA 9100 from SW-846 (constant head, tri-axial with back pressure and air free water), the hydraulic conductivity of the material treated by S/S shall be less than or equal to 1×10^{-7}.

ii. Using method ASTM D1633-84, the unconfined compressive strength of the material treated by S/S shall be greater than 50 psi.

iii. Using ASTM D4843, the wet-dry durability test on the material treated by S/S shall result in less than a 10% weight loss.

iv. Using ASTM D4842, the freeze-thaw durability test on the material treated by S/S shall result in less than a 10% weight loss.

D. Requirements for Air Emissions:

1. Air emissions from the S/S system and from any SVE using the S/S system shall be controlled using carbon adsorption or another treatment process that is equally effective.

2. Air emissions from the (i) ground water treatment, (ii) the soil S/S, (iii) SVE using the S/S system, or (iv) SVE separate from the S/S system shall be controlled to the extent necessary to assure that each operation does not have the potential to result in exposures to a hypothetical resident located at the Facility boundary that would cause an estimated cumulative, incremental, lifetime carcinogenic risk exceeding 1.0×10^{-7}, or from causing a non-carcinogenic risk index greater than 1.0. The risk levels will be calculated in accordance with the procedures outlined in Attachment V. Ambient air monitoring and air

emission monitoring shall be conducted to determine whether this criteria is being met. The air emission monitoring data shall be input into an air model to estimate the potential exposure rates in order to determine whether controls such as carbon adsorption or other controls will be required for the emission sources. For the soil S/S system and SVE using the S/S system such controls (if any) shall be in addition to the controls required by paragraph D.1.

Since there are multiple operations that cause air emissions as well as fugitive sources that can not be controlled, each operation that can be controlled must be controlled to the 1×10^{-7} risk level to assure that the total risk will be less than 1×10^{-6}. In addition, since some nearby residents and workers may have already been exposed to the chemicals at Midco I during its operation, it is imperative that this emission criteria be met.

3. In addition to the requirements of paragraphs 1 and 2 above, if cumulative emissions of VOCs as defined under the Clean Air Act from all operations at the Facility other than excavation exceed 3 pounds per hour, carbon adsorption or another technology that is equally effective shall be used to control air emissions from the ground water treatment system and all SVE.

4. Air emissions must be monitored and controlled to the extent necessary to comply with applicable OSHA regulations, and applicable applicable State of Indiana air regulations, including Title 326 Indiana Administrative Code 6-4 for fugitive dust.

5. The effective stack height for air emissions from the ground water treatment, S/S, and SVE must be at least 30 feet above ground level.

6. For any carbon adsorption unit that is being or has been used for control of air emissions for the ground water treatment system, the S/S system or the SVE conducted with the S/S system, access to the unit shall be restricted within 3 feet of the unit. For any carbon unit that is being or has been used for control of air emissions for SVE conducted as a separate operation from the S/S, access to the unit shall be restricted within 10 feet of the unit.

E. Handling and Treatment of Surface Sediments and Soils Beneath the Sediments:

The surface sediments in areas outlined in Figure 2 will be excavated to a depth that will leave the soils below the excavation less than the following soil CALs:

cumulative lifetime carcinogenic risk = 1.0×10^{-6}
cumulative chronic non-carcinogenic index= 1.0

These sediments and soils will be consolidated on-site and treated by S/S along with the subsurface soils. Note that the sediments to be excavated as shown in Figure 2 is reduced in area due to filling of sediments since the 1989 ROD (compare to Figure 3). EPA is not requiring excavation of the sediments covered by fill because the risks to human health and the environment from the sediments that were covered is insignificant.

F. Site Cover, Access Restrictions, Long Term Monitoring, and Further Remedial Actions:

For Alternative 10, a cover shall be installed over the Cover Boundary area outlined in Figure 2 following the soil treatment outlined in Section II.C. above. This cover shall meet or exceed the requirements for RCRA Subtitle C closure. This cover shall be designed to provide long term minimization of infiltration, minimize maintenance, promote drainage, and minimize erosion. These requirements will be deemed satisfied by a cover which consists of multiple layers including:

- a top layer consisting of a vegetated component, and a 24 inch soil layer comprised of topsoil and/or fill soil with a surface slope of at least 3 percent and not more than 5 percent;

- a geofilter in between the upper layer of soil and the middle layer of drainage material;

- a drainage layer of either 12 inches of soil with a minimum hydraulic conductivity of 1.0×10^{-2} cm/sec or a geosynthetic material with equivalent performance characteristics, and with a final bottom slope of at least 3 percent;

- a low permeability layer with 24 inches of compacted soil with a maximum in place saturated hydraulic conductivity of 1.0×10^{-7} cm/sec.; and

- Details of the site cover design shall also be consistent with the EPA Guidance entitled <u>TECHNICAL GUIDANCE DOCUMENT EPA/530-SW-89-047 (July 1989) FINAL COVERS ON HAZARDOUS WASTE LANDFILLS AND SURFACE IMPOUNDMENTS.</u>

Access restrictions will be imposed including installation of a six foot chain link fence, warning signs and possible deed restrictions. Deed restrictions limiting development and the placement of new wells will be sought voluntarily from owners or compelled to the extent authorized under any applicable local and

State laws.

As in Alternative 8, the final site cover and access restrictions must be consistent with hazardous waste landfill closure requirements of the RCRA (40 CFR 264.111, 264.116, 264.117, and 264.310).

Following attainment of ground water CALs, ground water monitoring will continue for at least 15 years. The ground water monitoring must be consistent with the substantive requirements for ground water monitoring in 40 CFR 264.98, and where necessary 264.98(g) and 264.99.

If a ground water CAL is exceeded during this period due to a release from the Midco I site, the site cover shall be upgraded or repaired as needed; operation of the ground water pump treatment and underground injection system will be reinitiated; and steps will be taken to meet the ground water CALs. These actions must be consistent with the substantive requirements of 40 CFR 264.100 (except that the relevant ground water protection standards shall be the ground water CALs as defined in this ROD rather than concentration limits specified pursuant to 40 CFR 264.92).

G. Other ARARs and Applicable Regulations included in Alternative 8:

1. The requirements of Executive Order 11990, Protection of Wetlands, 40 CFR 6, Appendix A; and Clean Water Act Section 404, 40 CFR 230 and 231 shall be met. Contaminated wetlands will be replaced off-site at an appropriate ratio. This may be undertaken as part of an agreement between PRPs and the natural resources trustees.

2. The area of remediation must comply with the Migratory Bird Treaty Act.

3. Any residuals (such as spent activated carbon) from the ground water or soil treatment processes shall be considered a RCRA hazardous waste.[6] Therefore, these residuals must be stored on site, and disposed of or treated on-site or off-site in accordance with RCRA regulations, including the LDRs in 40 CFR 268, and 40 CFR 264 Subpart X for residues that are sent off site to be regenerated. It is possible that metals sludge from the ground water treatment process could be treated by S/S on-site,

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[6] The contaminated ground water and soil contains the following RCRA listed hazardous wastes: F001; F002, F003, F005, F007, F008, F009.

if Land Disposal Restriction requirements are met.

Any debris (such as tree trunks or crushed drums that can not be properly incorporated into the solidified mass) encountered during the S/S process or during excavations must be properly handled and stored on-site, and subsequently properly disposed of off-site or contained under the final cover, if degradation of the debris will not cause site cover maintenance problems. Any containerized or drummed liquid wastes encountered during the remedial actions shall be properly stored on-site and properly disposed of off-site.

Any off-site transportaion, treatment, or disposal must be in compliance with DOT and RCRA requirements (including LDRs), other applicable State and Federal regulations, and EPA's Off-Site Policy.

VI. SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

This Section updates the evaluation in Section IX of the 1989 ROD. The 1989 ROD justified the elimination of alternatives other than Alternatives 7 and 8. It is now known that Alternative 7 should not be further considered. Therefore, this evaluation will only compare Alternative 8 to the new Alternative 10.

The following table compares some of the critical elements of Alternative 10 with Alternative 8.

AREA OF COMPARISON	ALTERNATIVE 8	ALTERNATIVE 10
MEANS TO ADDRESS GROUND WATER CONTAMINATION	GROUND WATER EXTRACTION SYSTEM	NO CHANGE
GROUND WATER CALS	CR[7] = 1×10^{-5} NCRI[8] = 1.0 PMCLS[9]	NO CHANGE

[7] Cumulative Lifetime Carcinogenic Risk calculated for each ground water sampling location using the assumptions and procedures in Appendix II.

[8] Cumulative non-carcinogenic risk index calculated for each ground water sampling location using the assumptions and procedures in Appendix II,

[9] Primary Maximum Contaminant Levels (40 CFR 141).

	AWQC[10] X 3.9	
MEANS OF GROUND WATER DISPOSAL	DEEP WELL INJECTION OR INJECTION INTO THE CALUMET AQUIFER IN A MANNER THAT WILL NOT SPREAD THE SALT PLUME	NO CHANGE
GROUND WATER TREATMENT REQUIREMENTS FOR COMPLIANCE WITH RCRA PRIOR TO DEEP WELL INJECTION	RCRA LAND DISPOSAL RESTRICTIONS (BEST DEMONSTRATED AVAILABLE TECHNOLOGY) (LDRs)	RCRA DELISTING (6.3 TIMES HEALTH BASED LEVELS[11], MACs)
MEANS TO ADDRESS PRINCIPAL THREATS FROM SOIL CONTAMINATION	TREAT BY SVE AND S/S. SVE AND S/S WILL PROVIDE PERMANENT TREATMENT OF HIGHEST CONTAMINATED AREAS LOCATED ABOVE AND BELOW THE WATER TABLE. S/S MATERIAL WILL BE PROTECTED WITH A SITE COVER, AND MONITORED AND MAINTAINED OVER LONG TERM.	NO CHANGE
MEANS TO ADDRESS RISKS FROM SOILS THAT ARE	TREAT BY SVE AND S/S. LONG TERM	CONSTRUCT A RCRA SUBTITLE C COVER.

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[10] Chronic Ambient Water Quality Criteria for aquatic life. The AWQC values used in this ROD Amendment are listed in Appendix II.

[11] Health-Based Levels (HBLs) are concentrations of hazardous constituents that are used in the RCRA program for making decisions regarding whether a waste that is regulated as a hazardous waste under RCRA because it is listed under 40 CFR Part 261, Subpart D can be delisted so that it is no longer regulated as hazardous waste under RCRA because it is listed. In a delisting petition, it must be demonstrated that the HBLs will be met in a hypothetical receptor well. The HBLs are set at concentrations of constituents that provide protection for drinking water usage (Maximum Contaminant Levels from 40 CFR Part 141 are the HBLs when available, otherwise the HBL is set at the 10^{-6} risk level or the level that will not cause a non-carcinogenic risk assuming that 2 liters per day is ingested over a 60 year lifetime). See Section V.A.

ABOVE THE WATER TABLE AND THAT PRESENT A LOW LONG TERM THREAT VIA GROUND WATER AND DIRECT CONTACT	MAINTENANCE & MONITORING OF THE S/S WOULD BE REQUIRED. THIS WOULD PROVIDE SOME PERMANENT TREATMENT, REDUCE LEACHING TO GROUND WATER, AND REDUCE DIRECT CONTACT THREAT BY S/S AND COVER OVER THE S/S.	LONG TERM MAINT. & MONITORING OF THE COVER WOULD BE REQUIRED. AS LONG AS COVER IS MAINTAINED IT WILL SUBSTANTIALLY REDUCE LEACHING AND THE DIRECT CONTACT THREAT BY COVERING WITH A FIVE FOOT THICK COVER.
SOIL TREATMENT ACTION LEVELS	CR = 1×10^{-6} NCRI = 1.0	AT A MINIMUM TREAT MINIMUM AREA FOR TREATMENT IN FIGURE 2. OUTSIDE THIS AREA: CR = 5×10^{-4} NCRI = 5.0
ESTIMATE OF QUANTITY OF SOIL TO BE TREATED	12,400 CUBIC YD.[12]	7,800 CUBIC YD.[13]
PERFORMANCE STANDARDS FOR S/S	FOR IN-SITU S/S ASSURE ATTAINMENT OF GROUND WATER CALS.	SPECIFIC PERFORMANCE STANDARDS FOR BOTH INORGANICS AND ORGANICS BASED ON TESTS ON S/S.
CRITERIA FOR SVE	CONDUCTED PRIOR TO S/S TO THE EXTENT NECESSARY TO MEET AIR EMISSION CRITERIA AND GROUND WATER CALS BASED ON MODELLING	WILL DEFINITELY BE CONDUCTED IN ALL AREAS BEING S/S'ed TO REDUCE VOCs IN SOILS BY 97% IF CONDUCTED AS A SEPARATE OPERATION, AND BY 90% OF CERTAIN VOCs IF CONDUCTED WITH THE IN-SITU S/S EQUIP-

[12] This estimate is probably biased high because it is partially based on unreliable arsenic data (see Section III).

[13] This is a very rough estimate that assumes 50% more than the minimum amount will be treated as a result of further sampling.

		MENT.
MEANS TO ADDRESS RISKS FROM SOILS BELOW THE WATER TABLE THAT WILL NOT BE TREATED BY S/S	SOILS WILL GRADUALLY BE REMEDIATED BY THE GROUND WATER EXTRACTION OPERATION.	NO CHANGE
MEANS TO ADDRESS CONTAMINATION OF SURFACE SEDIMENTS	EXCAVATION AND ON-SITE S/S	NO CHANGE
SOIL/SEDIMENT CALS	CR = 1×10^{-6} NCRI = 1.0	NO CHANGE
AIR EMISSIONS CRITERIA	CR = 10^{-7} TO NEAREST RESIDENTS AND WORKERS FOR EACH EMISSION SOURCE, TO ASSURE ATTAINMENT OF CR = 10^{-6} OVERALL.	SAME AS ALT. 8 CRITERIA, PLUS NO GREATER THAN 3 LBS PER HOUR, AND EMISSION CONTROLS REQUIRED ON S/S SYSTEM.
SITE COVER SPECIFICATIONS	FOR IN-SITU S/S DEPENDED ON RESULTS OF S/S	CONSISTENT WITH RCRA SUBTITLE C
ACCESS RESTRICTIONS, DEED RESTRICTIONS, LONG TERM MONITORING	REQUIRED	NO CHANGE
AN ESTIMATE OF THE PRESENT WORTH	$14 MILLION[14]	$10 MILLION[15]

In Alternative 10 the extracted ground water must meet the MACs prior to deep well injection rather than meet the LDRs, which were expected to be used in Alternative 8. Treatment to the MACs is as protective or more protective than treatment to the LDRs because generally the MACs are more stringent for the more toxic compounds. However, treatment to the LDRs would be more difficult. Modelling will be conducted to confirm that injection

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[14] This is a very rough cost estimate from the Feasibility Study and is likely biased high because it was partially based on unreliable arsenic data for the extent of soil treatment (see Section III).

[15] This is a very rough estimate based on the assumption that 50% more than the minimum amount of soil is treated, that SVE increases the cost of S/S by 50%, and certain ground water treatment assumptions.

of extracted ground water meeting the MACs (into the lower Mount Simon Formation) will be protective of drinking water aquifers. In Alternative 10, treatment beyond the MACs will be conducted if necessary to be protective of drinking water aquifers. See Section V.A.

In Alternative 10, areas of the site having soils located above the water table with calculated risks below CR = 5 X 10^{-4} and NCRI = 5.0, will be covered consistent with RCRA Subtitle C requirements without being treated by S/S or SVE. However, the site cover will not be installed until the ground water extraction system has operated for a few years. Such operation may further reduce VOCs prior to installation of the site cover. EPA considers that following treatment of the highly contaminated areas, the site cover will provide overall protection to CR = 1 X 10^{-6} and NCRI =1.0 levels. The cover will be multi-layered and five feet thick. The cover will substantially reduce the infiltration into the soil and, therefore, reduce the contamination of the ground water. It will provide an effective barrier to direct contact while it is maintained. During its operation any contaminants leached from the soils would be recovered by the ground water extraction system. In the unlikely event that long term leaching causes the ground water to exceed the ground water CALs, the ground water extraction system would continue to operate or be reactivated so that protection from any ground water threat is assured.

In Alternative 8, compared to Alternative 10, VOCs in the lower contaminated areas may have been further reduced by operation of the SVE system, and the mobility of metals and other organics reduced by the S/S. However, as mentioned before for Alternative 10, any additional leachate from the soils would be recovered in the ground water extraction system so that protection from any ground water threat is assured. Alternative 8 may provide some additional protection compared to Alternative 10 from the direct contact threat in case the site cover is severely disturbed in the future because the low contaminated soils would be treated by S/S. However, it appears to be very unlikely that a five foot site cover would be so completely removed, and even if it was Alternative 10 provides for treatment of the most highly contaminated soils so that only the lesser contaminated soils would remain.

Since the time of the 1989 ROD, specialists in S/S treatment have developed specific tests for testing the permanence of S/S treatment for inorganics and organics. Therefore, these tests have been incorporated into Alternative 10 of this ROD Amendment.

Because of the difficulty in reasonably modelling the impact of VOCs on the ground water, it was decided to simply require SVE to provide substantial removal of the VOCs prior to treatment by S/S. The criteria is less stringent for conducting SVE with the

in-situ S/S equipment compared to using a separate operation because it is much more difficult to monitor the removal of VOCs from the soils using the in-situ S/S equipment because the soil is treated by S/S immediately after the SVE operation.

The three pounds per hour limit on air emissions for Alternative 10 was added to be consistent with EPA's policies on control of photochemical oxidants. Because the emissions from the in-situ S/S operation could be substantial and unpredictable, it was decided that air emissions from the in-situ S/s system must be controlled.

A. Threshold Criteria: protection of human health and the environment; and attainment of applicable, and relevant and appropriate requirements (ARARs):

Both Alternatives 8 and 10 would be protective of human health and the environment, by extraction and treatment of the ground water, by treating the highly contaminated soils and sediments, and by cover installation. Both alternatives are expected to protect aquatic life in surrounding surface waters from hazardous substances from the Midco I site including attainment of Ambient Water Quality Criteria for aquatic life[16] and restore the Calumet aquifer to drinking water quality[17] including attaining the Primary Maximum Contaminant Levels.

Both include deep well injection of the treated ground water (or reinjection into the Calumet aquifer in a manner that will not spread the salt plume). Both would comply with the RCRA LDRs prior to injection of the ground water: Alternative 8 by treating to LDR treatment standards; and Alternative 10 by delisting. Both include soil treatment by S/S and SVE. Both include excavation and S/S of contaminated sediments. Finally both include installation of a cover and site access restrictions.

While Alternative 8 includes treatment of a greater volume of soils than Alternative 10, the level of protection provided by Alternative 10 is not considered to be significantly different from the level of protection provided by Alternative 8 because

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[16] Except possibly for the Ambient Water Quality Criteria for solids (dissolved) and salinity, for which a ground water CAL is not being applied since adjacent sources of this contaminant exist and are not being remediated.

[17] Except for total dissolved solids, chlorides, sodium and potassium, for which a ground water CAL is not being applied since adjacent sources of these contaminants exist and are not being remediated.

low level contaminated soils will be contained by an effective cover that is consistent with RCRA Subtitle C closure requirements, and access to the site will be restricted. Furthermore, the additional soil treatment in Alternative 8 would not allow unrestricted future usage of the site because the S/S material and site cover would require long term monitoring and maintenance.

Under Alternative 10, if it is determined that it is technically impracticable from an engineering perspective to attain the ground water CALs by a ground water extraction system, contingency measures may be implemented (see Section V.B). These contingency measures will maintain protection of human health and the environment by institutional controls, by attaining the lowest achievable levels in the ground water, and by containment measures, as appropriate. If it is demonstrated that some primary MCLs, which are used in the ground water CALS, can not be attained in some portions of the aquifer due to technical impracticability, these ARARs will be waived provided that appropriate contingency measures are implemented.

B. Balancing Criteria: long term effectiveness and permanence; reduction in toxicity mobility and volume; short-term effectiveness; implementability; and cost:

The short term effectiveness of Alternative 10 is expected to be essentially the same as Alternative 8. The pump, treatment and injection system will be installed first in Alternative 10. Access to the site will be controlled; so the delay in the soil treatment will not cause any health impact. For both Alternatives, VOC air emissions during the remedial actions may be the short term impact of most concern. These emissions should be controllable using carbon absorption or another treatment process that is equally effective.

Both Alternative 8 and 10 employ treatment technologies--ground water extraction and treatment, S/S, and SVE--that are expected to perform to substantially reduce the toxicity, mobility, or volume of hazardous substances at the Midco I site. Both Alternatives 8 and 10 provide for long-term effectiveness and permanence through soil treatment by S/S and SVE, by ground water extraction and treatment, deep well injection of treated ground water, site cover, long term maintenance, and ground water monitoring.

While Alternative 10 will result in treatment of a lower volume of soils than Alternative 8, Alternative 10 provides for a reduction of the toxicity and mobility of the more highly contaminated soil at Midco I. Furthermore, the additional soil treatment in Alternative 8 will not result in a reduction in the long term monitoring or maintenance requirements nor allow

unrestricted future usage of the site. In the context of conditions at this particular site, the use of engineering controls such as site cover coupled with long-term (permanent) maintenance and monitoring of the site cover and ground water to address any remaining risks posed by soils with low level contamination is consistent with EPA's expectations for remedy selection regarding treatment of principal threats and use of controls for lower level threats as set forth in 40 CFR 300.430(a)(1)(iii) of the National Contingency Plan promulgated on March 6, 1990.

Alternatives 8 and 10 are identical in implementability in most respects, and no major problems in implementation are expected.

Very rough, estimates of the costs of Alternative 8 and Alternative 10 in millions of dollars are compared in the following Table.

	CAPITAL	ANNUAL O&M	PRESENT WORTH
Alternative 8	9	0.53	14
Alternative 10	7	0.46	10

Typically cost estimates in the Feasibility Study are expected to have an accuracy of plus 50% to minus 30%. There is more than the usual amount of uncertainty in the costs for both Alternative 8 and Alternative 10. However, Alternative 10 may be less expensive than Alternative 8 primarily because most likely less soil will be treated, ground water treatment requirements may be reduced, and the sequence of implementation of remedial actions (see Section V.C.1, V.C.2, and V.F) will be changed. Because the risk reduction and reduction in toxicity or mobility of the additional treatment required in Alternative 8 is small, it is not considered to be cost effective compared to Alternative 10.

Time for completion of the project depends on how fast the ground water CALs are attained. All other portions of the project are expected to be completed in no more than six years.

C. Modifying Criteria: support agency acceptance; community acceptance:

[This section will be filled out after receipt of the public comments.]

VI. STATUTORY DETERMINATIONS

Based on the description and evaluation of alternatives in the

ROD Amendment, EPA selects Alternative 10 for implementation at Midco I. This Alternative is described in Section IV of this ROD Amendment.

Alternative 10, including the provision of contingency measures in case it is technically impracticable to attain ground water CALs, will be protective of human health and the environment, and will be cost effective. ARARs shall be attained except that some primary MCLs will be waived in portions of the Calumet aquifer, provided that it is demonstrated that it is technically impracticable from an engineering perspective to attain these standards, and that appropriate contingency measures are implemented. The remedy satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility or volume as a principal element and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

The State of Indiana is expected to concur in the selected remedial actions (this sentence will be revised to reflect State concurrence once it is received).

Because the remedy will result in hazardous substances remaining on-site above health-based levels that would allow for unrestricted use, a review will be conducted within five years after commencement of remedial actions to ensure that the remedy continues to provide adequate protection of human health and the environment.

APPENDICES TO MIDCO I RECORD OF DECISION AMENDMENT

I. HEALTH BASED LEVELS FOR RCRA DELISTING FOR MIDCO I

II. PROCEDURES FOR CONDUCTING RISK BASED CALCULATIONS AND DETERMINATION OF GROUND WATER CLEANUP ACTION LEVELS AT MIDCO I

III. PROCEDURES FOR DETERMINING THE EXTENT OF TREATMENT FOR SOILS AND DEBRIS AT MIDCO I

IV. PROCEDURES FOR CONDUCTING RISK BASED CALCULATIONS FOR THE EXTENT OF SOIL TREATMENT AT MIDCO I

V. PROCEDURE FOR CONDUCTING RISK CALCULATIONS FOR AIR EMISSIONS

VI. RESPONSIVENESS SUMMARY

GLOSSARY

CALs : cleanup action levels.

delisting : If a waste fits the definition for a listed hazardous waste under RCRA, it can only be removed from regulation under RCRA by meeting the delisting requirements pursuant to 40 CFR 260.22.

EPA : United States Environmental Protection Agency.

F&W : United States Fish and Wildlife Service.

HBLs : health based levels used by EPA to make delisting decisions.

IDEM : Indiana Department of Environmental Management.

LDR : Land Disposal Restrictions under RCRA.

MACs : Maximum allowable concentrations. This term is defined in "A Guide to Delisting of RCRA Wastes for Superfund Remedial Responses" (9347.3-09FS) to be the maximum concentration in a waste or in a leachate from a waste that will still allow the waste to be delisted.

MCLs : Maximum Concentration Limits as defined under the Clean Water Act (40 CFR 141 and 143.

mg/kg : concentration of a constituent in soil expressed in milligrams of the constituent per kilogram of soil.

no migration petition: A petition submitted to EPA pursuant to 40 CFR 268.6 and 148 Subpart C that must demonstrate that deep well injection of a waste will not cause migration out of the injection zone within 10,000 years. EPA approval of such a petition is required prior to deep well injection of a hazardous waste restricted from land disposal under the LDRs without treatment to the LDR treatment standards.

PCBs : polychlorinated biphenols

PRC : Planning Research Corporation, Chicago, Illinois.

PRPs	:	potentially responsible parties. These generally include the site owners, site operators and entities that disposed of or arranged for disposal of wastes containing hazardous substances at the site.
RCRA	:	Resource Conservation and Recovery Act.
RI/FS	:	Remedial Investigation/Feasibility Study.
ROD	:	Record of Decision.
SVE	:	soil vapor extraction treatment.
S/S	:	solidification/stabilization treatment.
USDW	:	underground source of drinking water as defined in 40 CFR 144.3.
VOCs	:	volatile organic compounds.
VHS	:	Vertical Horizontal Spread model for modelling spread of contamination in the ground water.

APPENDIX I

HEALTH-BASED LEVELS AND SOLUBILITIES FOR CONSTITUENTS OF CONCERN IN DELISTING PETITIONS
July 1991

CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)
83 32 9	Acenaphthene	2	26	3.42
67 64 1	Acetone	4	4	1.0×10^{6}
75 05 8	Acetonitrile	2×10^{-1}	4	1.0×10^{6}
98 86 2	Acetophenone	4	4	5.5×10^{3}
107 02 8	Acrolein	5×10^{-1}	37	5×10^{5}
79 06 1	Acrylamide	Treatment Technique	42	$>1 \times 10^{6}$
107 13 1	Acrylonitrile	6×10^{-5}	5	7.9×10^{4}
309 00 2	Aldrin	2×10^{-8}	5	1.8×10^{-1}
62 53 3	Aniline (Benzeneamine)	6×10^{-3}	5	3.5×10^{4}
7440 36 0	Antimony	1×10^{-2}	27	
140 57 8	Aramite	1×10^{-3}	26	
7440 38 2	Arsenic	5×10^{-2}	13	
7440 39 3	Barium	1	13	
56 55 3	Benz(a)anthracene	1×10^{-5}	16	5.7×10^{-3}
71 43 2	Benzene	5×10^{-3}	14	1.75×10^{3}
92 87 5	Benzidine	2×10^{-7}	5	4.0×10^{2}
50 32 8	Benzo(a)pyrene	2×10^{-4}	27	1.2×10^{-3}
205 99 2	Benzo(b)fluoranthene	2×10^{-5}	8	1.4×10^{-2}
100 51 6	Benzyl alcohol	1×10^{1}	26	4×10^{4} (2[illegible]°C)
100 44 7	Benzyl chloride	2×10^{-4}	5	3.3×10^{3}
7440 41 7	Beryllium	1×10^{-3}	27	
111 44 4	Bis(2-chloroethyl)ether	3×10^{-5}	5	1.02×10^{4}
108 60 1	Bis(2-chloroisopropyl ether)	1	4	1.7×10^{3}
117 81 7	Bis(2-ethylhexyl)phthalate	3×10^{-3}	5	4×10^{-1}
75 27 4	Bromodichloromethane	3×10^{-4}	5	4.7×10^{3} [illegible]
74 83 9	Bromomethane	5×10^{-2}	4	1.0×10^{3}
85 68 7	Butyl benzyl phthalate	7	4	2.9
88 85 7	2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	7×10^{-3}	27	5×10^{1}
7440 43 9	Cadmium	5×10^{-3}	42	
75 15 0	Carbon disulfide	4	4	2.94×10^{3}
56 23 5	Carbon tetrachloride	5×10^{-3}	14	7.57×10^{2}
57 74 9	Chlordane	2×10^{-3}	42	5.6×10^{-1}
106 47 8	p-Chloroaniline	1×10^{-1}	4	3.9×10^{3}
108 90 7	Chlorobenzene	1×10^{-1}	42	4.66×10^{2}
510 15 6	Chlorobenzilate	7×10^{-1}	4	1×10^{4}
126 99 8	2-Chloro-1,3-butadiene (Chloroprene)	7×10^{-1}	26	3×10^{2}
124 48 1	Chlorodibromomethane	4×10^{-4}	5	4.4×10^{3} (22°C)
67 66 3	Chloroform	6×10^{-3}	5	8.2×10^{3}
95 57 8	2-Chlorophenol	2×10^{-1}	4	2.85×10^{4} (20°C)
107 05 1	3-Chloropropene (Allyl chloride)	2×10^{-3}	36	1×10^{2}

HEALTH-BASED LEVELS AND SOLUBILITIES FOR CONSTITUENTS OF CONCERN IN DELISTING PETITIONS
July 1991

CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)	Ref.
7440 47 3	Chromium	$1x10^{-1}$	42		
218 01 9	Chrysene	$2x10^{-4}$	8	$1.8x10^{-3}$	6
319 77 3	Cresols	2	4	$3.1x10^{4}$	6
57 12 5	Cyanide	$2x10^{-1}$	27		
94 75 7	2,4-Dichlorophenoxyacetic Acid (2,4-D)	$7x10^{-2}$	42	$8.9x10^{2}$	6
72 54 8	DDD	$1x10^{-4}$	5	$1x10^{-1}$	6
72 55 9	DDE	$1x10^{-4}$	5	$4x10^{-2}$	6
50 29 3	DDT	$1x10^{-4}$	5	$5x10^{-3}$	6
2303 16 4	Diallate	$6x10^{-4}$	26	$1.4x10^{1}$	6
53 70 3	Dibenz(a,h)anthracene	$7x10^{-7}$	8,17	$5.0x10^{-4}$	6
96 12 8	1,2-Dibromo-3-chloropropane	$2x10^{-4}$	42	$1.0x10^{3}$	6
74 95 3	Dibromomethane	$4x10^{-1}$	4	$1.3x10^{4}$	25
84 74 2	Di-n-butyl phthalate	4	4	$1.3x10^{1}$	6
95 50 1	1,2-Dichlorobenzene	$6x10^{-1}$	42	$1.0x10^{2}$	6
106 46 7	1,4-Dichlorobenzene	$7.5x10^{-2}$	14	$7.9x10^{1}$	6
91 94 1	3,3'-Dichlorobenzidine	$8x10^{-5}$	5	4	6
75 71 8	Dichlorodifluoromethane	7	4	$2.8x10^{2}$	6
75 34 3	1,1-Dichloroethane	$4x10^{-4}$	26	$5.5x10^{3}$	6
107 06 2	1,2-Dichloroethane	$5x10^{-3}$	14	$8.52x10^{3}$	6
75 35 4	1,1-Dichloroethylene	$7x10^{-3}$	14	$2.25x10^{3}$	6
156 59 2	cis-1,2-Dichloroethylene	$7x10^{-2}$	42	$3.5x10^{3}$	6
156 60 5	trans-1,2-Dichloroethylene	$1x10^{-1}$	42	$6.3x10^{3}$	6
75 09 2	Dichloromethane	$5x10^{-3}$	27	$2.0x10^{4}$	6
120 83 2	2,4-Dichlorophenol	$1x10^{-1}$	4	$4.6x10^{3}$	6
78 87 5	1,2-Dichloropropane	$5x10^{-3}$	42	$2.7x10^{3}$	6
542 75 6	1,3-Dichloropropene	$2x10^{-4}$	5	$2.8x10^{3}$	6
60 57 1	Dieldrin	$2x10^{-6}$	5	$1.95x10^{-1}$	6
84 66 2	Diethyl phthalate	$3x10^{1}$	4	$8.96x10^{2}$	6
56 53 1	Diethylstilbesterol	$7x10^{-8}$	26	$1.3x10^{4}$	15
60 51 5	Dimethoate	$7x10^{-3}$	4	$2.5x10^{4}$	6
119 90 4	3,3'-Dimethoxybenzidine	$3x10^{-3}$	26	$2x10^{3}$	1,2
119 93 7	3,3'-Dimethylbenzidine	$4x10^{-6}$	26	$7x10^{1}$	1,2
57 97 6	7,12-Dimethylbenz(a)-anthracene	$1x10^{-8}$	20	$4.4x10^{-3}$	6
105 67 9	2,4-Dimethylphenol	$7x10^{-1}$	4	$5.9x10^{2}$	9
131 11 3	Dimethyl phthalate	$4x10^{1}$	26	$4.3x10^{3}$	2
99 65 0	1,3-Dinitrobenzene	$4x10^{-3}$	4	$4.7x10^{2}$	6
51 28 5	2,4-Dinitrophenol	$7x10^{-2}$	4	$5.6x10^{3}$	6
121 14 2	Dinitrotoluene	$5x10^{-5}$	5,21	$1.32x10^{3}$	6
117 84 0	Di-n-octyl phthalate	$7x10^{-1}$	26	3	22
123 91 1	1,4-Dioxane	$3x10^{-3}$	5	$4.31x10^{5}$	6

HEALTH-BASED LEVELS AND SOLUBILITIES
FOR CONSTITUENTS OF CONCERN IN DELISTING PETITIONS
July 1991

CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)	Re
122 39 4	Diphenylamine	$9x10^{-1}$	4	$5.76x10^{1}$	6
122 66 7	1,2-Diphenylhydrazine	$4x10^{-5}$	5	$1.84x10^{3}$	6
298 04 4	Disulfoton	$1x10^{-3}$	4	$2.5x10^{1}$	24
115 29 7	Endosulfan	$2x10^{-3}$	4	$5.3x10^{-1}$	22
72 20 8	Endrin	$2x10^{-4}$	13	$2.5x10^{-1}$	22
106 89 8	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	Treatment Technique	42	$6.0x10^{4}$	6
110 80 5	2-Ethoxy ethanol	$1x10^{1}$	26	$1x10^{5}$	1
100 41 4	Ethyl benzene	$7x10^{-1}$	42	$1.52x10^{2}$	6
60 29 7	Ethyl ether	$2x10^{1}$	4	$6.05x10^{4}$	12
106 93 4	Ethylene dibromide	$5x10^{-5}$	42	$4.3x10^{3}$	6
97 63 2	Ethyl methacrylate	3	26	$7x10^{2}$	1
62 50 0	Ethyl methanesulfonate	$1x10^{-8}$	28	$3.69x10^{5}$	6
52 85 7	Famphur	$1x10^{-3}$	41	$1.43x10^{2}$	15
206 44 0	Fluoranthene	1	4	$2.06x10^{-1}$	6
86 73 7	Fluorene	1	4	1.69	6
16984 48 8	Fluoride	4	39		
64 18 6	Formic acid	$7x10^{1}$	4	$1x10^{6}$	6
76 44 8	Heptachlor	$4x10^{-4}$	42	$1.8x10^{-1}$	6
1024 57 3	Heptachlor epoxide (alpha, beta, gamma isomers)	$2x10^{-4}$	42	$3.5x10^{-1}$	6
118 74 1	Hexachlorobenzene	$1x10^{-3}$	27	$6.0x10^{-3}$	6
87 68 3	Hexachlorobutadiene	$4x10^{-4}$	5	$1.5x10^{-1}$	6
77 47 4	Hexachlorocyclopentadiene	$5x10^{-2}$	27	2.1	6
67 72 1	Hexachloroethane	$3x10^{-3}$	5	$5.0x10^{1}$	6
70 30 4	Hexachlorophene	$1x10^{-2}$	4	$4x10^{-3}$	6
319 84 6	alpha-HCH	$6x10^{-8}$	26	1.63	6
319 85 7	beta-HCH	$2x10^{-5}$	26	$2.4x10^{-1}$	6
193 39 5	Indeno(1,2,3,cd)pyrene	$2x10^{-4}$	8	$5.3x10^{-4}$	6
78 83 1	Isobutanol	$1x10^{1}$	4	$7.6x10^{4}$	3
78 59 1	Isophorone	$9x10^{-3}$	5	$1.2x10^{4}$	15
143 50 0	Kepone	$2x10^{-6}$	29	7.6 (24°C)	15
7439 92 1	Lead	$1.5x10^{-2}$	44		
58 89 9	Lindane (gamma-HCH)	$2x10^{-4}$	42	7.8	6
7439 97 6	Mercury	$2x10^{-3}$	42		
126 98 7	Methacrylonitrile	$4x10^{-3}$	4	$2.5x10^{4}$	15
67 56 1	Methanol	$2x10^{1}$	4	$>1x10^{6}$	1
72 43 5	Methoxychlor	$4x10^{-2}$	42	$4x10^{-2}$(24°C)	
74 87 3	Methyl chloride	$3x10^{-3}$	26	$6.5x10^{7}$	
56 49 3	3-Methylcholanthrene	$4x10^{-6}$	30		
78 93 3	Methyl ethyl ketone	2	4	$2.68x10^{5}$	
108 10 1	Methyl isobutyl ketone	2	4	$1.91x10^{4}$	

HEALTH-BASED LEVELS AND SOLUBILITIES FOR CONSTITUENTS OF CONCERN IN DELISTING PETITIONS
July 1991

CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)	P.
80 62 6	Methyl methacrylate	3	43,26	2.0×10^{1}	[illegible]
298 00 0	Methyl parathion	9×10^{-3}	4	6×10^{1}	[illegible]
91 20 3	Naphthalene	1×10^{-1}	26	3.4×10^{1}	[illegible]
91 59 8	2-Naphthylamine	4×10^{-5}	31	5.86×10^{2}	[illegible]
7440 02 0	Nickel	1×10^{-1}	27		
98 95 3	Nitrobenzene	2×10^{-2}	4	1.9×10^{3}	[illegible]
79 46 9	2-Nitropropane	4×10^{-6}	26	1.7×10^{5}	38
924 16 3	N-Nitroso-di-n-butylamine	6×10^{-6}	5	6.7×10^{3}	1.
55 18 5	N-Nitrosodiethylamine	2×10^{-7}	5	4.1×10^{5}	1
62 75 9	N-Nitrosodimethylamine	7×10^{-7}	5	2×10^{2}	[illegible]
156 10 5	N-Nitrosodiphenylamine	7×10^{-3}	5	4.0×10^{1}	1[illegible]
621 64 7	N-Nitrosodi-n-propylamine	5×10^{-6}	5	9.9×10^{3}	[illegible]
10595 95 6	N-Nitrosomethylethylamine	2×10^{-6}	26	2×10^{4}	[illegible]
100 75 4	N-Nitrosopiperidine	8×10^{-6}	32	$>1 \times 10^{6}$	[illegible]
930 55 2	Nitrosopyrrolidine	2×10^{-5}	5	$>1 \times 10^{6}$	[illegible]
152 16 9	Octamethyl pyrophosphoramide	7×10^{-2}	26	$>1 \times 10^{6}$	[illegible]
56 38 2	Parathion	2×10^{-1}	26	2.4×10^{1} (20°C)	[illegible]
608 93 5	Pentachlorobenzene	3×10^{-2}	4	1.35×10^{-1}	[illegible]
82 68 8	Pentachloronitrobenzene	1×10^{-1}	4	7.11×10^{-2}	[illegible]
87 86 5	Pentachlorophenol	1×10^{-3}	19	1.4×10^{1}	[illegible]
108 95 2	Phenol	2×10^{1}	4	9.3×10^{4}	[illegible]
298 02 2	Phorate	7×10^{-3}	40	5×10^{1}	[illegible]
1336 36 3	Polychlorinated biphenyls	5×10^{-4}	42	3.1×10^{-2}	[illegible]
23950 58 5	Pronamide	3	4	1×10^{2}	[illegible]
129 00 0	Pyrene	1	4	1.32×10^{-1}	[illegible]
110 86 1	Pyridine	4×10^{-2}	4	4×10^{4}	[illegible]
94 59 7	Safrole	1×10^{-4}	33	1.5×10^{3}	[illegible]
7782 49 2	Selenium	5×10^{-2}	42		
7440 22 4	Silver	5×10^{-2}	13		
57 24 9	Strychnine and salts	1×10^{-2}	4	1.56×10^{2}	[illegible]
100 42 5	Styrene	1×10^{-1}	42	3×10^{2}	[illegible]
95 94 3	1,2,4,5-Tetrachlorobenzene	1×10^{-2}	4	6	[illegible]
630 20 6	1,1,1,2-Tetrachloroethane	1×10^{-3}	26	2.9×10^{3}	[illegible]
79 34 5	1,1,2,2-Tetrachloroethane	2×10^{-4}	5	2.9×10^{3}	[illegible]
127 18 4	Tetrachloroethylene	5×10^{-3}	42	1.5×10^{2}	[illegible]
58 90 2	2,3,4,6-Tetrachlorophenol	1	4	1×10^{3}	[illegible]
3689 24 5	Tetraethyl dithiopyrophosphate	2×10^{-2}	4	3×10^{1}	25
7440 28 0	Thallium	2×10^{-3}	27		
108 88 3	Toluene	1	42	5.35×10^{2}	
95 80 7	Toluene-2,4-diamine	9×10^{-5}	34	4.77×10^{4}	

HEALTH-BASED LEVELS AND SOLUBILITIES FOR CONSTITUENTS OF CONCERN IN DELISTING PETITIONS
July 1991

CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)	Re
823 40 5	Toluene-2,6-diamine	7	7	$1.3x10^5$	1
95 53 4	o-Toluidine	$1x10^{-4}$	26	$7x10^2$	1,
106 49 0	p-Toluidine	$2x10^{-4}$	26	$7.4x10^3$ (21°C)	15
8001 35 2	Toxaphene	$3x10^{-3}$	42	$5x10^{-1}$	6
93 72 1	2,4,5-TP (Silvex)	$5x10^{-2}$	42	$1.4x10^2$	2
75 25 2	Tribromomethane (Bromoform)	$4x10^{-3}$	5	$3.01x10^3$	6
120 82 1	1,2,4-Trichlorobenzene	$9x10^{-3}$	27	$3.0x10^1$	6
71 55 6	1,1,1-Trichloroethane	$2x10^{-1}$	14	$1.5x10^3$	6
79 00 5	1,1,2-Trichloroethane	$5x10^{-3}$	27	$4.5x10^3$	6
79 01 6	Trichloroethylene	$5x10^{-3}$	14	$1.1x10^3$	6
75 69 4	Trichlorofluoromethane	$1x10^1$	4	$1.1x10^3$	6
95 95 4	2,4,5-Trichlorophenol	4	4	$1.19x10^3$	6
88 06 2	2,4,6-Trichlorophenol	$3x10^{-3}$	5	$8.0x10^2$	6
93 76 5	2,4,5-Trichlorophenoxy-acetic acid (2,4,5-T)	$4x10^{-1}$	4	$2.4x10^2$(30°C)	2
96 18 4	1,2,3-Trichloropropane	$2x10^{-1}$	4	$4x10^3$	1
76 13 1	1,1,2-Trichloro-1,2,2-trifluoroethane	$1x10^3$	4	$1x10^1$	6
99 35 4	sym-Trinitrobenzene	$2x10^{-3}$	4	$3.5x10^2$	2
126 72 7	Tris(2,3-dibromopropyl) phosphate	$3x10^{-5}$	35	$1.2x10^2$	6
7440 62 2	Vanadium	$2x10^{-1}$	26		
75 01 4	Vinyl chloride	$2x10^{-3}$	14	$2.67x10^3$	6
1330 20 7	Xylene (mixed)	$1x10^1$	42	$1.98x10^2$	6
7440 66 6	Zinc	7	26		

APPENDIX II

PROCEDURES FOR CONDUCTING RISK BASED CALCULATIONS FOR DETERMINATION OF GROUND WATER CLEAN UP ACTION LEVELS AT MIDCO I

Risk based calculations shall be conducted for each sample. The calculation shall be the sum of the estimated risks produced by each constituent in the sample.

The carcinogenic risk based calculation for each sample is simply the summation of a lifetime averaged exposure rate via ingestion of the ground water for each constituent times that constituent's oral carcinogenic potency factor (slope factor), plus the summation of a lifetime averaged exposure rate via inhalation for each volatile organic compound times that volatile organic compound's inhalation carcinogenic potency factor (slope factor).

This is summarized in the following equation:

$$CR_s = \Sigma\ (OI)_i(OSF)_i + \Sigma\ (II)_i(ISF)_i$$

$$OI_i = (3.09 \times 10^{-2}\ l/kg/d)\ C_i$$

$$II_i = (9.74 \times 10^{-2}\ l/kg/d)\ C_i$$

CR_s = Cumulative lifetime carcinogenic risk for a sample

Σ = Summation of the carcinogenic risk from each constituent detected in the sample.

OI_i = Lifetime averaged exposure rate via ingestion for constituent i

OSF_i = Oral carcinogenic potency factor (or slope factor) of constituent i. These are listed in Table 2 of Appendix IV.

II_i = Lifetime averaged exposure rate via inhalatior

for constituent i.

ISF = Inhalation carcinogenic potency factor (or slope factor) of constituent i. These are listed in Table 2 of Appendix IV.

3.09×10^{-2} l/kg/d = lifetime averaged ground water ingestion rate based on the following assumptions:

- The ground water intake averaged over 70 years (25550 days) corresponding to children age 2-6, with a body weight of 17 kg, and an ingestion rate of 1 liter of ground water per day for 5 years, equal to 4.2×10^{-3} l/kg/d.

- The ground water intake averaged over 70 years corresponding to children age 7-12 with a body weight of 29 kg, and an ingestion rate of 1 liter of ground water per day for 6 years, equal to 3.0×10^{-3} l/kg/d.

- The ground water intake averaged over 70 years corresponding to adults, with a body weight of 70 kg, and an ingestion rate of 2 liters of ground water per day for 58 years, equal to 23.7×10^{-3} l/kg/d.

$$(4.2 + 3.0 + 23.7) \times 10^{-3} \text{ l/kg/d} = 3.09 \times 10^{-2}$$

9.74×10^{-2} l/kg/d = lifetime averaged ground water exposure rate via inhalation based on the following assumptions:

- Calculate the lifetime ground water inhalation intake while bathing. In order to do this, it is assumed that all subpopulations (adults, children age 7-12 and children age 2-6) bathe for 20 minutes each day and stay an additional 10 minutes inside the closed-door bathroom, where the concentration in the air of the compound volatilized from the ground water used for bathing increases from zero to the actual ground water concentration at the end of the bathing period, and then decreases to zero during the additional 10 minutes in the bathroom. To account for this increase/decrease in concentration, a factor of 0.38 is used in the equation to calculate the intake. The actual ground water concentration can then be used to calculate the risk. Additional assumptions include: (1) each bath will consur

200 liters of water; (2) the volume of the shower stall is 3 m^3; and (3) the volume of the bathroom is 10 m^3. Also, the volume of air inhaled per hour is: 0.55 m^3 for adults, 0.6 m^3 for children age 7-12, and 0.49 m^3 for children age 2-6.

The inhalation intake can be calculated as:

$$0.38\ [(200\ 1/3\ m^3) \times (20\ min/60\ min/day) + (200\ 1/10\ m^3) \times (10\ min/60\ min/day)] \times [(0.55\ m^3 \times 58\ yrs)/(70\ kg \times 70\ yrs) + (0.60\ m^3 \times 6\ yrs)/(29\ kg \times 70\ yrs) + (0.49\ m^3 \times 4\ yrs)/(16\ kg \times 70\ yrs)] = 9.74 \times 10^{-2}\ l/kg/d.$$

C_i = Concentration of constituent i in the sample.

The cumulative chronic non-carcinogenic risk index is calculated as follows:

$$NI_s = \Sigma\ ((C_i)(3.09 \times 10^{-2}\ l/kg/d)/ORfD_i) + \Sigma\ ((C_i)(9.74 \times 10^{-2}\ l/kg/d)/IRfD_i)$$

NI_s = Cumulative chronic non-carcinogenic risk index.

Σ = Summation of chronic non-carcinogenic risk for all constituents detected in the sample that affect the same target organ.

$ORfD_i$ = Oral reference dose of constituent i. The reference doses for this Consent Decree are listed in Table 2 of Appendix IV.

$IRfD_i$ = Inhalation reference dose of constituent i. The reference doses for this Consent Decree are listed in Table 2 of Appendix IV.

Compounds detected below the background concentrations listed in the Table 1 of this Attachment will not be included in either the carcinogenic or non-carcinogenic risk based calculations.

The Primary Maximum Contaminant Levels (MCLs) are from 40 CFR 141. New primary MCLs will automatically be added to the

ground water CALs when they are promulgated.

The Ambient Water Quality Criteria (AWQC) for protection of aquatic life to be used in this Decree are listed in Table 2 of this Attachment. The ground water CALs for the AWQC are calculated by multiplying the AWQC from Table 2 by 3.9.

The CAL can not be less than the background concentrations listed in Table 1, nor be less than the analytical detection limits. The analyses shall at least attain the quantification limits necessary to evaluate attainment of the ground water CALs. However, quantification limits below the lowest practical quantification limits listed for each compound in Appendix IX of 40 CFR 264 shall not be required. If only one constituent is detected in a ground water sample that is calculated to potentially cause a lifetime, incremental carcinogenic risk of 1×10^{-5} or greater, and an MCL has been promulgated for this constituent pursuant to 40 CFR 141, then that constituent will not be used in either the carcinogenic nor the non-carcinogenic risk calculations, and the CAL for that constituent will be either the MCL or the AWQC times 3.9, whichever is less.

TABLE 1 OF APPENDIX II

GROUND WATER BACKGROUND CONCENTRATIONS *

Compound	95 % UCL Nidco I	95 % UCL Nidco II
ARSENIC	6.00E+00	1.51E+01
BARIUM	1.18E+02	1.07E+02
BERYLLIUM		
CADMIUM		1.50E-01
CHROMIUM (III)	8.00E+00	7.50E+00
CHROMIUM (VI)	8.00E+00	7.50E+00
COPPER		2.52E+01
IRON	3.88E+03	1.53E+04
LEAD		5.60E+00
MANGANESE	1.40E+03	4.64E+02
MERCURY		2.50E-01
NICKEL	5.80E+01	1.23E+01
SELENIUM		
SILVER		4.60E+00
THALLIUM		
VANADIUM	4.33E+00	
ZINC		1.47E+03
CYANIDE	1.04E+01	1.58E+02
VINYL CHLORIDE	1.32E+00	2.20E+00
CHLOROETHANE		
METHYLENE CHLORIDE	1.30E+00	1.90E+00
ACETONE		6.90E+00
CARBON DISULFIDE		
1,1-DICHLOROETHENE		
1,1-DICHLOROETHANE		
TRANS-1,2-DICHLOROETHENE	1.60E-01	6.10E+00
CHLOROFORM		
1,2-DICHLOROETHANE		
2-BUTANONE		
1,1,1-TRICHLOROETHANE		
1,2-DICHLOROPROPANE		
TRICHLOROETHENE		
BENZENE		4.00E-02
2-HEXANONE		

Compound	95 % UCL Nidco I	95 % UCL Nidco II
4-METHYL-2-PENTANONE		
TETRACHLOROETHENE		
TOLUENE		
ETHYLBENZENE		
XYLENES		
PHENOL		
BIS(2-CHLOROETHYL)ETHER		
BIS(2-CHLOROISOPROPYL)ETHER		
BENZYL ALCOHOL		
CRESOL		
NITROBENZENE		
ISOPHORONE		
2,4-DIMETHYLPHENOL		
BENZOIC ACID		
2,4-DICHLOROPHENOL		
NAPHTHALENE		
2-METHYLNAPHTHALENE		
ACENAPHTHENE		
4-NITROPHENOL		
2,4-DINITROTOLUENE		
DIETHYLPHTHALATE		
FLUORENE		
4-NITROANILINE		
PHENANTHRENE		
DI-N-BUTYLPHTHALATE		3.00E-01
N-NITROSODIPHENYLAMINE	2.60E-01	
PENTACHLOROPHENOL		
BIS(2-ETHYLHEXYL)PHTHALATE	1.50E+00	
DI-N-OCTYLPHTHALATE		
HEPTACHLOR EPOXIDE		
LINDANE		
DIELDRIN		
ENDRIN		
PCBs		

95 % UCL = 95 percent upper confidence limit of the average background ground water concentration at each site. from the Feasibility Study for each site.

*All values are given in ug/l.

TABLE 2 OF APPENDIX II

MIDCO I AND II - WATER QUALITY CRITERIA TO BE MET IN THE GROUND WATER

Compound	MIDCO I Surface Water Water Quality Criteria (ug/l)		MIDCO I WQC to be met (ug/l)	MIDCO II Surface Water Water Quality Criteria (ug/l)		MIDCO II WQC to be met (ug/l)
ARSENIC	4.80E+01		1.87E+02	4.80E+01		1.73E+02
BERYLLIUM	5.30E+00		2.07E+01	5.30E+00		1.91E+01
CADMIUM	1.20E+00-6.00E+00	H	4.68E+00	2.90E+00-4.49E+00	H	1.04E+01
CHROMIUM (III)	2.20E+02-1.19E+03	H	8.58E+02	5.58E+02-8.68E+02	H	2.01E+03
CHROMIUM (VI)	1.10E+01		4.29E+01	1.10E+01		3.96E+01
COPPER	1.30E+01-7.30E+01	H	5.07E+01	3.33E+01-5.28E+01	H	1.20E+02
IRON	1.00E+03		3.90E+03	1.00E+03		3.60E+03
LEAD	3.50E+00-4.80E+01	H	1.37E+01	1.49E+01-2.96E+01	H	5.36E+01
MERCURY	1.20E-02		4.68E-02	1.20E-02		4.32E-02
NICKEL	1.68E+02-9.57E+02	H	6.55E+02	4.40E+02-6.94E+02	H	1.58E+03
SELENIUM	3.50E+01		1.37E+02	3.50E+01		1.26E+02
SILVER	1.20E-01		4.68E-01	1.20E-01		4.32E-01
THALLIUM	4.00E+01		1.56E+02	4.00E+01		1.44E+02
ZINC	3.42E+02-1.89E+03	H	1.33E+03	8.78E+02-1.37E+03	H	3.16E+03
CYANIDE	5.20E+00		2.03E+01	5.20E+00		1.87E+01
PENTACHLOROPHENOL	1.30E+01	pH	5.07E+01			
HEPTACHLOR EPOXIDE	3.80E-03		1.48E-02	3.80E-03		1.37E-02
DIELDRIN	1.90E-03		7.41E-03			
ENDRIN	2.30E-03		8.97E-03			
PCBs	1.40E-02		5.46E-02			

WQC = freshwater chronic water quality criteria for the protection of aquatic life; H = hardness dependent, values shown are for the range of hardness present in surface water samples; pH = value is pH dependent (pH = 7.8 used).

Reference: Quality Criteria for Water
1986. U.S. EPA. EPA 440/5-86-001.
May 1, 1986.

APPENDIX III

PROCEDURES FOR DETERMINING THE EXTENT OF TREATMENT FOR SOILS AND DEBRIS AT MIDCO I

To define the extent of the treatment by S/S and/or by SVE outside of the minimum area for treatment outlined in Figure 2, samples shall be collected on a square grid with 60 foot centers. The location of the initial grid point shall be determined by the random number technique, and the rest of the grid points measured from the initial point. The grid shall cover the whole soil sample collection area shown in Figure 2 excluding the minimum area for treatment. Split spoon samples shall be collected at each grid point from 1-3 and 4-6 foot depths.

The following parameters shall be considered in determining whether the Soil Treatment Action Levels (defined in Section V.C.2) are exceeded at each sampling point:

METALS: total chromium, chromium (VI), lead, antimony, nickel, barium, cadmium, selenium, copper, iron, zinc, vanadium, manganese;

OTHER INORGANICS: arsenic, cyanide;

VOLATILE ORGANIC COMPOUNDS (VOCs): methylene chloride, trichloroethylene, tetrachloroethylene, 2-butanone, acetone, toluene, 1,1,1 trichoroethane, benzene, xylene, ethyl benzene, methyl isobutyl ketone, 1,1-dichloroethylene, 1,2 dichloroethylene, vinyl chloride;

ACID/BASE/NEUTRAL FRACTION: benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3)pyrene, dibenz(a,h)anthracene, bis(2-ethylhexyl)phthalate, diethyl phthalate, di-n-butyl phthalate, isophorone, phenol;

PESTICIDE/PCB FRACTION: chlordane, aldrin, dieldrin, polychlorinated biphenyls.

For any of the grid sampling points that exceed the Soil Treatment Action Levels, either:

(a) The entire area within the 60 foot square centered at the grid point will be treated in accordance with Section V.C.2; or

(b) Further sampling and treatment will be conducted as follows:

(1) The 60-foot square centered at the grid point shall be subdivided into nine squares measuring 20 by 20 feet. The center 20-foot square, where the grid point is

located shall be treated in accordance with Section V.C.2.

(2) Samples at 1-3 and 4-6 foot depth shall be collected at the center of each of the eight surrounding 20 foot squares. If any of these samples exceed the Soil Treatment Action Levels, the entire area within these 20 foot squares shall be treated in accordance with Section V.C.2.

(3) Samples at 1-3 and 4-6 foot depth shall be collected at the center of each 20 foot square that is along side a 20-foot square determined to exceed the Soil Treatment Action Levels based on the previous sampling. If any of these samples exceed the Soil Treatment Action Levels, the entire area within these squares shall be treated in accordance with Section V.C.2.

(4) The process in (b)(3) above shall be repeated until each 20 foot square along side a square containing a sample that exceeds the Soil Treatment Action Levels, has been sampled, even if this requires sampling of 20-foot squares that are part of 60-foot squares whose center grid point sample results are less than the Soil Treatment Action Levels.

APPENDIX IV

PROCEDURES FOR CONDUCTING RISK BASED CALCULATIONS FOR SOILS AND SEDIMENTS AT MIDCO I

Risk Calculations

Risk based calculations shall be conducted for each sample for both carcinogenic and non-carcinogenic risks. The calculation shall be the sum of the estimated risks produced by each constituent detected in the sample for the ingestion, dermal contact, and inhalation routes of exposure using a residential development scenario.

The carcinogenic risk based calculation for each exposure route shall be the summation of the lifetime average exposure rate for each constituent times that constituent's carcinogenic potency factor (slope factor). This is summarized by the following equation:

$$CR_s = \Sigma\ (OI)_i(OSF)_i + \Sigma\ (DI)_i(DSF)_i + \Sigma\ (II)_i(ISF)_i$$

CR_s = Cumulative lifetime carcinogenic risk for each sample

Σ = Summation of the carcinogenic risk for each constituent detected in the sample

OI_i = Lifetime exposure rate to constituent i via ingestion

DI_i = Lifetime exposure rate to constituent i via dermal contact

II_i = Lifetime exposure rate to constituent i via inhalation

OSF_i = Oral slope factor or carcinogenic potency factor (CPF) of constituent i

DSF_i = Dermal slope factor or carcinogenic potency factor of constituent i

ISF_i = Inhalation slope factor or carcinogenic potency factor of constituent i

The non-carcinogenic risk based calculation for each exposure route shall be the summation of the non-carcinogenic risk indexes for each constituent. The non-carcinogenic risk index is the ratio of the averaged exposure rate divided by the reference dose. This is summarized by the following equation:

$$NI_s = \Sigma\ (OCDI_i)/(ORfD)_i + \Sigma\ (DCDI)_i/(DRfD)_i + \Sigma\ (ICDI)_i(IRfD)_i$$

NI_s = Cumulative chronic non-carcinogenic risk index for each sample

$OCDI_i$ = Chronic daily intake of constituent i for the ingestion route of exposure

$DCDI_i$ = Chronic daily intake of constituent i for the dermal contact route of exposure

$ICDI_i$ = Chronic daily intake of constituent i for the inhalation route of exposure

$ORfD_i$ = Chronic oral reference dose

$DRfD_i$ = Chronic dermal reference dose

$IRfD_i$ = Chronic inhalation reference dose

Constituents that are not detected shall not be included in the risk calculations. The chemical analyses shall at least attain the quantitation limits necessary to evaluate attainment of soil CALs. However, quantitation limits lower than the detection limits listed in Table 1-7 of the Feasiblity Studies for Midco I and Midco II will not be required. Compounds detected below background concentrations shown in Table 1 shall not be used in the risk calculations. No OSF, ISF, ORfD or IRfD is presently available for lead. Therefore, the soil

treatment action level for lead is set at 1000 mg/kg in the soil, and the sediment/soil CAL is set at 500 mg/kg.

If NI_s exceeds 5.0 for the STALs or 1.0 for the soil/sediment CALs, the organ specific NI_s shall be calculated in a manner consistent with EPA guidance. Then the highest organ specific NI_s shall be used to evaluate whether the criteria for soil treatment is or is not exceeded.

The procedures for the calculations for each exposure route are summarized below:

<u>FOR THE INGESTION ROUTE OF EXPOSURE</u>:

CARCINOGENIC RISK CALCULATION

$CR_{si} = \Sigma\ (OI)_{si}(OSF)_i$

$OI_i = (2.34\ mg/kg/d)(C_i)$

CR_{si} = Cumulative lifetime carcinogenic risk for each sample for the ingestion route of exposure

OI_i = Lifetime exposure rate to constituent i for the ingestion route of exposure

OSF_i = Oral slope factor or carcinogenic potency factor (CPF) of compound i. These are listed in Table 2. The CPFs in Table 2 are from the U.S. EPA "Health Effects Assessment Summary Tables", April 1989, OERR 9200.6-303-(89-2), except for the carcinogenic polyaromatic hydrocarbons, which are from the U.S. EPA Health Effects Assessment Group.

2.34 mg/kg/d = lifetime averaged soil intake based on the following assumptions:

- The soil intake averaged over 70 years (25550 days) corresponding to children age 2-6, with

a body weight of 17 kg, and an ingestion rate of 0.2 grams of soil per day for 5 years, equal to 8.4×10^{-4} g/kg/d.

- The soil intake averaged over 25550 days corresponding to children age 7-12, with a body weight of 29 kg, and an ingestion rate of 0.1 grams of soil per day for 6 years, equal to 3.0×10^{-4} g/kg/d.

- The soil intake averaged over 25550 days corresponding to adults, with a body weight of 70 kg, and an ingestion rate of 0.1 grams of soil per day for 58 years, equal to 12×10^{-4} g/kg/d.

$(8.4 + 3.0 + 12) \times 10^{-4}$ g/kg/d $\times 10^{3}$ mg/g = 2.34 mg/kg/d

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil.

NON-CARCINOGENIC RISK INDEX CALCULATION

$NI_{si} = \Sigma\ (C)_i(11.8\ \text{mg/kg/d})/ORfD_i)$

NI_{si} = Cumulative chronic non-carcinogenic risk index for the ingestion route of exposure

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

11.8 mg/kg/d = Soil intake for children ages 2-6, based on a bodyweight of 17 kg and an ingestion rate of 0.2 grams of soil per day for five years

$ORfD_i$ = Chronic oral reference dose. The oral reference doses for this Decree are listed in Table 2. The RfDs listed in Table 2 are from the U.S. EPA "Health Effects Assessment Summary Tables", April 1989, OERR 9200.6-303-(89-2)

FOR THE DIRECT CONTACT ROUTE OF EXPOSURE:

CARCINOGENCIC RISK CALCULATION

$CR_{sd} = \Sigma (DI)_i(DSF)_i$

$DI_i = (C)_i(DF)_i(14.53 \text{ mg/kg/d})$

CR_{sd} = Cumulative lifetime carcinogenic risk for each sample for the dermal contact route of exposure

DI_i = Lifetime exposure rate to compound i for the dermal contact route of exposure

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

DSF_i = Dermal slope factor or carcinogenic potency factor (CPF) of constituent i. These are listed in Table 2. The dermal CPFs in Table 2 were adjusted from the oral CPFs by dividing the oral CPF by the chemical-specific oral absorption factor that represents the percentage of ingested chemical that is actually absorbed. The absorption factors are also listed in Table 2.

DF_i = Desorption factor. This is a chemical-specific value that takes into account the desorption of a constituent from the soil matrix. The following desorption factors shall be used: volatile organic compounds = 0.25; semivolatile organic compounds = 0.10; inorganics = 0.01.

14.53 mg/kg/d = Lifetime soil to skin adherence based on the following assumptions:

- The soil adherence averaged over 70 years (25550 days) corresponding to children age 2-6, with a body weight of 17 kg, an exposed body surface area of 3160 cm^2, a soil-to skin adherence factor of 0.9 mg/cm^2 (Exposure Factors Handbook, Technical Report, U.S. EPA, 1989, Contract No. 68-02-4254) of soil per day, for 138 days per year, for 5 years, equal to 4.52 mg/kg/d. The exposed body surface area includes arms, legs and hands (50th percentile, children aged 3-4, from Exposure Factors Handbook, 1989).

- The soil adherence averaged over 70 years

(25550 days) corresponding to children age 7-12, with a body weight of 29 kg, an exposed body surface area of 4970 cm^2, a soil-to skin adherence factor of 0.9 mg/cm^2 of soil per day, for 138 days per year, for 6 years, equal to 5.00 mg/kg/d. The exposed body surface area includes arms, legs and hands (50th percentile, children aged 9-10 from Exposure Factors Handbook, 1989).

- The soil adherence averaged over 70 years (25550 days) corresponding to adults, with a body weight of 70 kg, an exposed body surface area of 3120 cm^2, a soil-to skin adherence factor of 0.9 mg/cm^2 of soil per day, for 55 days per year, for 58 years equal to 5.01 mg/kg/d. The exposed body surface area includes arms and hands (50th percentile adults from Exposure Factors Handbook, 1989).

NON-CARCINOGENIC RISK INDEX CALCULATION

$$NI_{sd} = \Sigma\ (C)_i(DF)_i(63.25\ mg/kg/d)/(DRfD_i)$$

NI_{sd} = Cumulative chronic non-carcinogenic index for the direct contact route of exposure

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

DF_i = Desorption factor. Use definition previously provided for the carcinogenic risk calculation.

63.25 mg/kg/d = The soil adherence corresponding to children age 2-6, with a body weight of 17 kg, an exposed body surface area of 3160 cm^2, a soil-to skin adherence factor of 0.9 mg/cm^2 of soil per day, for 138 days per year, for 5 years.

$DRfD_i$ = Chronic dermal reference dose. The chronic dermal reference doses for this Decree are listed in Table 2. The chronic dermal reference doses listed in Table 2 were adjusted from the oral reference doses by multiplying the oral reference doses by the chemical-specific oral absorption factor that represents the percentage of ingested chemical that is actually absorbed. The oral absorption factors are also listed in Table 2.

FOR THE INHALATION ROUTE OF EXPOSURE:

CARCINOGENIC RISK CALCULATION

$CR_{ai} = \Sigma\ (II)_i(ISF)_i$

$II_i = (C)_i(D)_i(VP)_i(MW)_i(0.033)$

CR_{ai} = Cumulative carcinogenic risk for each sample for the inhalation route of exposure

II_i = Lifetime exposure rate to constituent i for the inhalation route of exposure

ISF_i = Inhalation slope factor or carcinogenic potency factor (CPF) for constituent i. The inhalation CPFs are listed in Table 2 and are from: U.S. EPA, 1989, Health Effects Summary Tables, OERR 9200.6-303-(89-2).

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

D_i = Diffusion coefficient of constituent i in the air, in cm^2/sec

VP_i = Vapor pressure of constituent i, in mm Hg

MW_i = Molecular weight of constituent i, in g/mole

$$0.033 = \frac{(INR)(ET)(EF)(ED)(A)(P^{4/3})(1000\ mg/g)}{(BW)(AT)(h)(u)(w)(L)(R)(T)}$$

INR = Inhalation rate in m^3/hour: 0.76 from 1-6 years; 0.89 from 7-12 years; 0.83 for adults

ET = Exposure time in hours/day: 21.1 from 1-6 years; 18.3 from 7-12 years; 21.1 for adults

EF = Exposure frequency in days/year: 350 for all age groups

ED = Exposure duration in years: 6 years from 1-6 years; 6 years from 7-12 years; and 58 years for adults

A = 1 E+6 cm^2 (a box 1 meter wide and 100 meters long)

P = Total soil porosity: 0.35

BW = Body weight in kg.: 17 kg from 1-6 year; 29 kg. from 6-12 years; and 70 kg adult

AT = Averaging time: 25550 days (365 days/year X 70 years)

h = Mixing height: 1.83 meters

w = Mixing width: 1 meter

u = Wind speed: 2.4 meters/sec.

L = Effective depth of soil cover: 30 cm.

R = Gas constant: 62,361 mm Hg/gmole/°K

T = Temperature: 290 °K

NON-CARCINOGENIC RISK INDEX CALCULATION

$NI_{ai} = \Sigma\ (C)_i(D)_i(VP)_i(MW)_i(0.0938)/(IRfD_i)$

NI_{ai} = Cumulative chronic non-carcinogenic index for the inhalation route of exposure

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

D_i, VP_i, and MW_i are as defined above

$$0.0938 = \frac{(INR)(ET)(EF)(ED)(A)(P^{4/3})(1000\ mg/g)}{(BW)(AT)(h)(u)(w)(L)(R)(T)}$$

INR = Inhalation rate in m^3/hour: 0.76 for 1-6 year olds

ET = Exposure time in hours/day: 21.1 for 1-6 year olds

ED = Exposure duration in years: 6 years

BW = Body weight in kg.: 17 kg for 1-6 year olds

AT = Averaging time: 2190 days (365 days/year X 6 years)

A, P, EF, P, h, w, u, L, R, and T are as defined above

$IRfD_i$ = Inhalation reference dose for constituent i. The inhalation CPFs are listed in Table 2 and are from: U.S. EPA, 1989, Health Effects Summary Tables, OERR 9200.6-303-(89-2).

TABLE 1 OF APPENDIX IV

MIDCO I AND II - BACKGROUND SOIL CONCENTRATIONS *

COMPOUND	95% UCL (ug/kg)	COMPOUND	95% UCL (ug/kg)	COMPOUND	95% UCL (ug/kg)
ALUMINUM	8,175,837	1,2-DICHLOROETHANE	0	DIETHYLPHTHALATE	27.1
ANTIMONY	1,290	2-BUTANONE	6.7	FLUORENE	0
ARSENIC	14,014	1,1,1-TRICHLOROETHANE	0	N-NITROSODIPHENYLAMINE	0
BARIUM	80,492	1,1,2,2-TETRACHLOROETHANE	0	PENTACHLOROPHENOL	0
BERYLLIUM	0	TRICHLOROETHENE	0	PHENANTHRENE	131
CADMIUM	2,769	BENZENE	0	ANTHRACENE	0
CALCIUM	10,662,779	2-HEXANONE	0	DI-N-BUTYLPHTHALATE	0
CHROMIUM (III)	19,260	4-METHYL-2-PENTANONE	0	FLUORANTHENE	255
CHROMIUM (VI)	19,260	TETRACHLOROETHENE	0	PYRENE	248
COBALT	4,197	TOLUENE	2.0	BUTYLBENZYLPHTHALATE	112
COPPER	48,876	CHLOROBENZENE	0	BENZO(A)ANTHRACENE	158
IRON	13,673,722	ETHYLBENZENE	0	BIS(2-ETHYLHEXYL)PHTHALATE	985
LEAD	145,843	STYRENE	0	CHRYSENE	238
MAGNESIUM	3,386,934	TOTAL XYLENES	0	DI-N-OCTYLPHTHALATE	36.4
MANGANESE	117,133	PHENOL	0	BENZO(B)FLUORANTHENE	241
MERCURY	288	1,4-DICHLOROBENZENE	0	BENZO(K)FLUORANTHENE	154
NICKEL	17,348	2-METHYLPHENOL	0	BENZO(A)PYRENE	137
POTASSIUM	1,002,938	4-METHYLPHENOL	0	INDENO(1,2,3-CD)PYRENE	103
SELENIUM	0	CRESOL	0	DIBENZ(A,H)ANTHRACENE	0
SILVER	447	NITROBENZENE	0	BENZO(G,H,I)PERYLENE	108
SODIUM	81,517	N-NITROSODIPROPYLAMINE	0	ALDRIN	0
THALLIUM	1,477	ISOPHORONE	0	DIELDRIN	0
TIN	1,581	2,4-DIMETHYLPHENOL	0	ENDRIN	0
VANADIUM	20,553	BENZOIC ACID	0	4,4'-DDD	29.5
ZINC	312,974	2,4-DICHLOROPHENOL	0	4,4'-DDT	127
CYANIDE	0	NAPHTHALENE	0	CHLORDANE	4.098
METHYLENE CHLORIDE	9.4	4-CHLORO-3-METHYLPHENOL	0	AROCLOR-1242	0
ACETONE	13.9	2-METHYLNAPHTHALENE	0	AROCLOR-1248	0
1,1-DICHLOROETHANE	0	ACENAPHTHYLENE	0	AROCLOR-1254	0
TRANS-1,2-DICHLOROETHENE	0	ACENAPHTHENE	0	AROCLOR-1260	0
CHLOROFORM	0	DIBENZOFURAN	0	4,4-DDE	[illegible].8

* 95% UCL = 95 percent upper confidence limit of the average background soil concentrations. From the Feasibility Study (both sites have the same soil background concentrations).

TABLE 2 OF APPENDIX IV

CHEMICAL SPECIFIC RISK FACTORS

CHEMICAL	CPF-oral $(mg/kg/d)^{-1}$	Chronic Oral RfD (mg/kg/d)	Inhalation CPF $(mg/kg/d)^{-1}$	Chronic Inhalation RfD (mg/kg/d)	Oral Absorption Factor	Dermal CPF[a] $(mg/kg/d)^{-1}$	Chronic Dermal RfD (mg/kg d)
antimony	NA	4.00E-04	NA	NA	0.05	NA	2.00E-05
arsenic	1.75E+00	1.00E-03	5.00E+01	NA	0.98	1.79E+00	9.80E-04
barium	NA	5.00E-02	NA	1.00E-04	0.10	NA	5.00E-03
beryllium	NA	5.00E-03	8.40E+00	NA	0.001	NA	5.00E-06
cadmium	NA	1.00E-03	6.10E+00	NA	0.06	NA	6.00E-05
chromium(III)	NA	1.00E+00	NA	NA	0.01	NA	1.00E-02
chromium(VI)	NA	5.00E-03	4.10E+00	NA	0.05	NA	2.50E-04
manganese	NA	2.00E-01	NA	3.00E-04	0.05	NA	1.00E-02
mercury	NA	3.00E-04	NA	NA	0.15	NA	4.50E-05
nickel	NA	2.00E-02	8.40E-01	NA	0.05	NA	1.00E-03
selenium	NA	3.00E-03	NA	1.00E-03	0.60	NA	1.80E-03
thallium	NA	7.00E-05	NA	NA	0.05	NA	3.50E-06
tin	NA	6.00E-01	NA	NA	0.05	NA	3.00E-02
vanadium	NA	7.00E-03	NA	NA	0.05	NA	3.50E-04
zinc	NA	2.00E-01	NA	NA	0.50	NA	1.00E-01
cyanide	NA	2.00E-02	NA	NA	0.45	NA	9.00E-
methylene chloride	7.50E-03	6.00E-02	1.40E-02	3.00E+00	1.00	7.50E-03	6.00E-
acetone	NA	1.00E-01	NA	NA	0.90	NA	9.00E-
1,1-dichloroethane	NA	1.00E-01	NA	1.00E-01	0.70	NA	7.00E-
1,1-dichloroethene	6.00E-01	9.00E-03	1.20E+00	NA	0.93	6.45E-01	9.30E-
chloroform	6.10E-03	1.00E-02	8.10E-02	NA	1.00	6.10E-03	1.00E-
1,2-dichloroethane	9.10E-02	NA	9.10E-02	NA	1.00	9.10E-02	NA
2-butanone	NA	5.00E-02	NA	9.00E-02	0.90	NA	4.50E-
1,1,1-trichloroethane	NA	9.00E-02	NA	3.00E-01	0.90	NA	8.10E-
carbon tetrachloride	1.30E-01	7.00E-04	1.30E-01	NA	0.80	1.63E-01	5.60E-
1,1,2,2-tetrachloroethane	2.00E-01	NA	2.00E-01	NA	0.90	2.22E-01	NA
1,2-dichloropropane	6.80E-02	NA	NA	NA	0.90	6.67E-02	NA
trichloroethene	1.10E-02	NA	1.30E-02	NA	0.95	1.16E-02	NA
1,1,2-trichloroethane	5.70E-02	4.00E-03	5.70E-02	NA	0.90	6.33E-02	3.60E-03
benzene	2.90E-02	NA	2.90E-02	NA	1.00	2.90E-02	NA
4-methyl-2-pentanone	NA	5.00E-02	NA	NA	0.90	NA	4.50E-02

CHEMICAL SPECIFIC RISK FACTORS

CHEMICAL	CPF-oral $(mg/kg/d)^{-1}$	Chronic Oral RfD (mg/kg/d)	Inhalation CPF $(mg/kg/d)^{-1}$	Chronic Inhalation RfD (mg/kg/d)	Oral Absorption Factor	Dermal CPF[a] $(mg/kg/d)^{-1}$	Chronic Dermal RfD (mg/kg/d)
tetrachloroethene	5.10E-02	1.00E-02	3.30E-03	NA	0.90	5.67E-02	9.00E-03
toluene	NA	3.00E-01	NA	1.00E+00	1.00	NA	3.00E-01
chlorobenzene	NA	3.00E-02	NA	5.00E-03	0.31	NA	9.30E-03
ethylbenzene	NA	1.00E-01	NA	NA	0.82	NA	8.20E-02
xylenes	NA	2.00E+00	NA	4.00E-01	1.00	NA	2.00E+00
phenol	NA	6.00E-01	NA	NA	0.90	NA	5.40E-01
1,4-dichlorobenzene	2.40E-02	NA	NA	7.00E-01	1.00	2.40E-02	NA
1,2-dichlorobenzene	NA	4.00E-01	NA	4.00E-02	0.90	NA	3.60E-01
cresol	NA	5.00E-02	NA	NA	0.90	NA	4.50E-02
nitrobenzene	NA	5.00E-04	NA	6.00E-04	0.90	NA	4.50E-04
isophorone	4.10E-03	1.50E-01	NA	NA	0.90	4.56E-03	1.35E-01
benzoic acid	NA	4.00E+00	NA	NA	0.40	NA	1.60E+00
2,4-dichlorophenol	NA	3.00E-03	NA	NA	0.90	NA	2.70E-03
1,2,4-trichlorobenzene	NA	2.00E-02	NA	3.00E-03	0.90	NA	1.80E-02
napthalene	NA	4.00E-01	NA	NA	1.00	NA	4.00E-01
4-chloroaniline	3.50E-02	4.00E-03	NA	NA	0.90	3.89E-02	3.60E-03
diethylphthalate	NA	8.00E-01	NA	NA	0.15	NA	1.20E-01
N-nitrosodiphenylamine	4.90E-03	NA	NA	NA	0.90	5.44E-03	NA
pentachlorophenol	NA	3.00E-02	NA	NA	0.90	NA	2.70E-02
di-N-butylphthalate	NA	1.00E-01	NA	NA	0.85	NA	8.50E-02
benzidine	2.30E+02	3.00E-03	2.30E+02	NA	0.90	2.56E+02	2.70E-03
butylbenzylphthalate	NA	2.00E-01	NA	NA	0.15	NA	3.00E-02
benzo(a)anthracene	1.15E-01	NA	NA	NA	0.50	2.30E-01	NA
bis(2-ethylhexl)phthalate	1.40E-02	2.00E-02	NA	NA	0.15	9.33E-02	3.00E-03
chrysene	1.15E-01	NA	NA	NA	0.50	2.30E-01	NA
benzo(b)fluoranthene	3.45E+00	NA	NA	NA	0.15	6.90E+00	NA
benzo(a)pyrene	1.15E+01	NA	NA	NA	0.50	2.30E+01	NA
indeno(1,2,3-cd)pyrene	1.15E-01	NA	NA	NA	0.50	2.30E-01	NA
dibenz(a,h)anthracene	1.15E+01	NA	NA	NA	0.50	2.30E+01	NA
aldrin	1.70E+01	3.00E-05	1.70E+01	NA	0.50	3.40E+01	1.50E-05
dieldrin	1.60E+01	5.00E-05	1.60E+01	NA	0.50	3.20E+01	2.50E-05
endrin	NA	3.00E-04	NA	NA	0.50	NA	1.50E-04

CHEMICAL SPECIFIC RISK FACTORS

CHEMICAL	CPF-oral $(mg/kg/d)^{-1}$	Chronic Oral RfD (mg/kg/d)	Inhalation CPF $(mg/kg/d)^{-1}$	Chronic Inhalation RfD (mg/kg/d)	Oral Absorption Factor	Dermal CPF[a] $(mg/kg/d)^{-1}$	Chronic Dermal RfD (mg/kg/d)
4,4'-DDT	3.40E-01	5.00E-04	3.40E-01	NA	0.50	6.80E-01	2.50E-04
chlordane	1.30E+00	5.00E-05	1.30E+00	NA	0.50	2.60E+00	2.50E-05
aroclor-1242	7.70E+00	NA	NA	NA	0.50	1.54E+01	NA
aroclor-1248	7.70E+00	NA	NA	NA	0.50	1.54E+01	NA
aroclor-1254	7.70E+00	NA	NA	NA	0.50	1.54E+01	NA
aroclor-1260	7.70E+00	NA	NA	NA	0.50	1.54E+01	NA
PCBs	7.70E+00	NA	NA	NA	0.95	8.11E+00	NA

NA Not Available
CPF Carcinogenic Potency Factor
RfD Reference Dose
[a] Dermal risk factors are calculated as follows:

$$\frac{\text{Oral CPF}}{\text{oral absorption factor}} = \text{Dermal CPF}$$

$$\text{Oral RfD} * \text{Oral Absorption Factor} = \text{Dermal RfD}$$

APPENDIX V

PROCEDURE FOR CONDUCTING RISK CALCULATIONS FOR AIR EMISSIONS

The carcinogenic risk calculations shall be the summation of a lifetime averaged exposure rate for each constituent times that constituent's inhalation carcinogenic potency factor. This is summarized in the following equation:

$$CR = \Sigma\ (II)_i\ (ISF)_i$$

CR = Cumulative lifetime carcinogenic risk.

Σ = Summation of the carcinogenic risk of each constituent in the air emission.

II_i = Lifetime averaged exposure rate to compound i. More information from the design will be needed to determine II_i for each process or combination of processes. However, the values for INR, ET, EF, ED, BW, and AT from Appenidix IV shall be used for exposures to residents. In addition IR for workers shall be 1.3 cubic meters per hour.

ISF_i = Inhalation carcinogenic potency factor (or slope factor) for compound i. The ISFs are listed in Table 2 of Appenidix IV.

The chronic non-carcinogenic risk index is calculated as follows:

$$NI = \Sigma\ (II)_i/RfD_i$$

NI = Cumulative chronic non-carcinogenic index

Σ = Summation of chronic non-carcinogenic risk for all constituents affecting the same target organ

II_i = Chronic exposure rate of constituent i. More process specific information is needed to calculate this number.

RfD_i = Inhalation reference dose of constituent i. The RfD_i are listed in Table 2 of Appenidix IV.

DRAFT PROPOSED

DECLARATION FOR RECORD OF DECISION AMENDMENT

SITE NAME AND LOCATION

Midco II
Gary, Indiana

STATEMENT OF BASIS AND PURPOSE

This decision document presents a description of an amendment to the selected remedial action for Midco II developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent possible the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision document amends the Record of Decision dated June 30, 1989.

This decision is based on the contents of the administrative record for the Midco II site. The attached index identifies the items which comprise the administrative record for this Record of Decision Amendment. This administrative record will be further updated at a later date in order to incorporate and respond to public comments.

The State of Indiana is expected to concur in this amendment to the remedy selection by U.S. EPA for the Midco II site [this sentence will be revised to reflect the State concurrence once it is received].

ASSESSMENT OF THE SITE

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

DESCRIPTION OF THE SELECTED REMEDY (AS AMENDED)

The primary reasons for amending the selected remedy at Midco II relate to: 1) a change in the method for determining how much soil will be treated; 2) further definition of the degree of treatment of contaminated ground water that EPA will require

prior to deep well injection including a proposal to delist the extracted ground water (the ground water contains listed hazardous wastes as defined in the Resource Conservation and Recovery Act) through this Record of Decision Amendment provided that the extracted ground water is treated to meet specified maximum allowable concentrations (MACs) prior to disposing of the extracted ground water by deep well injection.

The selected remedial action includes:

- On-site treatment of a minimum of approximately 12,200 cubic yards of contaminated soil and waste material, and possibly more dependent upon the results of further sampling, by soil vapor extraction and in-situ solidification/stabilization.

- Excavation and on-site solidification/stabilization of approximately 500 cubic yards of contaminated sediments from the ditch adjacent to the northeast boundary of the site.

- Installation and operation of a ground water pumping system to intercept contaminated ground water from the site. Contingency measures have been added in case it is technically impractical from an engineering perspective to meet the ground water cleanup action levels.

- Installation and operation of a treatment system (as required) to remove hazardous substances from the extracted ground water, and deep well injection of the extracted ground water following any required treatment. Ground water treatment will be required to the extent necessary to attain maximum allowable concentrations (MACs), which are levels equivalent to those required for delisting a hazardous waste under the Resource Conservation and Recovery Act (RCRA). Treatment beyond the MACs will be required under certain conditions if either the lower Eau Claire or Mount Simon Formation (which are more than approximately 1800 feet below the surface of the site) is an underground source of drinking water (USDW) as defined in 40 CFR 144.3. Alternatively, the ground water could be treated to remove hazardous substances followed by reinjection of the ground water into the Calumet aquifer in a manner that will prevent spreading of the salt plume.

- Construction of a cover over the entire site that is consistent with the closure requirement under Subtitle C of RCRA

- Restriction of site access, and deed restrictions.

- Long term monitoring and maintenance.

The ground water treatment or underground injection portions of the remedial action may be combined with the remedial action for Midco I. For example, the ground water from Midco II may be transported to Midco I for treatment or injection, or vice versa. In this case, the combined treatment or injection shall constitute an on-site action, for purposes of the Off-site Policy and compliance with applicable or relevant and appropriate standards.

DECLARATION

The selected remedy, as modified herein, and including the contingency measures in case EPA determines that it is technically impracticable to meet the ground water cleanup action levels, is protective of human health and the environment, and is cost effective. The selected remedy also attains Federal and State requirements that are applicable or relevant and appropriate to this remedial action, except that some primary Maximum Contaminant Levels will be waived for portions of the Calumet aquifer, provided that it is demonstrated that it is technically impracticable from an engineering perspective to attain these standards and appropriate contingency measures are implemented.

This remedy satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility or volume as a principal element, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

Because this remedy will result in hazardous substances remaining on-site, pursuant to Section 121 (c) of CERCLA, a review will be conducted at the site within five years after commencement of the remedial action and at least every five years thereafter to ensure that the remedy continues to provide adequate protection of human health and the environment.

_____
Date

_____
Valdas V. Adamkus
Regional Administrator
Region V

SUMMARY FOR RECORD OF DECISION AMENDMENT

Midco II, GARY, INDIANA

I. INTRODUCTION (for more detailed information on the site location, site description, and the site history, enforcement activities and community relations prior to June 30, 1989 refer to the Record of Decision (ROD) signed on June 30, 1989, Sections I-III)

Midco II operations were primarily conducted on an approximately seven acre area at 5900 Industrial Highway in Gary, Indiana (see Figures 1 and 2) from approximately 1976 through 1978. Operations included temporary bulk liquid and drum storage of waste and reclaimable materials, neutralization of acids and caustics, and on-site disposal via dumping into pits, which allowed percolation into the ground water. One of theses pits, called the filter bed, had an overflow pipe leading into the ditch. Many of the wastes disposed of on-site were from the paint industry, and many contained hazardous substances. In addition, during the operations, wastes were dumped and spilled onto and into the ground at the site. A large fire in August 1977 destroyed thousands of drums containing chemicals on the site, and resulted in additional spillage of chemicals onto the site.

The United States Environmental Protection Agency (EPA) installed a fence at the site in 1981, and completed a removal action from 1984 through 1989 that included removal of all surface wastes including thousands of drums of chemical wastes, and a number of tanks containing chemical wastes, and excavation and off-site disposal of subsurface soils and wastes in the sludge pit and filter bed. Other than the sludge pit and filter bed, the contaminated subsurface soil and ground water were not addressed in the removal action.

A Remedial Investigation/Feasibility Study (RI/FS) was completed by a group of potentially responsible parties (PRPs) (generally PRPs are entities who owned or operated Midco II or sent or transported hazardous substances to the Midco II site) under EPA oversight from 1985 to 1989. The Indiana Department of Environmental Management (IDEM) also participated in oversight of the RI/FS. The RI showed that portions of the subsurface soils, including natural soils and fill material, located within the area outlined in Figure 2 are highly contaminated by a large number of hazardous substances (including volatile organic compounds (VOCs), semivolatile organic compounds, PCBs, metals and cyanide). The fill material consists of sand, slag, cinders, granular material, and a grey silty material mixed with some cultural debris including scrap metal, concrete, wood, bricks,

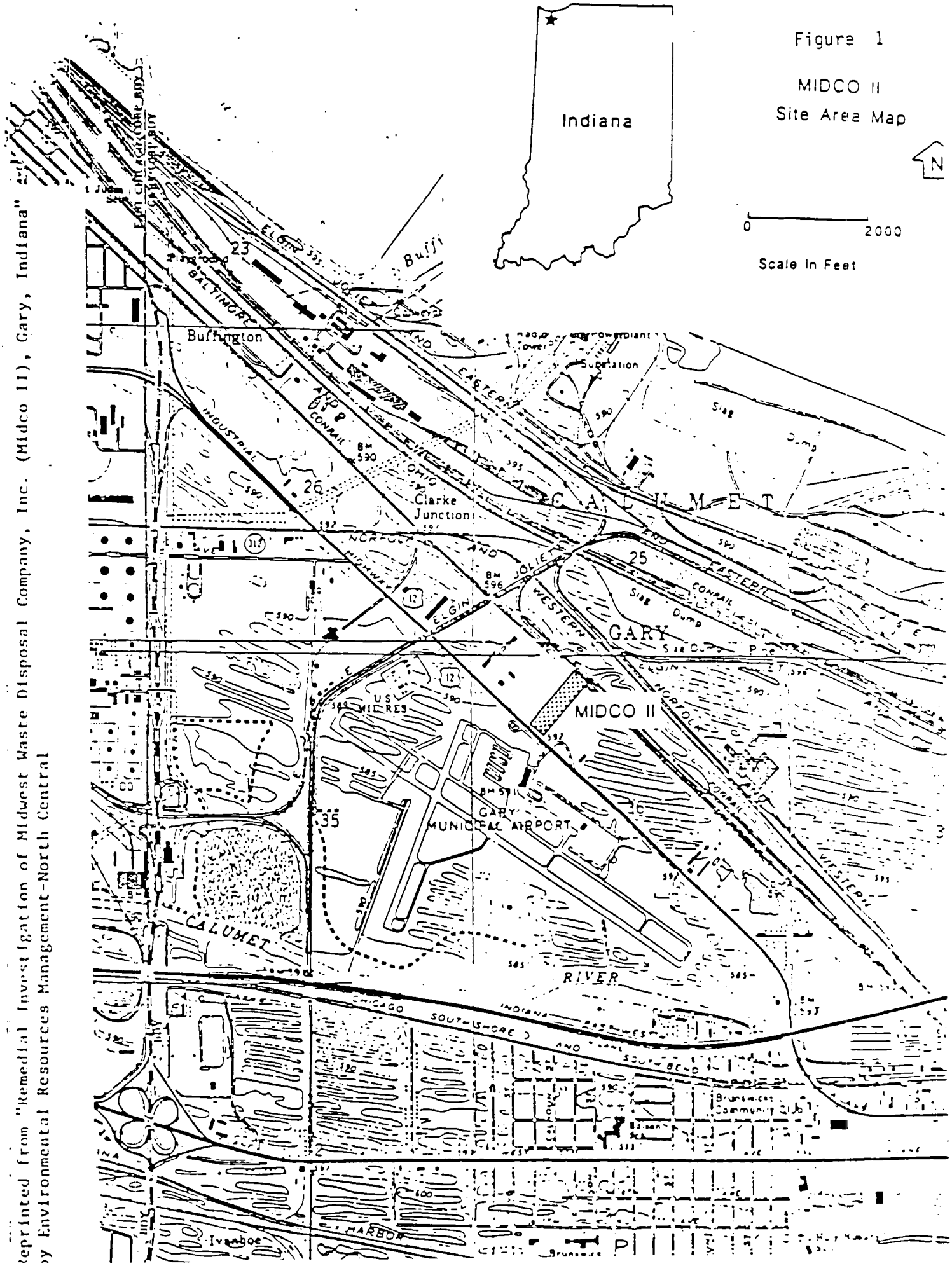


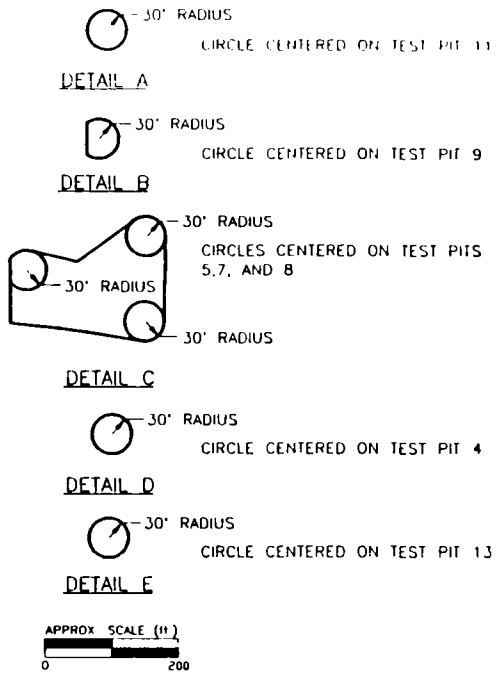
Figure 1

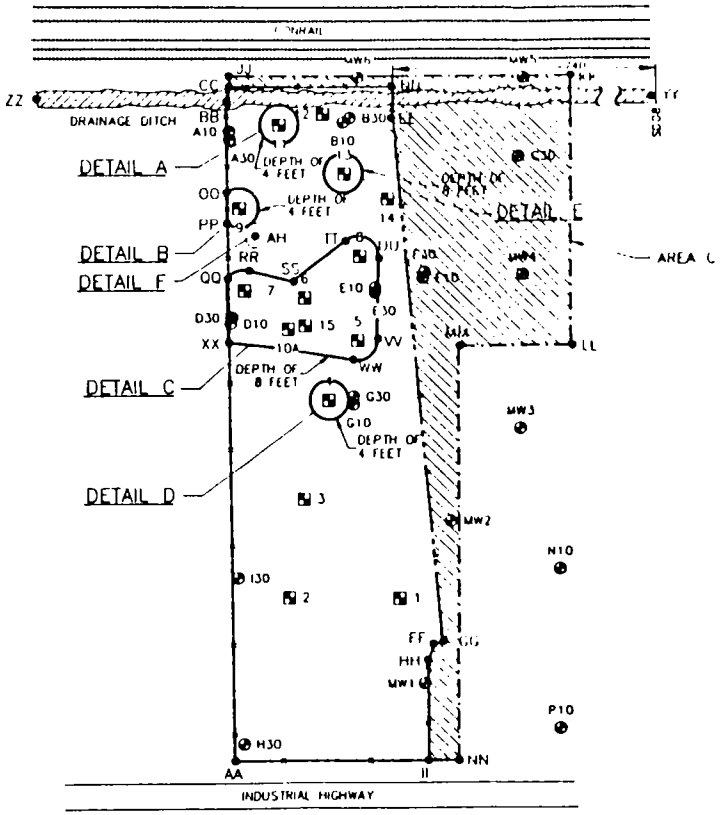
MIDCO II

Site Area Map

Reprinted from "Remedial Investigation of Midwest Waste Disposal Company, Inc. (Midco II), Gary, Indiana" by Environmental Resources Management-North Central

FIGURE 2





6' HIGH SOIL PILE
DETAIL F

SYMBOL LEGEND:

- GRID POINT
- MONITORING WELL LOCATION
- TEST PIT LOCATION
- MINIMUM AREA FOR TREATMENT
- INITIAL FENCE LOCATION
- MINIMUM COVER BOUNDARY
- SOIL SAMPLE COLLECTION AREA AND FINAL FENCE BOUNDARIES
- SOIL PILE
- AREA C
- SEDIMENTS TO BE REMEDIATED

NOTE
1. LINES DEMARKING THE INITIAL FENCE LOCATION AND THE MINIMUM COVER BOUNDARY ARE COINCIDENT
2. LINES DEMARKING THE INITIAL FENCE LOCATION, MINIMUM COVER BOUNDARY, SOIL SAMPLE COLLECTION AREA AND FINAL FENCE BOUNDARIES ARE COINCIDENT BETWEEN GRID POINTS CC, AA, AND II.

FIGURE 2

MIDCO II REMEDIATION
MIDCO II
GARY, INDIANA

ALTERNATIVE 10

ERI

0184 | STR | MO- | DATE: 12/3/91 | MIDCO

crushed drums and other debris. Ground water below the site is highly contaminated with VOCs, semivolatile organic compounds, metals and cyanide, but at the time of sampling the contaminated ground water did not extend very far from the site cover boundaries outlined in Figure 2. Some surface sediments have also been contaminated. Much of the ground water affected by the Midco II operations is highly saline.

After preparing a Proposed Plan and considering public comments, EPA selected the final remedial actions for the site in the Record of Decision (ROD) signed on June 30, 1989. IDEM concurred in the selected remedy. The final remedial actions were to address the remaining contamination at the site including contaminated subsurface soil, contaminated ground water and contaminated surface sediments. The major components of the remedy selected by EPA in the 1989 ROD included:

- On-site treatment of an estimated 35,000 cubic yards of contaminated soil and waste material by solidification/ stabilization followed by on-site deposition of the solidified material;

- Excavation and on-site solidification/stabilization of approximately 500 cubic yards of contaminated sediments from the ditch adjacent to the northeast boundary of the site;

- Installation and operation of a ground water pumping system to intercept contaminated ground water from the site;

- Installation and operation of a deep, class I, underground injection well for disposal of the contaminated ground water; or if a no-migration petition is not approved by EPA, treatment of contaminated ground water to remove hazardous substances followed by deep well injection; or treatment of the contaminated ground water to remove hazardous substances followed by reinjection of the ground water into the Calumet aquifer in a manner that would prevent spreading of the salt plume;

- Installation of a conduit in the ditch along the site, a final site cover, access restrictions, deed restrictions, and monitoring.

EPA with participation by IDEM conducted a 120 day negotiation period with the PRPs from May until September 1989, but no agreement was reached. In November 1989, EPA issued a Unilateral Administrative Order to a group of PRPs requiring them to implement the remedial action called for in the ROD. This Order became effective on December 29, 1989. However, the PRPs did not agree to implement the Order without addition of conditions that were unacceptable to EPA. On January 8, 1990, the United States filed an Amended Complaint seeking to enforce the Unilateral

Administrative Order, as well as to recover EPA's response costs, punitive damages, and fines.

In 1991, EPA determined that the arsenic data from the Midco II Remedial Investigation was mostly unusable because of an interference with high concentrations of aluminum in many of the samples (see Section III). Because arsenic was an important factor in determining the extent of soil treatment by S/S at Midco II, EPA considered the new information on the arsenic data to be fundamental new information. EPA has therefore reconsidered the 1989 ROD's provisions relating to the extent of soil treatment by S/S, and has at the same time in this ROD Amendment applied new Agency regulations (e.g. the revised NCP issued March 8, 1990, 40 CFR 300.430(a)(iii) "(A) EPA expects to use treatment to address the principal threats posed by the site wherever practicable.... (B) EPA expects to use engineering controls such as containment for waste that poses a relatively low long-term threat....") dealing with the extent of soil treatment at Superfund sites. This ROD Amendment also provides further detail regarding the implementation of various other components of the 1989 ROD. The revisions to the 1989 ROD are discussed in more detail later in this document.

EPA, IDEM, and a group of PRPs have since reached a proposed settlement consistent with this ROD Amendment. This settlement has been embodied in a Consent Decree that is being submitted for public comment concurrently with this proposed ROD Amendment. A detailed Statement of Work that would implement the remedial action that is the subject of the ROD Amendment is incorporated in the Consent Decree that is being lodged with the Federal District Court in Hammond, Indiana for public comment. This ROD Amendment incorporates the elements of the proposed remedial action, as well as providing updated information on the site.

The remedy selected in this ROD Amendment includes the following major components:

- On-site treatment of a minimum of approximately 12,200 cubic yards of contaminated soil and waste material, and possibly more dependent upon the results of further sampling, by SVE and in-situ S/S.

- Excavation and on-site S/S of approximately 500 cubic yards of contaminated sediments from the ditch adjacent to the northeast boundary of the site.

- Installation and operation of a ground water pumping system to intercept contaminated ground water from the site. Contingency measures shall be implemented in case it is determined that it is technically impracticable from an engineering perspective to attain the ground water cleanup action level.

- Installation and operation of a treatment system (as required) to remove hazardous substances from the extracted ground water, and deep well injection of the extracted ground water following any required treatment. Ground water treatment will be required to the extent necessary to attain maximum allowable concentrations (MACs), which are levels equivalent to those required for delisting a hazardous waste under the Resource Conservation and Recovery Act (RCRA). Treatment beyond the MACs will be required under certain conditions if either the lower Eau Claire or Mount Simon Formation (which are more than approximately 1800 feet below the surface of the site) is an underground source of drinking water (USDW) as defined in 40 CFR 144.3. Alternatively, the ground water could be treated to remove hazardous substances followed by reinjection of the ground water into the Calumet aquifer in a manner that will prevent spreading of the salt plume. See Section V.A of this ROD Amendment Summary.

- Construction of a cover over the entire site that is consistent with the closure requirement under Subtitle C of RCRA, access restriction, deed restrictions, and monitoring.

The ROD Amendment is similar to the 1989 ROD to the extent that it utilizes the same remedial technologies for soil and ground water remediation (ie. soil solidification/stabilization, soil vapor extraction, ground water extraction, treatment and deep well injection, and final site cover). The ROD Amendment utilizes different methods from the 1989 ROD for determining the amount of soil that must be treated, further defines the requirements for an effective site cover over soils with low levels of contamination that are not being treated, and further defines the requirements for treatment of ground water prior to deep well injection. It is expected that less soil and ground water treatment (see Section V.A) will be required under the ROD Amendment. In spite of this, the ROD Amendment achieves a level of protection of public health and the environment that is not considered significantly different from what would have been achieved by the 1989 ROD. The ROD Amendment's provisions provide such protection by providing for treatment of principal threats (that is the highly contaminated soils) and mandating an effective site cover over untreated soils that pose a relatively low long-term threat. The site cover will substantially reduce the threat from the soils presenting a relatively low long-term threat: for the direct contact threat by covering the soil with a five foot thick cover; and for the threat of further ground water contamination from the soils above the water table by reducing infiltration through the soils and production of leachate. To maintain its effectiveness, the site cover and solidified/ stabilized material will have to be monitored and maintained.

In contrast, the 1989 ROD provided for treatment of soils posing

a relatively low long-term threat by SVE and S/S. This may have resulted in permanent treatment of some additional contaminants and would have resulted in a reduction of leaching and control of the direct contact threat by the treatment and a cover. However, in spite of the additional treatment, unrestricted future usage of the site would not have been allowed because long term maintenance and monitoring of the solidified/stabilized material and the cover would have been required. Any reduction in protectiveness from the change in the ROD Amendment's soil treatment action levels (see Section V.C) from the 1989 ROD's soil cleanup action levels (see Section IV) are compensated for by taking into account the risk reducing effect from the site cover over untreated soils posing low level threats. The ROD Amendment includes new requirements for the final site cover to ensure its effectiveness. Because the risk reduction and reduction in toxicity or mobility of the additional treatment required in Alternative 8 compared to Alternative 10 is small, it is not considered to be cost effective compared to Alternative 10.

A Proposed Plan has been prepared that briefly describes the remedial alternatives analyzed by EPA, proposes the revised alternative, and summarizes the information relied upon to select this alternative. This proposed ROD Amendment as well as the Proposed Plan will be subject to a public notice, public comment period, and the opportunity for a public meeting, in accordance with the requirements of 40 CFR 300.435(c). In addition, the ROD Amendment and supporting information will be made available to the public in the Administrative Record for this action.

II. PURPOSE OF ROD AMENDMENT

The major purpose of this ROD Amendment is to modify the 1989 ROD's provisions relating to the extent of soil treatment by S/S, as a result of new information on the arsenic data. At the same time, the ROD Amendment applies new EPA regulations (e.g. the revised NCP issued March 8, 1990, 40 CFR 300.430(a)(iii) "(A) EPA expects to use treatment to address the principal threats posed by the site wherever practicable.... (B) EPA expects to use engineering controls, such as containment for waste that poses a relatively low long-term threat....") dealing with the extent of soil treatment at Superfund sites.

This ROD Amendment provides for direct treatment of soils at what are believed to be the more highly contaminated areas of the site, which are the source of the principal threats to ground water, air and dermal contact. Large volumes of soils presenting a relatively low long-term threat will not be treated since (in the context of the conditions at this site) the threats from such soils can be reliably controlled using an effective site cover.

A minimum of approximately 12,200 cubic yards (depicted in Figure 2) will be treated without further sampling, and additional amounts may have to be treated depending upon the results of further sampling.

The action levels for additional soil treatment outside of the areas outlined in Figure 2 are as follows:

cumulative lifetime carcinogenic risk	= 5×10^{-4}
cumulative chronic non-carcinogenic risk index	= 5.0
lead concentration (mg/kg)	= 1000

These action levels were selected taking into account treatment of the minimum area for treament identified in Figure 2, site characteristics and hazardous substances, and current EPA regulations, policies, and guidance. The cover will be over the entire site and will be consistent with RCRA Subtitle C closure requirements. The extent and quality of the site cover under the 1989 ROD was left open (depending upon the success of the treatment).

Another purpose of this ROD Amendment is to further define the requirements for treatment prior to deep well injection of the extracted ground water, including a proposal to delist extracted ground water (following treatment as required) meeting specified maximum allowable concentrations (MACs) in accordance with "A Guide To Delisting of RCRA Wastes For Superfund Remedial Responses" (September 1990) so that the ground water can be injected into the lower Mount Simon formation in compliance with the requirements of RCRA and the Underground Injection Control Program (see Section V.A for further explanation of MACs). In effect, treatment to the MACs would take the place of the 1989 ROD's requirement of treatment to RCRA Land Disposal Restriction (LDR) treatment standards prior to the deep well injection. Treatment beyond the MACs will be required under certain conditions (see Section V.A) if either the lower Eau Claire or Mount Simon Formation (which are more than approximately 1800 feet below the surface of the site) is an underground source of drinking water (USDW) as defined in 40 CFR 144.3.

This ROD Amendment also further defines the remedial actions as follows:

definition of phases and sequencing for ground water and soil treatment;

further definition of performance standards for S/S;

a decision that the in-situ S/S option allowed in the 1989 ROD will be implemented rather than the excavation option;

a decision that the option of deep well injection without

prior treatment, which would require EPA approval of a no-migration petition will no longer be considered (Alternative 7);

contingency measures have been added in case it is technically impracticable to attain the ground water cleanup action levels;

further definition of construction requirements for the site cover;

a determination that air emissions during in-situ S/S and during SVE conducted with the in-situ S/S equipment shall be controlled by carbon adsorption or by another technology that is equally effective;

a determination that in addition to the above if cumulative air emissions from all operations other than excavation at the Facility exceed 3 pounds per hour, carbon adsorption or another technology that is equally effective shall be used in the ground water treatment system and all SVE.

further definition of actions that will be taken to comply with the requirements for protection of wetlands in Executive Order 11990 and Section 404 of the Clean Water Act.

This ROD Amendment also provides updated information on the site in the following section.

III. SITE CHARACTERISTICS AND SUMMARY OF RISKS (this Section updates information on site characteristics and risk in Sections V and VI of the 1989 ROD)

Some new information has been obtained regarding Midco II since the 1989 ROD was signed. This new information is reported in this portion of the ROD Amendment.

Subsequent to completion of the 1989 ROD, EPA became aware that the arsenic concentrations reported for some soil and sediment samples in Midco II the Remedial Investigation, could be inflated due to an analytical interference from high aluminum concentrations in these samples. This was significant because any arsenic concentrations exceeding background would exceed the 1×10^{-5} carcinogenic risk level and require soil treatment by SVE and S/S under the 1989 ROD. In response, EPA investigated this concern and determined that the higher arsenic soil concentrations reported in the RI were unreliable. As a result the actual extent of soil treatment by SVE and S/S required in the 1989 ROD would likely have been considerably less than estimated in the Feasibility Study dated February 1989.

From an EPA audit of some of the soil data, EPA determined that the arsenic measurements in soil samples with aluminum concentrations greater than 10,000 mg/kg should be considered unusable because an adequate background correction for the aluminum interference was not applied. At Midco II, four soil boring samples, twenty test pit samples and six surface sediment samples exceeded aluminum concentrations of 10,000 mg/kg. These samples generally had the highest arsenic results. Sampling conducted at Midco II during February 1991 confirmed that the aluminum interference caused inflated arsenic results if an adequate background correction was not applied. Without the background correction, arsenic was reported from 313 to 1780 mg/kg in the Midco II soil samples, with the proper background correction (using a Zieman detector) arsenic was reported from less than 9 to 24 mg/kg. This sampling and the analyses of these samples were conducted by some PRPs with EPA oversight and in accordance with procedures approved by EPA.

If arsenic values in the soil samples with aluminum concentrations greater than 10,000 mg/kg are excluded from the risk calculations, the estimated averaged, site-wide, lifetime, cumulative, carcinogenic risk due to ingestion of soils using the future development scenario decreases from 3.3×10^{-4}, as reported in the 1989 ROD, to 5.7×10^{-5} (Table 4-22 of the Addendum to Public Comment Feasibility Study, February 10, 1989). The non-carcinogenic risk index for exposure to soils would change from 2.99 to 1.7. The revised soil risks without arsenic were taken into account in determining the minimum areas for S/S defined in Section V.C, and Figure 2 of this ROD Amendment.

To update the risk assessment calculation procedures for soil risks, EPA asked Planning Research Corporation (PRC) to conduct additional risk calculations using the data from the Midco II Remedial Investigation. The risks reported in the 1989 ROD did not include dermal contact or inhalation modes of exposure to the soils. The results of PRC's calculations are presented in a letter report dated June 21, 1991. The risks were calculated using the average soil concentrations in samples from test pits dug into what was suspected to be the most contaminated areas of the site during the Remedial Investigation and using a dermal contact and inhalation mode of exposure as well as the ingestion mode of exposure used in the Remedial Investigation. It was assumed that a home with a basement would be built on the site and that as a result the residents would be exposed to soil gas from the site. Very high carcinogenic risks to on-site residents were calculated due to inhalation exposures to volatile organic compounds including: methylene chloride (risk = 0.0142); and trichloroethylene (risk = 0.032). Very high non-carcinogenic risks to on-site residents were also calculated due to inhalation exposures to volatile organic compounds including: methylene chloride (risk index = 2.1); 2-butanone (risk index = 4.1); and

toluene (risk index = 440). Not including arsenic or the inhalation mode of exposure, the calculations indicate a cumulative carcinogenic risk from the dermal contact and ingestion modes of exposure to be 1.7 X 10^{-4}; and the cumulative non-carcinogenic risk index to be 5.61. The calculations indicate a cumulative carcinogenic risk to hypothetical construction workers to be 1.1 X 10^{-6} and a cumulative non-carcinogenic risk index to be 2.1. These revised risk calculations provide further support of EPA's remedial action decisions for the Midco II site.

Since the 1989 ROD was completed, the United States Fish and Wildlife Service (U.S. F&W) completed a report entitled: "Summary Addendum Report for the Midco I, Midco II, and Ninth Avenue Dump Hazardous Waste Sites in Gary, Lake County, Indiana", September 1990. In this report, the U.S. F&W concluded that "the various contaminated habitats/media at Midco I, Midco II, and the 9th Avenue Dump sites present a threat to fish and wildlife resources utilizing or exposed to them." This additional documentation provides further support of EPA's remedial action decisions for the Midco II site.

IV. DESCRIPTION OF THE REMEDY SELECTED IN THE 1989 ROD (ALTERNATIVE 8): GROUND WATER PUMPING, TREATMENT AND DEEP WELL INJECTION WITH SOLIDIFICATION/STABILIZATION

The remedy selected in the 1989 ROD (Alternative 7 or 8) combined either ground water Alternative 4A (Alternative 7) or 4B (Alternative 8), with soil treatment Alternative 5E. Implementation of Alternative 7 was contingent upon EPA approval of a no-migration petition pursuant to 40 CFR 268.6 and 40 CFR 148 Subpart C. After the ROD was approved, EPA obtained information from review of the Inland Steel and U.S. Steel no-migration petitions that indicated that it is very unlikely that a no-migration petition would be approved for deep well injection at the Midco II site. Therefore, the subsequent discussion uses only Alternative 8.

Alternative 8 included installation and operation of ground water extraction wells to intercept the contaminated ground water that exceeds the ground water cleanup action levels (CALs) identified in Section X of the 1989 ROD, and installation of a Class I hazardous waste underground injection well into the Mount Simon formation for disposal of the highly saline waste water.

The extracted ground water was to have been treated to remove hazardous substances to the extent required by EPA prior to the deep well injection. While the extent of treatment that would be required by EPA was not fully defined, it was anticipated that this would at least require meeting Land Disposal Restriction (LDR) treatment standards for listed hazardous waste categories F001, F002, F003, F005, F007, F008, F009. This was anticipated to require treatment of the extracted ground water by air stripping and carbon absorption. However, Alternative 8 included provisions for treating to drinking water standards if required in order to gain approval of the deep well injection. Treating to drinking water standards was anticipated to require metals precipitation, and cyanide oxidation in addition to the air stripping and carbon absorption.

In the 1989 ROD, no mention was made of delisting the ground water because at that time no guidance was available on the level of treatment required to delist ground water. It was anticipated that delisting the ground water would require more stringent treatment than meeting the LDR treatment standards.

Another option that was allowed under Alternative 8 was treatment of the hazardous substances followed by reinjection of the treated ground water back into the Calumet aquifer in a manner that would not spread the salt plume in the Calumet aquifer. The pump, treatment and injection system would be operated until ground water CALs are attained in the Calumet aquifer.

Contaminated subsurface soils located above the water table were to have been treated by S/S (and by SVE if necessary). At the end of the action, all soils exceeding the soil CALs (Section X of the 1989 ROD) located above the water table had to be treated. In addition, S/S would be conducted on highly contaminated materials below the water table that could be handled by localized dewatering. Contaminated soils below the water table that were not treated would be slowly remediated by the ground water extraction system through ground water flushing. The soil CALs were based on contaminant concentrations that would allow for unrestricted future usage of the site, and were defined as follows:

cumulative lifetime carcinogenic risk = 1×10^{-5}
cumulative chronic non-carcinogenic index = 1.0

Under Alternative 8, the S/S of the subsurface soils could have been conducted either by excavation followed by S/S, or by in-situ S/S. Under the excavation option, SVE was required if necessary to meet the LDR treatment standards. Under the in-situ S/S option, SVE was required prior to in-situ S/S to the extent necessary to assure that leachate from the solidified mass would not cause exceedance of the ground water CALs.

Sediments in the areas shown in Figure 2, would be excavated and treated on-site by S/S along with the contaminated soils.

Following the S/S treatment, a conduit would be installed in the ditch north of the site, and the area treated by S/S would be covered to meet the requirements of RCRA if the excavation and S/S option was used, otherwise the quality of the site cover would depend on the success of the S/S operation. Ground water use restrictions, access restrictions and long term monitoring were also required.

V. DESCRIPTION OF NEW ALTERNATIVE (ALTERNATIVE 10): GROUND WATER PUMPING, TREATMENT AND DEEP WELL INJECTION WITH SOIL VAPOR EXTRACTION AND SOLIDIFICATION/STABILIZATION

A. Ground Water Pumping, Treatment and Disposal

Like Alternative 8 in the 1989 ROD, the new Alternative 10 includes installation and operation of a ground water extraction system to intercept the contaminated ground water that exceeds the ground water CALs, and installation of a deep underground injection well for disposal of the ground water. As stated before, Alternative 10 proposes to delist extracted ground water by meeting specified maximum allowable concentrations (MACs) in accordance with "A Guide To Delisting of RCRA Wastes For Superfund Remedial Responses" (September 1990) so that the ground water can be injected into the lower Mount Simon formation in compliance with the requirements of RCRA and the Underground Injection Control Program. Although the 1989 ROD did not mention delisting of the ground water, it is probable that this same delisting procedure would have been used under Alternative 8, because Alternative 8 was worded broadly enough to allow this procedure, for the same reasons that it is now being proposed for Alternative 10.

The MACs are defined below. For purposes of compliance with RCRA, treatment to the MACs would take the place of the 1989 ROD's requirement of treatment to RCRA LDR treatment standards prior to the deep well injection.

In accordance with the delisting guidance, a Superfund waste can be delisted if it attains or is treated to attain levels that will not cause exceedance of health based levels (HBLs) used for delisting decisions at a hypothetical receptor well using generic assumptions and an appropriate ground water transport model such as the vertical and horizontal spread (VHS) model. The HBLs are set at concentrations of constituents that provide protection for drinking water usage (primary Maximum Contaminant levels (MCLs) from 40 CFR Part 141 are the HBLs when available, otherwise the

HBL is set at the 1 X 10^{-6} carcinogenic risk level or the level that will not cause a non-carcinogenic risk assuming that 2 liter per day is ingested over a 70 year lifetime). The HBLs for this action are listed in Appendix I. The VHS model is often accepted in the RCRA delisting program for use in estimating the extent to which toxicant leaching from a Subtitle D landfill will be diluted within a surficial aquifer before it reaches a hypothetical receptor well 500 feet down gradient. While these modeling conditions are not designed to fit the conditions for deep well injection at Midco I, they will be used for the delisting demonstration in this ROD Amendment because the delisting determination is generic and is not a site specific determination, and because the results using these modelling conditions are conservative for the disposal in a deep well in this location.

Using the VHS model, the dilution factor derived from the model depends on the volume of the liquid entering the ground water. Because the volume of ground water that will be deep well injected is large, the resulting dilution factor using the model is 6.3. It follows that the Midco II ground water can be delisted if the hazardous substances contained in it are or are treated to be less than 6.3 times the HBLs. The quantity 6.3 times the HBLs will be referred to as the maximum allowable concentrations (MACs). Under Alternative 10, EPA proposes to delist the extracted ground water through this ROD Amendment by providing for treatment of the extracted ground water to below the MACs prior to deep well injection. This delisting satisfies the substantive requirements of 40 CFR 260.20 and 260.22.

The Midco II FS dated February 10, 1989 and the reviews conducted for the FS provide documentation that the ground water can be treated to the MACs. Related information is included in a report entitled Midco I and II Delisting Demonstration, May 16, 1991. In addition, a pilot study shall be conducted using the actual extraction well network. Information from the pilot study will be used to properly design the treatment system to assure that the MACs will be met in the treated ground water. After initiation of the operation, sampling will be conducted on the treated ground water to verify that MACs are being met. This sampling shall be fully defined during the design phase of this project. Since the ground water will be delisted, the deep underground injection well for Alternative 10 will meet the requirements for a non-hazardous injection well rather than requirements for a hazardous injection well. In particular, siting requirements in 40 CFR 146.62 will not be an applicable or relevant and appropriate requirement (ARAR) for Alternative 10.

Some MACs are higher than the LDR treatment standards for the same compound, and some are lower. Generally for the less toxic compounds, the MACs are less stringent than the LDR treatment standards, while for the more toxic compounds the MACs are more

stringent. This is summarized for some compounds of concern at Midco I in the following comparison:

COMPOUND	MACS (MG/L)	LDR (MG/L)
acetone	25.2	0.05
chlorobenzene	0.63	0.15
ethylbenzene	4.4	0.05
methylene chloride	0.0315	0.2
methyl ethyl ketone	12.6	0.05
tetrachloroethylene	0.0315	0.079
toluene	6.3	1.12
1,1,1-trichoroethane	1.26	1.05
trichloroethylene	0.0315	0.062
xylene	63	0.05
cyanide	1.26	1.9
chromium	0.63	0.32
lead	0.95	0.04
nickel	0.63	0.44

More compounds are regulated under the delisting procedures than have applicable LDR treatment standards.

The end result of using the delisting procedures is that, while the action is still protective, it may be possible that the MACs can be attained by air stripping alone, while compliance with the LDR treatment standards was expected to require treatment by carbon adsorption in addition to air stripping. However, it is possible that further treatment by carbon adsorption and metal precipitation, or alternative treatment processes will be required to meet the MACs. Waivers of some siting requirements for deep well injection of hazardous wastes (40 CFR 146.62) will not be required once the ground water is delisted.

After the ground water has been delisted and has met the MACs, it will be injected into the lower Mount Simon Formation without further treatment by means of a deep well constructed according to Class I non-hazardous underground injection well requirements

if either of the conditions (1 or 2) below is met:

1. Neither the Lower Eau Claire nor the Mount Simon Formations below the well site is a USDW as defined in 40 CFR 144.3.

2. The injection of the ground water will not cause (for each constituent for which a Safe Drinking Water Act Maximum Contaminant Levels (MCL) exists): a) the exceedance of Safe Drinking Water MCLs at the point of entry of the injected ground water into any portion of the Lower Eau Claire Formation or Mount Simon Formation that is a USDW pursuant to 40 CFR 144.3; or b) the exceedance of natural background levels present in any portion of the Lower Eau Clair or Mount Simon Formation that is a USDW pursuant to 40 CFR 144.3--whichever level is least stringent.

Preliminary modelling indicates that injection of the ground water meeting the MACs into the Lower Mount Simon Formation will meet the requirements of 2 above. However, this must be confirmed using information from sampling and testing conducted at the injection well location. If the sampling and testing confirms that the technical premises of the preliminary modelling are reasonably conservative, the delisted ground water meeting the MACs will be injected without further treatment. However, if additional treatment is required to ensure that the requirements of 2 above will be met, sufficient treatment will be provided to ensure that the injection of the ground water will meet the requirements of condition 2 above.

Based on preliminary modelling of the deep well injection, EPA believes that it is unlikely that deep well injection into the lower Mount Simon Formation would cause the exceedance of natural background levels of TDS in the lowermost USDW. However, in the unlikely event that it is determined based on modelling that deep well injection into the lower Mount Simon Formation would cause such an exceedance, this ROD amendment may be reconsidered. This ROD may also have to be reconsidered in the unlikely event that the Lower Mount Simon Formation is a USDW.

Alternative 10 also includes the following:

1. Like Alternative 8, Alternative 10 includes the option of treatment of the extracted ground water for hazardous substances followed by reinjection of the treated ground water into the Calumet aquifer, if the reinjection is conducted in a manner that will not cause spreading of the salt plume.

2. <u>Midco I, Midco II, and the Ninth Avenue Dump may be treated</u>

<u>as one site for purposes of permitting and compliance with EPA's Off-site Policy.</u>

Where two or more noncontiguous facilities are reasonably related on the bases of geography or on the basis of the threat or potential threat to the public health or the environment, the two facilities may be treated as one for purposes of permitting and compliance with EPA's Off-site Policy (see Section 104(d)(4) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA)). Midco I and Ninth Avenue Dump are located within 200 yards of each other and are 2.5 miles from Midco II. All three facilities are located in the same industrial area on former wetlands that have been partially filled. Midco I and Midco II were part of the same disposal and treatment operation. All three facilities had organic solvents, heavy metals and other hazardous substances disposed on the facility. In addition, Midco I and Midco II have the same requirements for treatment and deep underground injection of the ground water. Therefore, based on the similar geography and threat, the three facilities may be treated as one facility for purposes of permitting and compliance with EPA's Off-site Policy if ground water treatment or deep well injection is combined with Midco II or Ninth Avenue Dump at the Midco I or Midco II sites, or if a pipeline is constructed to transport the extracted ground water (before or after treatment) from Midco I to Midco II or vice versa. Since combined treatment, deep well injection, and transport in a pipeline between facilities would be considered on-site actions, permits and compliance with EPA's Off-site Policy for these actions will not be required since the substantive and administrative requirements of the permits will be incorporated into the review process for this CERCLA action (see Section 121(e) of CERCLA and 40 CFR 300.400(e)).

3. It will be advantageous to place the deep injection well(s) outside of the main areas of contamination from the Midco I and Midco II site because this may lessen the potential for contamination of aquifers below the Calumet Aquifer during the installation of the well, and it will be advantageous to place the deep injection well and ground water treatment facility outside of the main areas of contamination from the Midco I and Midco II sites because that may lessen the potential for conflict with the construction and operations for soil treatment and the site cover. Therefore construction and operation of the deep injection well, and ground water treatment facility on areas in very close proximity but outside of the areas of contamination will be on-site (consistent with the NCP 40 CFR 300.400(e)(1). This will include property at the Indiana Department of Transportation facility located at 7306 West 15th Avenue in Gary, Indiana.

4. The injection well must be constructed, installed, tested, monitored, operated, closed and abandoned in accordance with the substantive requirements and conditions of Subparts A, B, D, and E of 40 CFR 144, and Subparts A, B, and F of and 40 CFR 146.

5. Responses to operational problems and implementation of corrective actions must be in accordance with the substantive requirements of 40 CFR 146.64, 146.67, 144.12, 144.51(d) and 144.55. This includes the requirements for construction, monitoring, reporting, well plugging, and injection well closure as necessary to prevent movement of any contaminant into a USDW, due to operation of the injection well. It also includes implementation of remedial actions to restore any USDW that becomes contaminated as a result of the operation of the underground injection well pursuant to Section 3004(u) and 3008(h) of the 1984 Hazardous and Solid Waste Amendments, and Section 1431 of the Safe Drinking Water Act.

6. Air emissions from an air stripper (or similar device) shall meet the requirements defined in Section V.D.

7. Until the extracted ground water meets the MACs, the extracted ground water shall be managed as a hazardous waste in accordance with the substantive requirements of RCRA.

B. Ground Water Cleanup Action Levels (CALs) and Contingency Measures in Case of Technical Impracticability:

The ground water CALs in Alternative 10 are unchanged from Alternative 8. The ground water CALS are summarized below and calculated in accordance with procedures defined in Appendix II:

Ground water throughout the Calumet aquifer affected by Midco II that exceed any of the following risk-based levels will be recovered and treated (except as provided for in the procedures defined in Appendix II). The ground water pump, treatment and injection system shall be operated until the hazardous substances throughout the Calumet aquifer affected by Midco II have been reduced below each of these risk-based levels (except as provided for in the procedures defined in Appendix II). Applying the CALs throughout the contaminated plume is consistent with F.R., Vol. 53, No. 245, P. 51426.

Cumulative Lifetime Carcinogenic Risk = 1×10^{-5}
Cumulative Non-carcinogenic Index = 1.0
Primary Maximum Contaminant Levels (40 CFR 141)

Chronic Ambient Water Quality Criteria for aquatic life (AWQC) multiplied by a factor of 3.6

The ground water CALs have been selected to be protective for use of the aquifer for residential purposes including drinking water consumption, and to protect aquatic life from recharge of ground water affected by the Midco II site.

Based on information in the Administrative Record, EPA believes that a ground water extraction system can attain the ground water CALs. However, the technical practicability of achieving the ground water CALs from an engineering perspective throughout the Calumet aquifer cannot be fully determined until the extraction system has been implemented and the plume response monitored over time. Before concluding whether it is technically impracticable to attain the ground water CALs, modifications to the design and operation of ground water extraction system will be considered, including:

a) discontinuing operation of extraction wells in areas where ground water CALs are attained;

b) alternative pumping at wells to eliminate stagnation points and to increase contaminant reductions;

c) varied or intermittent operation of the system (pulse pumping) to allow aquifer equilibration and encourage adsorbed contaminants to partition into ground water;

d) physical repositioning of extraction wells to capture alternative flow line/transport pathways to increase contaminant reductions;

If a ground water extraction system cannot meet the ground water CALs after ten years of operation and it is determined based on a demonstration that it is technically impracticable from an engineering perspective to attain the ground water CALs even considering the potential changes to the design and operation of the system listed above, the ground water CALs may be changed to the lowest acheivable levels attainable using ground water extraction technology. In addition, the selected remedy may include the contingency measures described below.

a) additional institutional controls to prevent human access to contaminated ground water (institutional controls may include deed restrictions sought voluntarily from owners or compelled to the extent authorized under any applicable local and State laws);

b) low-level pumping as a long-term gradient control or containment measure to prevent recharge of the surrounding wetlands from exceeding the Ambient Water Quality Criteria for aquatic life, and to prevent human access to the ground water exceeding the CALs that are based on drinking water usage.

Any ARARs based on the primary MCLs that exceed the lowest achievable levels attainable by the ground water extraction technology, will be waived by EPA, if EPA in the future makes a finding of technical impracticability.

C. Soil Treatment:

Alternative 10, like Alternative 8, includes provisions for treatment of the subsurface soils by SVE and in-situ S/S. Highly contaminated subsurface soils located above the water table will be treated by solidification/stabilization (S/S) and soil vapor extraction (SVE). Contaminated soils below the water table will be slowly remediated by the ground water extraction system through ground water flushing. Following is a description of the soil treatment requirements in order of the phases for the soil treatment.

1. Ground water pump and treatment:

The pump and treatment system will operate for a period of up to 36 months before direct soil treatment by in-situ S/S or SVE is initiated. The purpose of this is to attempt to reduce volatile organic compounds (VOCs) prior to the direct soil treatment operations.

2. In-situ S/S and SVE:

Following the initial period of pumping and treatment and successful completion of a treatability study and pilot study on S/S and SVE, portions of the subsurface soils shall be treated by SVE and in-situ S/S. At least the soils in the areas and to the depths labeled minimum area for treatment on the map in Figure 2 (which are believed to include the more highly contaminated soils) will be treated first by SVE and then by in-situ S/S. In addition, soils outside the mapped areas will be sampled to determined whether further SVE and S/S will be conducted.

Sampling will be conducted as defined in Appendix III to determine the full extent of soil treatment outside of the mapped areas. Using these sampling results, the cumulative risks at each sample location will be calculated for the ingestion, dermal contact, and inhalation modes of exposure using the procedures outlined in the Appendix IV. Based on these results, treatment by SVE and S/S will be conducted outside of the minimum areas to be treated delineated in Figure 2 if the following soil treatment action levels are exceeded:

Soil Treatment Action Levels:

cumulative lifetime carcinogenic risk $=5 \times 10^{-4}$
cumulative chronic non-carcinogenic risk index=5.0

lead concentration (mg/kg) =1000

These action levels were selected taking into account treatment of the minimum area for treatment identified in Figure 2, site characteristics and hazardous substances, and current EPA regulations, policies and guidance.

If these action levels are exceeded for a sample, the soil within the 20 foot square or 60 foot square (if the square is not subsampled) represented by this sample will be treated to a depth of 8 feet, unless sampling indicates that the soil does not exceed the action levels at depths between 4 and 6 feet, in which case the soil will be treated to a depth of 4 feet.

The treatment will be first by SVE and then by S/S unless the exceedance of the Soil Treatment Action Level can be corrected by removing VOCs, in which case only SVE need be used.

In Area C identified on Figure 2, in lieu of conducting SVE and in-situ S/S, the soil may be excavated and consolidated within the boundaries of the minimum area for treatment indicated on Figure 2, and the excavated soil treated by in-situ S/S along with the soils in such areas if the following conditions are met: 1) it is demonstrated that VOC emissions from the excavation and consolidation will not exceed the criteria for air emission in Section V.D; 2) the exceedance of the Soil Treatment Action Levels cannot be corrected by SVE; and 3) the total quantity excavated is limited.

If the sample from the soil pile (as shown on Figure 2 exceeds the Soil Treatment Action Levels, this pile will be spread onto other areas that require S/S and treated by in-situ S/S along with the soil below it.

If the treatability study and a pilot study show that the equipment used for the in-situ S/S has potential to achieve a 90% reduction in the soil concentrations of the following VOCs: benzene, methylene chloride, trichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, 1,1-dichloroethylene, trans-1,2-dichloroethylene, and vinyl chloride, and that the air emission requirements in Section V.D can be satisfied using the S/S equipment, SVE could be conducted using the same equipment and air pollution controls as used for the S/S.[1] In this case, the fresh air (or possibly heated air or steam) would be injected into the soil while the blades of the auger mix the soil and while the contaminated air is drawn off with the induced draft

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[1] In conjunction with the treatability study on S/S discussed in this section, EPA is conducting treatability tests simulating use of in-situ equipment for conducting the SVE.

fan into an air pollution control device. Following the SVE operation, the same soil that was treated by SVE could be treated by S/S. The SVE must continue until there is a 97% reduction in total VOCs (but not less than three times the ambient level) in the off-gas prior to any air pollution control device during vigorous agitation of the soils. Air emissions must be controlled in accordance with the requirements defined in Section V.D.

Alternatively, SVE would be conducted as a separate operation from S/S using vacuum and air injection pumps connected by pipes to a series of air injection and extraction wells. In addition, a low permeability cover may be required over the area being treated. The air pressure gradient would draw VOC-contaminated air from the soil pores. The removed VOCs would be required to be processed in a liquid-vapor separator and the air emissions would have to meet the requirements in Section V.D. The SVE must continue until treatment by in-situ S/S can be conducted in compliance with the air emission requirements in Section V.D, and there is a 97% reduction in total VOCs in the soils being treated (but not to a concentration less than ten times the detection limit of each constituent).

It is anticipated that the in-situ S/S system would utilize a crane-mounted mixing system. The mixing head would be enclosed in a bottom-opened cylinder to allow closed system mixing of the treatment chemicals with the soil. The bottom-opened cylinder would be lowered onto the soil and the mixing blades started, moving through the depth in an up and down motion, while chemicals are introduced. An induced draft fan would draw the contaminated air from the container into an air pollution control device and exhaust the treated air to the atmosphere. Because there is potential for causing substantial VOC emissions, the contaminated air must be treated by carbon adsorption or by another treatment process that is equally effective, and meet the criteria in Section V.D. At the completion of mixing at one location, the blades would be withdrawn and the cylinder removed. The cylinder would then be operated adjacent to and overlapping the previous cylinder. This would be repeated until the entire area is treated.

The formulations and ratios of reagents used for the S/S process will be established to provide permanent treatment, substantially reduce release of contaminants due to leaching, substantially reduce permeability, and to assure long term durability of the solidified material.

EPA is currently undertaking a treatability study on approximately ten binders being considered for use in S/S at Midco II. Those binders selected for use at the Facility must meet the below listed Minimum Performance Standards. In addition, based on the results of the treatability study, EPA may

establish Final Performance Standards that are more stringent than or supplementary to the Minimum Performance Standards.

MINIMUM PERFORMANCE STANDARDS

STABILIZATION OF METALS

Using the Synthetic Precipitation Leaching Procedure (SPLP) test (method 1312 of SW-846 using extraction fluid #1) the following percentage reduction in the leachate concentrations shall be attained using the formula:

$$SPLP_{treated} \times DF / SPLP_{raw\ waste} \times 100$$

$SPLP_{treated}$ = concentration of constituent (i) in the leachate from sample treated by S/S

DF =dilution factor = (weight of waste being treated + weight of S/S blend added to that waste) / (weight of waste being treated)

$SPLP_{raw\ waste}$ = concentration of constituent (i) in the leachate from untreated waste sample

Alternatively, the $SPLP_{treated}$ can be reduced to the following Concentration Limits. If a parameter in the untreated sample is below its Concentration Limit listed below, no further reduction in leachate concentration is required, although the treated sample should not increase in leachate concentration to above the Concentration Limit.

CONSTITUENT	PERCENTAGE REDUCTION	CONCENTRATION LIMIT (ug/l)
arsenic	90	50[2]
barium	90	2000[2]
cadmium	95	5[2]
chromium	95	100[2]
copper	95	43[3]

[2] These values are from the final or proposed Primary Maximum Contaminant Standards, 40 CFR Part 143.

[3] This value equals the 4-day average fresh water ambient water quality criteria for copper for protection of aquatic life times 3.6 at a hardness equal to 100 mg/l. The 4-day average fresh water ambient water quality criteria is from Ambient Criteria for Water 1986, EPA 440/5-86-001. The factor 3.6 is the estimated factor for dilution of the ground water by the surface water at Midco II.

lead	99	15[2]
nickel	95	100[2]
vanadium	90	233[4]
zinc	90	1150[5]

STABILIZATION OF ORGANICS

Using total waste analyses (using methylene chloride extraction for semivolatile organics, and methanol extraction for volatile organics), a 50% reduction in concentrations shall be attained based on total waste analyses of the sample of untreated waste ($TWA_{raw\ waste}$) and the sample treated by S/S ($TWA_{treated}$) calculated in accordance with the formula: $TWA_{treated}$ X DF / $TWA_{raw\ waste}$ X 100 for the following compounds: anthracene; bis(2-ethylhexyl) phthalate; ethyl benzene; fluoranthene; naphthalene; phenanthrene; phenol; toluene; xylene.

PHYSICAL TESTS

i. Using method EPA 9100 from SW-846 (constant head, tri-axial with back pressure and air free water), the hydraulic conductivity of the material treated by S/S shall be less than or equal to 1×10^{-7}.

ii. Using method ASTM D1633-84, the unconfined compressive strength of the material treated by S/S shall be greater than 50 psi.

iii. Using ASTM D4843, the wet-dry durability test on the material treated by S/S shall result in less than a 10% weight loss.

iv. Using ASTM D4842, the freeze-thaw durability test on the material treated by S/S shall result in less than a 10% weight loss.

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[4] This value was calculated for a non-carcinogenic risk index equal to unity due to vanadium alone using the reference dose and procedures outlined in Appendix II.

[5] This value is equal to the 24-hour average fresh water ambient water quality criteria for zinc for protection of aquatic life times 3.6. The ambient water quality criteria value is from Quality Criteria for Water 1986, EPA 440/5-86-001. The factor 3.6 is the estimated dilution of ground water by the surface water at Midco II.

D. Requirements for Air Emissions:

1. Air emissions from the S/S system and from any SVE using the S/S system shall be controlled using carbon adsorption or another treatment process that is equally effective.

2. Air emissions from the (i) ground water treatment, (ii) the soil S/S, (iii) SVE using the S/S system, or (iv) SVE separate from the S/S system shall be controlled to the extent necessary to assure that each operation does not have the potential to result in exposures to a hypothetical resident located at the Facility boundary that would cause an estimated cumulative, incremental, lifetime carcinogenic risk exceeding 1.0×10^{-7}, or from causing a non-carcinogenic risk index greater than 1.0. The risk levels will be calculated in accordance with the procedures outlined in Attachment V. Ambient air monitoring and air emission monitoring shall be conducted to determine whether this criteria is being met. The air emission monitoring data shall be input into an air model to estimate the potential exposure rates in order to determine whether controls such as carbon adsorption or other controls will be required for the emission sources. For the soil S/S system and SVE using the S/S system such controls (if any) shall be in addition to the controls required by paragraph D.1.

   Since there are multiple operations that cause air emissions as well as fugitive sources that can not be controlled, each operation that can be controlled must be controlled to the 1×10^{-7} risk level to assure that the total risk will be less than 1×10^{-6}. In addition, since some nearby residents and workers may have already been exposed to the chemicals at Midco I during its operation, it is imperative that this emission criteria be met.

3. In addition to the requirements of paragraphs 1 and 2 above, if cumulative emissions of VOCs as defined under the Clean Air Act from all operations at the Facility other than excavation exceed 3 pounds per hour, carbon adsorption or another technology that is equally effective shall be used to control air emissions from the ground water treatment system and all SVE.

4. Air emissions must be monitored and controlled to the extent necessary to comply with applicable OSHA regulations, and applicable State of Indiana air regulations, including Title 326 Indiana Administrative Code 6-4 for fugitive dust.

5. The effective stack height for air emissions from the ground water treatment, S/S, and SVE must be at least 30 feet above ground level.

6. For any carbon adsorption unit that is being or has been used for control of air emissions for the ground water treatment system, the S/S system or the SVE conducted with the S/S system, access to the unit shall be restricted within 3 feet of the unit. For any carbon unit that is being or has been used for control of air emissions for SVE conducted as a separate operation from the S/S, access to the unit shall be restricted within 10 feet of the unit.

E. Handling and Treatment of Surface Sediments and Soils Beneath the Sediments:

The surface sediments in areas outlined in Figure 2 will be excavated to a depth that will leave the soils below the excavation less than the following soil CALs:

cumulative lifetime carcinogenic risk = 1.0×10^{-5}
cumulative chronic non-carcinogenic index= 1.0

These sediments and soils will be consolidated on-site and treated by S/S along with the subsurface soils.

F. Site Cover, Access Restrictions, Long Term Monitoring, and Further Remedial Actions:

For Alternative 10, a cover shall be installed over the Minimum Cover Boundary outlined in Figure 2 following the soil treatment outlined in Section II.C. above. This cover will be extended over Area C shown in Figure 2 if the results of sampling in that area indicate that the area-wide risk using the arithmetic average of the soil sampling results (see Appendix III) exceeds the soil CALs in Section V.E using the risk calculation procedures in Appendix IV. This cover shall meet or exceed the requirements for RCRA Subtitle C closure. This cover shall be designed to provide long term minimization of infiltration, minimize maintenance, promote drainage, and minimize erosion. These requirements will be deemed satisfied by a cover which consists of multiple layers including:

- a top layer consisting of a vegetated component, and a 24 inch soil layer comprised of topsoil and/or fill soil with a surface slope of at least 3 percent and not more than 5 percent;

- a geofilter in between the upper layer of soil and the middle layer of drainage material;

- a drainage layer of either 12 inches of soil with a minimum

hydraulic conductivity of 1.0 X 10^{-2} cm/sec or a geosynthetic material with equivalent performance characteristics, and with a final bottom slope of at least 3 percent;

- a low permeability layer with 24 inches of compacted soil with a maximum in place saturated hydraulic conductivity of 1.0 X 10^{-7} cm/sec.; and

- Details of the site cover design shall also be consistent with the EPA Guidance entitled TECHNICAL GUIDANCE DOCUMENT EPA/530-SW-89-047 (July 1989) FINAL COVERS ON HAZARDOUS WASTE LANDFILLS AND SURFACE IMPOUNDMENTS.

Access restrictions will be imposed including installation of a six foot chain link fence, warning signs and possible deed restrictions. Deed restrictions limiting development and the placement of new wells will be sought voluntarily from owners or compelled to the extent authorized under any applicable local and State laws.

As in Alternative 8, the final site cover and access restrictions must be consistent with hazardous waste landfill closure requirements of the RCRA (40 CFR 264.111, 264.116, 264.117, and 264.310).

Following attainment of ground water CALs, ground water monitoring will continue for at least 15 years. The ground water monitoring must be consistent with the substantive requirements for ground water monitoring in 40 CFR 264.98, and where necessary 264.98(g) and 264.99.

If a ground water CAL is exceeded during this period due to a release from the Midco II site, the site cover shall be upgraded or repaired as needed; operation of the ground water pump treatment and underground injection system will be reinitiated; and steps will be taken to meet the ground water CALs. These actions must be consistent with the substantive requirements of 40 CFR 264.100 (except that the relevant ground water protection standards shall be the ground water CALs as defined in this ROD rather than concentration limits specified pursuant to 40 CFR 264.92).

G. Other ARARs and Applicable Regulations included in Alternative 8:

1. The requirements of Executive Order 11990, Protection of

Wetlands, 40 CFR 6, Appendix A; and Clean Water Act Section 404, 40 CFR 230 and 231 shall be met. Contaminated wetlands will be replaced off-site at an appropriate ratio. This may be undertaken as part of an agreement between PRPs and the natural resources trustees.

2. The area of remediation must comply with the Migratory Bird Treaty Act.

3. Any residuals (such as spent activated carbon) from the ground water or soil treatment processes shall be considered a RCRA hazardous waste.[6] Therefore, these residuals must be stored on site, and disposed of or treated on-site or off-site in accordance with RCRA regulations, including the LDRs in 40 CFR 268, and 40 CFR 264 Subpart X for residues that are sent off site to be regenerated. It is possible that metals sludge from the ground water treatment process could be treated by S/S on-site, if Land Disposal Restriction requirements are met.

Any debris (such as tree trunks or crushed drums that can not be properly incorporated into the solidified mass) encountered during the S/S process or during excavations must be properly handled and stored on-site, and properly disposed of off-site or contained under the final cover if degradation of the material will not cause site cover maintenance problems. Any containerized or drummed liquid wastes encountered during the remedial actions shall be properly stored and properly disposed of off-site.

Any off-site transportation, treatment, or disposal must be in compliance with DOT and RCRA requirements, and EPA's Off-Site Policy.

VI. SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

This Section updates the evaluation in Section IX of the 1989 ROD. The 1989 ROD justified the elimination of alternatives

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[6] The contaminated ground water and soil contains the following RCRA listed hazardous wastes: F001; F002, F003, F005, F007, F008, F009.

other than Alternatives 7 and 8. It is now known that Alternative 7 should not be further considered. Therefore, this evaluation will only compare Alternative 8 to the new Alternative 10.

The following table compares some of the critical elements of Alternative 10 with Alternative 8.

AREA OF COMPARISON	ALTERNATIVE 8	ALTERNATIVE 10
MEANS TO ADDRESS GROUND WATER CONTAMINATION	GROUND WATER EXTRACTION SYSTEM	NO CHANGE
GROUND WATER CALS	CR[7] = 1×10^{-5} NCRI[8] = 1.0 PMCLS[9] AWQC[10] X 3.6	NO CHANGE
MEANS OF GROUND WATER DISPOSAL	DEEP WELL INJECTION, OR INJECTION INTO THE CALUMET AQUIFER IN A MANNER THAT WILL NOT SPREAD THE SALT PLUME	NO CHANGE
GROUND WATER TREATMENT REQUIREMENTS FOR	RCRA LAND DISPOSAL RESTRICTIONS (BEST	RCRA DELISTING (6.3 TIMES HEALTH BASED

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[7] Cumulative Lifetime Carcinogenic Risk calculated for each ground water sampling location using the assumptions and procedures in Appendix II.

[8] Cumulative non-carcinogenic risk index calculated for each ground water sampling location using the assumptions and procedures in Appendix II,

[9] Primary Maximum Contaminant Levels (40 CFR 141).

[10] Chronic Ambient Water Quality Criteria for aquatic life. The AWQC values used in this ROD Amendment are listed in Appendix II.

COMPLIANCE WITH RCRA PRIOR TO DEEP WELL INJECTION	DEMONSTRATED LEVELS[11], MACs) AVAILABLE TECHNOLOGY) (LDRs)	
MEANS TO ADDRESS PRINCIPAL THREATS FROM SOILS	TREAT BY S/S (AND SVE IF NECESSARY TO PROTECT GROUND WATER). S/S AND SVE WILL PROVIDE PERMANENT TREATMENT OF HIGHEST CONTAMINATED AREAS LOCATED ABOVE AND BELOW THE WATER TABLE. S/S MATERIAL WILL BE PROTECTED WITH A SITE COVER, AND MONITORED AND MAINTAINED OVER LONG TERM.	NO CHANGE EXCEPT SVE WILL BE REQUIRED WHERE S/S IS CONDUCTED.
MEANS TO ADDRESS RISKS FROM SOILS THAT ARE ABOVE THE WATER TABLE AND THAT PRESENT A LOW LONG TERM THREAT VIA GROUND WATER AND DIRECT CONTACT	TREAT BY S/S (AND POSSIBLY SVE). LONG TERM MAINTENANCE & MONITORING OF THE S/S WOULD BE REQUIRED. THIS WOULD PROVIDE SOME PERMANENT TREATMENT, REDUCE LEACHING TO GROUND WATER, AND REDUCE DIRECT CONTACT THREAT BY S/S AND COVER OVER THE S/S.	CONSTRUCT A RCRA COVER. LONG TERM MAINTENANCE AND MONITORING OF THE COVER WOULD BE REQUIRED. AS LONG AS COVER IS MAINTAINED WILL SUBSTANTIALLY REDUCE LEACHING AND THE DIRECT CONTACT THREAT BY COVERING WITH A FIVE FOOT THICK COVER.

[11] Health-Based Levels (HBLs) are concentrations of hazardous constituents that are used in the RCRA program for making decisions regarding whether a waste that is regulated as a hazardous waste under RCRA because it is listed under 40 CFR Part 261, Subpart D can be delisted so that it is no longer regulated as hazardous waste under RCRA because it is listed. In a delisting petition, it must be demonstrated that the HBLs will be met in a hypothetical receptor well. The HBLs are set at concentrations of constituents that provide protection for drinking water usage (Maximum Contaminant Levels from 40 CFR Part 141 are the HBLs when available, otherwise the HBL is set at the 10^{-6} risk level or the level that will not cause a non-carcinogenic risk assuming that 2 liters per day is ingested over a 60 year lifetime). See Section V.A.

SOIL TREATMENT ACTION LEVELS	CR = 1×10^{-6} NCRI = 1.0	AT A MINIMUM TREAT MINIMUM AREA FOR TREATMENT IN FIGURE 2. OUTSIDE THIS AREA: CR = 5×10^{-4} NCRI = 5.0
ESTIMATE OF QUANTITY OF SOIL TO BE TREATED	35,000 CUBIC YD.[12]	18,300 CUBIC YD.[13]
PERFORMANCE STANDARDS FOR S/S	FOR IN-SITU S/S ASSURE ATTAINMENT OF GROUND WATER CALS.	SPECIFIC PERFORMANCE STANDARDS FOR BOTH INORGANICS AND ORGANICS BASED ON TESTS ON S/S
CRITERIA FOR SVE	CONDUCTED PRIOR TO S/S TO THE EXTENT NECESSARY TO MEET GROUND WATER CALS BASED ON MODELLING	WILL DEFINITELY BE CONDUCTED IN ALL AREAS BEING S/S'ed TO REDUCE VOCs IN SOILS BY 97% IF CONDUCTED AS A SEPARATE OPERATION, AND BY 90% OF CERTAIN VOCs IF CONDUCTED WITH THE IN-SITU S/S EQUIPMENT.
MEANS TO ADDRESS RISKS FROM SOILS BELOW THE WATER TABLE THAT WILL NOT BE TREATED BY S/S	SOILS WILL GRADUALLY BE REMEDIATED BY THE GROUND WATER EXTRACTION OPERATION.	NO CHANGE
MEANS TO ADDRESS CONTAMINATION OF SURFACE SEDIMENTS	EXCAVATION AND ON-SITE S/S	NO CHANGE
SOIL/SEDIMENT CALS	CR = 1×10^{-5} NCRI = 1.0	NO CHANGE

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[12] This estimate is probably biased high because it is partially based on unreliable arsenic data (see Section III).

[13] This is a very rough estimate that assumes 50% more than the minimum amount will be treated as a result of further sampling.

AIR EMISSIONS CRITERIA	CR = 10^{-7} TO NEAREST RESIDENTS AND WORKERS FOR EACH EMISSION SOURCE, TO ASSURE ATTAINMENT OF CR = 10^{-6} OVERALL.	SAME AS ALT. 8 CRITERIA, PLUS NO GREATER THAN 3 LBS PER HOUR, AND EMISSION CONTROLS REQUIRED ON S/S SYSTEM.
SITE COVER SPECIFICATIONS	FOR IN-SITU S/S DEPENDED ON RESULTS OF S/S	CONSISTENT WITH RCRA SUBTITLE C
ACCESS RESTRICTIONS, DEED RESTRICTIONS, LONG TERM MONITORING	REQUIRED	NO CHANGE
AN ESTIMATE OF THE PRESENT WORTH	$19 MILLION[14]	$13 MILLION[15]

In Alternative 10 the extracted ground water must meet the MACs prior to deep well injection rather than meet the LDRs, which were expected to be used in Alternative 8. Treatment to the MACs is as protective or more protective than treatment to the LDRs because generally the MACs are more stringent for the more toxic compounds. However, treatment to the LDRs would be more difficult. Modelling will be conducted to confirm that injection of extracted ground water meeting the MACs (into the lower Mount Simon Formation) will be protective of drinking water aquifers. In Alternative 10, treatment beyond the MACs will be conducted if necessary to be protective of drinking water aquifers. See Section V.A.

In Alternative 10, SVE will definitely be conducted as described in Section V.C.2 prior to the treatment by S/S. In Alterative 8, SVE would be been required only if necessary to assure that leaching from the S/S material would not cause an exceedance of the ground water CALs.

In Alternative 10, areas of the site having soils located above

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[14] This is a very rough cost estimate from the Feasibility Study and is likely biased high because it was partially based on unreliable arsenic data for the extent of soil treatment (see Section III).

[15] This is a very rough estimate based on the assumption that 50% more than the minimum amount of soil is treated, that SVE increases the cost of S/S by 50%, and certain ground water treatment assumptions.

the water table with calculated risks below CR = 5 X 10^{-4} and NCRI = 5.0, will be covered consistent with RCRA Subtitle C requirements without being treated by S/S or SVE. However, the site cover will not be installed until the ground water extraction system has operated for a few years. Such operation may further reduce VOCs prior to installation of the site cover. EPA considers that following treatment of the highly contaminated areas, the site cover will provide overall protection to CR = 1 X 10^{-6} and NCRI =1.0 levels. The cover will be multi-layered and five feet thick. The cover will substantially reduce the infiltration into the soil and, therefore, reduce the contamination of the ground water. It will provide an effective barrier to direct contact while it is maintained. During its operation any contaminants leached from the soils would be recovered by the ground water extraction system. In the unlikely event that long term leaching causes the ground water to exceed the ground water CALs, the ground water extraction system would continue to operate or be reactivated so that protection from any ground water threat is assured.

In Alternative 8, compared to Alternative 10, VOCs in the lower contaminated areas may have been further reduced by operation of the SVE system, and the mobility of metals and other organics reduced by the S/S. However, as mentioned before for Alternative 10, any additional leachate from the soils would be recovered in the ground water extraction system so that protection from any ground water threat is assured. Alternative 8 may provide some additional protection compared to Alternative 10 from the direct contact threat in case the site cover is severely disturbed in the future because the low contaminated soils would be treated by S/S. However, it appears to be very unlikely that a five foot site cover would be so completely removed, and even if it was Alternative 10 provides for treatment of the most highly contaminated soils so that only the lesser contaminated soils would remain.

Since the time of the 1989 ROD, specialists in S/S treatment have developed specific tests for testing the permanence of S/S treatment for inorganics and organics. Therefore, these tests have been incorporated into Alternative 10 of this ROD Amendment.

Because of the difficulty in reasonably modelling the impact of VOCs on the ground water, it was decided to simply require SVE to provide substantial removal of the VOCs prior to treatment by S/S. The criteria is less stringent for conducting SVE with the in-situ S/S equipment compared to using a separate operation because it is much more difficult to monitor the removal of VOCs from the soils using the in-situ S/S equipment because the soil is treated by S/S immediately after the SVE operation.

The three pounds per hour limit on air emissions for Alternative 10 was added to be consistent with EPA's policies on control of

photochemical oxidants. Because the emissions from the in-situ S/S operation could be substantial and unpredictable, it was decided that air emissions from the in-situ S/s system must be controlled.

A. Threshold Criteria: protection of human health and the environment; and attainment of applicable, and relevant and appropriate requirements (ARARs):

Both Alternatives 8 and 10 would be protective of human health and the environment, by extraction and treatment of the ground water, by treating the highly contaminated soils and sediments, and by cover installation. Both alternatives are expected to protect aquatic life in surrounding surface waters from hazardous substances from the Midco I site including attainment of Ambient Water Quality Criteria for aquatic life[16] and restore the Calumet aquifer to drinking water quality[17] including attaining the Primary Maximum Contaminant Levels.

Both include deep well injection of the treated ground water (or reinjection into the Calumet aquifer in a manner that will not spread the salt plume). Both would comply with the RCRA LDRs prior to injection of the ground water: Alternative 8 by treating to LDR treatment standards; and Alternative 10 by delisting. Both include soil treatment by S/S and SVE. Both include excavation and S/S of contaminated sediments. Finally both include installation of a cover and site access restrictions.

While Alternative 8 includes treatment of a greater volume of soils than Alternative 10, the level of protection provided by Alternative 10 is not considered to be significantly different from the level of protection provided by Alternative 8 because low level contaminated soils will be contained by an effective cover that is consistent with RCRA Subtitle C closure requirements, and access to the site will be restricted. Furthermore, the additional soil treatment in Alternative 8 would not allow unrestricted future usage of the site because the S/S material and site cover would require long term monitoring and maintenance.

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[16] Except possibly for the Ambient Water Quality Criteria for solids (dissolved) and salinity, for which a ground water CAL is not being applied since adjacent sources of this contaminant exist and are not being remediated.

[17] Except for total dissolved solids, chlorides, sodium and potassium, for which a ground water CAL is not being applied since adjacent sources of these contaminants exist and are not being remediated.

Under Alternative 10, if it is determined that it is technically impracticable from an engineering perspective to attain the ground water CALs by a ground water extraction system, contingency measures may be implemented (see Section V.B). These contingency measures will maintain protection of human health and the environment by institutional controls, by attaining the lowest achievable levels in the ground water, and by containment measures, as appropriate. If it is demonstrated that some primary MCLs, which are used in the ground water CALs, can not be attained in some portions of the aquifer due to technical impracticability, these ARARs will be waived provided that appropriate contingency measures are implemented.

B. Balancing Criteria: long term effectiveness and permanence; reduction in toxicity mobility and volume; short-term effectiveness; implementability; and cost:

The short term effectiveness of Alternative 10 is expected to be essentially the same as Alternative 8. The pump, treatment and injection system will be installed first in Alternative 10. Access to the site will be controlled; so the delay in the soil treatment will not cause any health impact. For both Alternatives, VOC air emissions during the remedial actions may be the short term impact of most concern. These emissions should be controllable using carbon absorption or another treatment process that is equally effective.

Both Alternative 8 and 10 employ treatment technologies--ground water extraction and treatment, S/S, and SVE--that are expected to perform to substantially reduce the toxicity, mobility, or volume of hazardous substances at the Midco II site. Both Alternatives 8 and 10 provide for long-term effectiveness and permanence through soil treatment by S/S and SVE, by ground water extraction and treatment, deep well injection of treated ground water, site cover, long term maintenance, and ground water monitoring.

While Alternative 10 will result in treatment of a lower volume of soils than Alternative 8, Alternative 10 provides for a reduction of the toxicity and mobility of the more highly contaminated soil at Midco II. Furthermore, the additional soil treatment in Alternative 8 will not result in a reduction in the long term monitoring or maintenance requirements nor allow unrestricted future usage of the site. In the context of conditions at this particular site, the use of engineering controls such as site cover coupled with long-term (permanent) maintenance and monitoring of the site cover and ground water to address any remaining risks posed by soils with low level contamination is consistent with EPA's expectations for remedy selection regarding treatment of principal threats and use of controls for lower level threats as set forth in 40 CFR

300.430(a)(1)(iii) of the National Contingency Plan promulgated on March 6, 1990.

Alternatives 8 and 10 are identical in implementability in most respects, and no major problems in implementation are expected.

Very rough estimates of the costs of Alternative 8 and Alternative 10 in millions of dollars are compared in the following Table.

	CAPITAL	ANNUAL O&M	PRESENT WORTH
Alternative 8	12	0.73	19
Alternative 10	9	0.66	13

Typically cost estimates in the Feasibility Study are expected to have an accuracy of plus 50% to minus 30%. There is more than the usual amount of uncertainty in the costs for both Alternatives 10 and 8. However, Alternative 10 may be considerably less expensive than Alternative 8 primarily because most likely less soil will be treated, ground water treatment requirements may be reduced, and the sequence of implementation of remedial actions (see Sections V.C.1, V.C.2 and V.F) will be changed. Because the risk reduction and reduction in toxicity or mobility of the additional treatment required in Alternative 8 is small, it is not considered to be cost effective compared to Alternative 10.

Time for completion of the project depends on how fast the ground water CALs are attained. All other portions of the project are expected to be completed in no more than six years.

C. Modifying Criteria: support agency acceptance; community acceptance:

[The section will be filled out after receipt of the public comments]

VI. STATUTORY DETERMINATIONS

Based on the description and evaluation of alternatives in the ROD Amendment, EPA selects Alternative 10 for implementation at Midco II. This Alternative is described in Section IV of this ROD Amendment.

Alternative 10, including the provision of contingency measures in case it is technically impracticable to attain ground water CALs, will be protective of human health and the environment, and will be cost effective. ARARs shall be attained except that some primary MCLs will be waived in portions of the Calumet aquifer, provided that it is demonstrated that it is technically impracticable from an engineering perspective to attain these standards, and that appropriate contingency measures are implemented. The remedy satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility or volume as a principal element and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

The State of Indiana is expected to concur in the selected remedial actions [this statement will be revised to reflect the State concurrence once it is received].

Because the remedy will result in hazardous substances remaining on-site above health-based levels that would allow for unrestricted use, a review will be conducted within five years after commencement of remedial actions to ensure that the remedy continues to provide adequate protection of human health and the environment.

APPENDICES TO MIDCO II RECORD OF DECISION AMENDMENT

I. HEALTH BASED LEVELS FOR RCRA DELISTING FOR MIDCO II

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GLOSSARY

CALs : cleanup action levels.

delisting : If a waste fits the definition for a listed hazardous waste under RCRA, it can only be removed from regulation under RCRA by meeting the delisting requirements pursuant to 40 CFR 260.22.

EPA : United States Environmental Protection Agency.

F&W : United States Fish and Wildlife Service.

HBLs : health based levels used by EPA to make delisting decisions.

IDEM : Indiana Department of Environmental Management.

LDR : Land Disposal Restrictions under RCRA.

MACs : Maximum allowable concentrations. This term is defined in "A Guide to Delisting of RCRA Wastes for Superfund Remedial Responses" (9347.3-09FS) to be the maximum concentration in a waste or in a leachate from a waste that will still allow the waste to be delisted.

MCLs : Maximum Concentration Limits as defined under the Clean Water Act (40 CFR 141 and 143.

mg/kg : concentration of a constituent in soil expressed in milligrams of the constituent per kilogram of soil.

no migration petition: A petition submitted to EPA pursuant to 40 CFR 268.6 and 148 Subpart C that must demonstrate that deep well injection of a waste will not cause migration out of the injection zone within 10,000 years. EPA approval of such a petition is required prior to deep well injection of a hazardous waste restricted from land disposal under the LDRs without treatment to the LDR treatment standards.

PCBs : polychlorinated biphenols

PRC : Planning Research Corporation, Chicago, Illinois.

PRPs	:	potentially responsible parties. These generally include the site owners, site operators and entities that disposed of or arranged for disposal of wastes containing hazardous substances at the site.
RCRA	:	Resource Conservation and Recovery Act.
RI/FS	:	Remedial Investigation/Feasibility Study.
ROD	:	Record of Decision.
SVE	:	soil vapor extraction treatment.
S/S	:	solidification/stabilization treatment.
USDW	:	underground source of drinking water as defined in 40 CFR 144.3.
VOCs	:	volatile organic compounds.
VHS	:	Vertical Horizontal Spread model for modelling spread of contamination in the ground water.

APPENDIX I

HEALTH-BASED LEVELS AND SOLUBILITIES FOR CONSTITUENTS OF CONCERN IN DELISTING PETITIONS
July 1991

CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)	Ref
83 32 9	Acenaphthene	2	26	3.42	6
67 64 1	Acetone	4	4	1.0×10^6	6
75 05 8	Acetonitrile	2×10^{-1}	4	1.0×10^6	6
98 86 2	Acetophenone	4	4	5.5×10^3	15
107 02 8	Acrolein	5×10^{-1}	37	5×10^5	2
79 06 1	Acrylamide	Treatment Technique	42	$>1 \times 10^6$	15
107 13 1	Acrylonitrile	6×10^{-3}	5	7.9×10^4	6
309 00 2	Aldrin	2×10^{-6}	5	1.8×10^{-1}	6
62 53 3	Aniline (Benzeneamine)	6×10^{-3}	5	3.5×10^4	2
7440 36 0	Antimony	1×10^{-2}	27		
140 57 8	Aramite	1×10^{-3}	26		
7440 38 2	Arsenic	5×10^{-2}	13		
7440 39 3	Barium	1	13		
56 55 3	Benz(a)anthracene	1×10^{-5}	16	5.7×10^{-3}	6
71 43 2	Benzene	5×10^{-3}	14	1.75×10^3	6
92 87 5	Benzidine	2×10^{-7}	5	4.0×10^2	6
50 32 8	Benzo(a)pyrene	2×10^{-4}	27	1.2×10^{-3}	6
205 99 2	Benzo(b)fluoranthene	2×10^{-5}	8	1.4×10^{-2}	6
100 51 6	Benzyl alcohol	1×10^1	26	4×10^4 (17°C)	15
100 44 7	Benzyl chloride	2×10^{-4}	5	3.3×10^3	6
7440 41 7	Beryllium	1×10^{-3}	27		
111 44 4	Bis(2-chloroethyl)ether	3×10^{-5}	5	1.02×10^4	6
108 60 1	Bis(2-chloroisopropyl ether)	1	4	1.7×10^3	6
117 81 7	Bis(2-ethylhexyl)phthalate	3×10^{-3}	5	4×10^{-1}	11
75 27 4	Bromodichloromethane	3×10^{-4}	5	4.7×10^3 (22°C)	22
74 83 9	Bromomethane	5×10^{-2}	4	1.0×10^3	18
85 68 7	Butyl benzyl phthalate	7	4	2.9	10
88 85 7	2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	7×10^{-3}	27	5×10^1	6
7440 43 9	Cadmium	5×10^{-3}	42		
75 15 0	Carbon disulfide	4	4	2.94×10^3	6
56 23 5	Carbon tetrachloride	5×10^{-3}	14	7.57×10^2	6
57 74 9	Chlordane	2×10^{-3}	42	5.6×10^{-1}	6
106 47 8	p-Chloroaniline	1×10^{-1}	4	3.9×10^3	24
108 90 7	Chlorobenzene	1×10^{-1}	42	4.66×10^2	6
510 15 6	Chlorobenzilate	7×10^{-1}	4	1×10^4	1
126 99 8	2-Chloro-1,3-butadiene (Chloroprene)	7×10^{-1}	26	3×10^2	1
124 48 1	Chlorodibromomethane	4×10^{-4}	5	4.4×10^3 (22°C)	22
67 66 3	Chloroform	6×10^{-3}	5	8.2×10^3	6
95 57 8	2-Chlorophenol	2×10^{-1}	4	2.85×10^4 (20°C)	15
107 05 1	3-Chloropropene (Allyl chloride)	2×10^{-3}	36	1×10^2	15

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CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)	Ref.
7440 47 3	Chromium	$1x10^{-1}$	42		
218 01 9	Chrysene	$2x10^{-4}$	8	$1.8x10^{-3}$	6
319 77 3	Cresols	2	4	$3.1x10^{4}$	6
57 12 5	Cyanide	$2x10^{-1}$	27		
94 75 7	2,4-Dichlorophenoxyacetic Acid (2,4-D)	$7x10^{-2}$	42	$8.9x10^{2}$	6
72 54 8	DDD	$1x10^{-4}$	5	$1x10^{-1}$	6
72 55 9	DDE	$1x10^{-4}$	5	$4x10^{-2}$	6
50 29 3	DDT	$1x10^{-4}$	5	$5x10^{-3}$	6
2303 16 4	Diallate	$6x10^{-4}$	26	$1.4x10^{1}$	6
53 70 3	Dibenz(a,h)anthracene	$7x10^{-7}$	8,17	$5.0x10^{-4}$	6
96 12 8	1,2-Dibromo-3-chloropropane	$2x10^{-4}$	42	$1.0x10^{3}$	6
74 95 3	Dibromomethane	$4x10^{-1}$	4	$1.3x10^{4}$	25
84 74 2	Di-n-butyl phthalate	4	4	$1.3x10^{1}$	6
95 50 1	1,2-Dichlorobenzene	$6x10^{-1}$	42	$1.0x10^{2}$	6
106 46 7	1,4-Dichlorobenzene	$7.5x10^{-2}$	14	$7.9x10^{1}$	6
91 94 1	3,3'-Dichlorobenzidine	$8x10^{-5}$	5	4	6
75 71 8	Dichlorodifluoromethane	7	4	$2.8x10^{2}$	6
75 34 3	1,1-Dichloroethane	$4x10^{-4}$	26	$5.5x10^{3}$	6
107 06 2	1,2-Dichloroethane	$5x10^{-3}$	14	$8.52x10^{3}$	6
75 35 4	1,1-Dichloroethylene	$7x10^{-3}$	14	$2.25x10^{3}$	6
156 59 2	cis-1,2-Dichloroethylene	$7x10^{-2}$	42	$3.5x10^{3}$	6
156 60 5	trans-1,2-Dichloroethylene	$1x10^{-1}$	42	$6.3x10^{3}$	6
75 09 2	Dichloromethane	$5x10^{-3}$	27	$2.0x10^{4}$	6
120 83 2	2,4-Dichlorophenol	$1x10^{-1}$	4	$4.6x10^{3}$	6
78 87 5	1,2-Dichloropropane	$5x10^{-3}$	42	$2.7x10^{3}$	6
542 75 6	1,3-Dichloropropene	$2x10^{-4}$	5	$2.8x10^{3}$	6
60 57 1	Dieldrin	$2x10^{-6}$	5	$1.95x10^{-1}$	6
84 66 2	Diethyl phthalate	$3x10^{1}$	4	$8.96x10^{2}$	6
56 53 1	Diethylstilbesterol	$7x10^{-8}$	26	$1.3x10^{4}$	15
60 51 5	Dimethoate	$7x10^{-3}$	4	$2.5x10^{4}$	6
119 90 4	3,3'-Dimethoxybenzidine	$3x10^{-3}$	26	$2x10^{3}$	1,23
119 93 7	3,3'-Dimethylbenzidine	$4x10^{-8}$	26	$7x10^{1}$	1,23
57 97 6	7,12-Dimethylbenz(a)-anthracene	$1x10^{-6}$	20	$4.4x10^{-3}$	6
105 67 9	2,4-Dimethylphenol	$7x10^{-1}$	4	$5.9x10^{2}$	9
131 11 3	Dimethyl phthalate	$4x10^{1}$	26	$4.3x10^{3}$	2
99 65 0	1,3-Dinitrobenzene	$4x10^{-3}$	4	$4.7x10^{2}$	6
51 28 5	2,4-Dinitrophenol	$7x10^{-2}$	4	$5.6x10^{3}$	6
121 14 2	Dinitrotoluene	$5x10^{-5}$	5,21	$1.32x10^{3}$	6
117 84 0	Di-n-octyl phthalate	$7x10^{-1}$	26	3	22
123 91 1	1,4-Dioxane	$3x10^{-3}$	5	$4.31x10^{5}$	6

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CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)	Ref.
122 39 4	Diphenylamine	$9x10^{-1}$	4	$5.76x10^{1}$	6
122 66 7	1,2-Diphenylhydrazine	$4x10^{-5}$	5	$1.84x10^{3}$	6
298 04 4	Disulfoton	$1x10^{-3}$	4	$2.5x10^{1}$	2[illegible]
115 29 7	Endosulfan	$2x10^{-3}$	4	$5.3x10^{-1}$	22
72 20 8	Endrin	$2x10^{-4}$	13	$2.5x10^{-1}$	22
106 89 8	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	Treatment Technique	42	$6.0x10^{4}$	6
110 80 5	2-Ethoxy ethanol	$1x10^{1}$	26	$1x10^{5}$	1
100 41 4	Ethyl benzene	$7x10^{-1}$	42	$1.52x10^{2}$	6
60 29 7	Ethyl ether	$2x10^{1}$	4	$6.05x10^{4}$	12.[illegible]
106 93 4	Ethylene dibromide	$5x10^{-5}$	42	$4.3x10^{3}$	6
97 63 2	Ethyl methacrylate	3	26	$7x10^{2}$	1.6
62 50 0	Ethyl methanesulfonate	$1x10^{-6}$	28	$3.69x10^{5}$	6
52 85 7	Famphur	$1x10^{-3}$	41	$1.43x10^{2}$	15
206 44 0	Fluoranthene	1	4	$2.06x10^{-1}$	6
86 73 7	Fluorene	1	4	1.69	6
16984 48 8	Fluoride	4	39		
64 18 6	Formic acid	$7x10^{1}$	4	$1x10^{6}$	6
76 44 8	Heptachlor	$4x10^{-4}$	42	$1.8x10^{-1}$	6
1024 57 3	Heptachlor epoxide (alpha, beta, gamma isomers)	$2x10^{-4}$	42	$3.5x10^{-1}$	6
118 74 1	Hexachlorobenzene	$1x10^{-3}$	27	$6.0x10^{-3}$	[illegible]
87 68 3	Hexachlorobutadiene	$4x10^{-4}$	5	$1.5x10^{-1}$	[illegible]
77 47 4	Hexachlorocyclopentadiene	$5x10^{-2}$	27	2.1	[illegible]
67 72 1	Hexachloroethane	$3x10^{-3}$	5	$5.0x10^{1}$	[illegible]
70 30 4	Hexachlorophene	$1x10^{-2}$	4	$4x10^{-3}$	[illegible]
319 84 6	alpha-HCH	$6x10^{-6}$	26	1.63	[illegible]
319 85 7	beta-HCH	$2x10^{-5}$	26	$2.4x10^{-1}$	[illegible]
193 39 5	Indeno(1,2,3,cd)pyrene	$2x10^{-4}$	8	$5.3x10^{-4}$	[illegible]
78 83 1	Isobutanol	$1x10^{1}$	4	$7.6x10^{4}$	[illegible]
78 59 1	Isophorone	$9x10^{-3}$	5	$1.2x10^{4}$	[illegible]
143 50 0	Kepone	$2x10^{-6}$	29	7.6 (24°C)	[illegible]
7439 92 1	Lead	$1.5x10^{-2}$	44		
58 89 9	Lindane (gamma-HCH)	$2x10^{-4}$	42	7.8	6
7439 97 6	Mercury	$2x10^{-3}$	42		
126 98 7	Methacrylonitrile	$4x10^{-3}$	4	$2.5x10^{4}$	[illegible]
67 56 1	Methanol	$2x10^{1}$	4	$>1x10^{6}$	[illegible]
72 43 5	Methoxychlor	$4x10^{-2}$	42	$4x10^{-2}$(24°C)	[illegible]
74 87 3	Methyl chloride	$3x10^{-3}$	26	$6.5x10^{3}$	6
56 49 3	3-Methylcholanthrene	$4x10^{-6}$	30		
78 93 3	Methyl ethyl ketone	2	4	$2.68x10^{5}$	6
108 10 1	Methyl isobutyl ketone	2	4	$1.91x10^{4}$	[illegible]

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CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)	Ref.
80 62 6	Methyl methacrylate	3	43,26	$2.0x10^1$	6
298 00 0	Methyl parathion	$9x10^{-3}$	4	$6x10^1$	6
91 20 3	Naphthalene	$1x10^{-1}$	26	$3.4x10^1$	15
91 59 8	2-Naphthylamine	$4x10^{-5}$	31	$5.86x10^2$	6
7440 02 0	Nickel	$1x10^{-1}$	27		
98 95 3	Nitrobenzene	$2x10^{-2}$	4	$1.9x10^3$	6
79 46 9	2-Nitropropane	$4x10^{-6}$	26	$1.7x10^5$	38
924 16 3	N-Nitroso-di-n-butylamine	$6x10^{-6}$	5	$6.7x10^3$	1,23
55 18 5	N-Nitrosodiethylamine	$2x10^{-7}$	5	$4.1x10^5$	1,23
62 75 9	N-Nitrosodimethylamine	$7x10^{-7}$	5	$2x10^2$	1
156 10 5	N-Nitrosodiphenylamine	$7x10^{-3}$	5	$4.0x10^1$	10
621 64 7	N-Nitrosodi-n-propylamine	$5x10^{-6}$	5	$9.9x10^3$	1
10595 95 6	N-Nitrosomethylethylamine	$2x10^{-6}$	26	$2x10^4$	1
100 75 4	N-Nitrosopiperidine	$8x10^{-6}$	32	$>1x10^6$	6
930 55 2	Nitrosopyrrolidine	$2x10^{-5}$	5	$>1x10^6$	6
152 16 9	Octamethyl pyrophosphoramide	$7x10^{-2}$	26	$>1x10^6$	1
56 38 2	Parathion	$2x10^{-1}$	26	$2.4x10^1$ (20°C)	15
608 93 5	Pentachlorobenzene	$3x10^{-2}$	4	$1.35x10^{-1}$	6
82 68 8	Pentachloronitrobenzene	$1x10^{-1}$	4	$7.11x10^{-2}$	6
87 86 5	Pentachlorophenol	$1x10^{-3}$	19	$1.4x10^4$	6
108 95 2	Phenol	$2x10^1$	4	$9.3x10^4$	6
298 02 2	Phorate	$7x10^{-3}$	40	$5x10^1$	18
1336 36 3	Polychlorinated biphenyls	$5x10^{-4}$	42	$3.1x10^{-2}$	6
23950 58 5	Pronamide	3	4	$1x10^2$	1
129 00 0	Pyrene	1	4	$1.32x10^{-1}$	6
110 86 1	Pyridine	$4x10^{-2}$	4	$4x10^4$	1
94 59 7	Safrole	$1x10^{-4}$	33	$1.5x10^3$	6
7782 49 2	Selenium	$5x10^{-2}$	42		
7440 22 4	Silver	$5x10^{-2}$	13		
57 24 9	Strychnine and salts	$1x10^{-2}$	4	$1.56x10^2$	6
100 42 5	Styrene	$1x10^{-1}$	42	$3x10^2$	15
95 94 3	1,2,4,5-Tetrachlorobenzene	$1x10^{-2}$	4	6	6
630 20 6	1,1,1,2-Tetrachloroethane	$1x10^{-3}$	26	$2.9x10^3$	6
79 34 5	1,1,2,2-Tetrachloroethane	$2x10^{-4}$	5	$2.9x10^3$	6
127 18 4	Tetrachloroethylene	$5x10^{-3}$	42	$1.5x10^2$	6
58 90 2	2,3,4,6-Tetrachlorophenol	1	4	$1x10^3$	6
3689 24 5	Tetraethyl dithiopyrophosphate	$2x10^{-2}$	4	$3x10^1$	25
7440 28 0	Thallium	$2x10^{-3}$	27		
108 88 3	Toluene	1	42	$5.35x10^2$	6
95 80 7	Toluene-2,4-diamine	$9x10^{-5}$	34	$4.77x10^4$	6

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CAS No.	Compound	HBL (mg/l)	Ref.	Solubility (mg/l) (in H_2O at 25°C)	Ref.
823 40 5	Toluene-2,6-diamine	7	7	$1.3x10^5$	1
95 53 4	o-Toluidine	$1x10^{-4}$	26	$7x10^2$	1,23
106 49 0	p-Toluidine	$2x10^{-4}$	26	$7.4x10^3$ (21°C)	15
8001 35 2	Toxaphene	$3x10^{-3}$	42	$5x10^{-1}$	6
93 72 1	2,4,5-TP (Silvex)	$5x10^{-2}$	42	$1.4x10^2$	2
75 25 2	Tribromomethane (Bromoform)	$4x10^{-3}$	5	$3.01x10^3$	6
120 82 1	1,2,4-Trichlorobenzene	$9x10^{-3}$	27	$3.0x10^1$	6
71 55 6	1,1,1-Trichloroethane	$2x10^{-1}$	14	$1.5x10^3$	6
79 00 5	1,1,2-Trichloroethane	$5x10^{-3}$	27	$4.5x10^3$	6
79 01 6	Trichloroethylene	$5x10^{-3}$	14	$1.1x10^3$	6
75 69 4	Trichlorofluoromethane	$1x10^1$	4	$1.1x10^3$	6
95 95 4	2,4,5-Trichlorophenol	4	4	$1.19x10^3$	6
88 06 2	2,4,6-Trichlorophenol	$3x10^{-3}$	5	$8.0x10^2$	6
93 76 5	2,4,5-Trichlorophenoxy-acetic acid (2,4,5-T)	$4x10^{-1}$	4	$2.4x10^2$(30°C)	2
96 18 4	1,2,3-Trichloropropane	$2x10^{-1}$	4	$4x10^3$	1
76 13 1	1,1,2-Trichloro-1,2,2-trifluoroethane	$1x10^3$	4	$1x10^1$	6
99 35 4	sym-Trinitrobenzene	$2x10^{-3}$	4	$3.5x10^2$	2
126 72 7	Tris(2,3-dibromopropyl) phosphate	$3x10^{-5}$	35	$1.2x10^2$	6
7440 62 2	Vanadium	$2x10^{-1}$	26		
75 01 4	Vinyl chloride	$2x10^{-3}$	14	$2.67x10^3$	6
1330 20 7	Xylene (mixed)	$1x10^1$	42	$1.98x10^2$	6
7440 66 6	Zinc	7	26		

APPENDIX II

PROCEDURES FOR CONDUCTING RISK BASED CALCULATIONS FOR DETERMINATION OF GROUND WATER CLEAN UP ACTION LEVELS AT MIDCO II

Risk based calculations shall be conducted for each sample. The calculation shall be the sum of the estimated risks produced by each constituent in the sample.

The carcinogenic risk based calculation for each sample is simply the summation of a lifetime averaged exposure rate via ingestion of the ground water for each constituent times that constituent's oral carcinogenic potency factor (slope factor), plus the summation of a lifetime averaged exposure rate via inhalation for each volatile organic compound times that volatile organic compound's inhalation carcinogenic potency factor (slope factor).

This is summarized in the following equation:

$$CR_s = \Sigma\ (OI)_i(OSF)_i + \Sigma\ (II)_i(ISF)_i$$

$$OI_i = (3.09 \times 10^{-2}\ l/kg/d)\ C_i$$

$$II_i = (9.74 \times 10^{-2}\ l/kg/d)\ C_i$$

CR_s = Cumulative lifetime carcinogenic risk for a sample

Σ = Summation of the carcinogenic risk from each constituent detected in the sample.

OI_i = Lifetime averaged exposure rate via ingestion for constituent i

OSF_i = Oral carcinogenic potency factor (or slope factor) of constituent i. These are listed in Table 2 of Appendix IV.

II_i = Lifetime averaged exposure rate via

inhalation for constituent i.

ISF = Inhalation carcinogenic potency factor (or slope factor) of constituent i. These are listed in Table 2 of Appendix IV.

3.09×10^{-2} l/kg/d = lifetime averaged ground water ingestion rate based on the following assumptions:

- The ground water intake averaged over 70 years (25550 days) corresponding to children age 2-6, with a body weight of 17 kg, and an ingestion rate of 1 liter of ground water per day for 5 years, equal to 4.2×10^{-3} l/kg/d.

- The ground water intake averaged over 70 years corresponding to children age 7-12 with a body weight of 29 kg, and an ingestion rate of 1 liter of ground water per day for 6 years, equal to 3.0×10^{-3} l/kg/d.

- The ground water intake averaged over 70 years corresponding to adults, with a body weight of 70 kg, and an ingestion rate of 2 liters of ground water per day for 58 years, equal to 23.7×10^{-3} l/kg/d.

$(4.2 + 3.0 + 23.7) \times 10^{-3}$ l/kg/d $= 3.09 \times 10^{-2}$

9.74×10^{-2} l/kg/d = lifetime averaged ground water exposure rate via inhalation based on the following assumptions:

- Calculate the lifetime ground water inhalation intake while bathing. In order to do this, it is assumed that all subpopulations (adults, children age 7-12 and children age 2-6) bathe for 20 minutes each day and stay an additional 10 minutes inside the closed-door bathroom, where the concentration in the air of the compound volatilized from the ground water used for bathing increases from zero to the actual ground water concentration at the end of the bathing period, and then decreases to zero during the additional 10 minutes in the bathroom. To account for this increase/decrease in concentration, a factor of 0.38 is used in the equation to calculate the intake. The actual ground water concentration can then be used to calculate the risk. Additional assumptions include: (1) each bath will consume 200 liters of water; (2) the volume of the

shower stall is 3 m^3; and (3) the volume of the bathroom is 10 m^3. Also, the volume of air inhaled per hour is: 0.55 m^3 for adults, 0.6 m^3 for children age 7-12, and 0.49 m^3 for children age 2-6.

The inhalation intake can be calculated as:

$$0.38\ [(200\ 1/3\ m^3) \times (20\ min/60\ min/day) + (200\ 1/10\ m^3) \times (10\ min/60\ min/day)] \times [(0.55\ m^3 \times 58\ yrs)/(70\ kg \times 70\ yrs) + (0.60\ m^3 \times 6\ yrs)/(29\ kg \times 70\ yrs) + (0.49\ m^3 \times 4\ yrs)/(16\ kg \times 70\ yrs)] = 9.74 \times 10^{-2}\ l/kg/d.$$

C_i = Concentration of constituent i in the sample.

The cumulative chronic non-carcinogenic risk index is calculated as follows:

$$NI_s = \Sigma\ ((C_i)(3.09 \times 10^{-2}\ l/kg/d)/ORfD_i) + \Sigma\ ((C_i)(9.74 \times 10^{-2}\ l/kg/d)/IRfD_i)$$

NI_s = Cumulative chronic non-carcinogenic risk index.

Σ = Summation of chronic non-carcinogenic risk for all constituents detected in the sample that affect the same target organ.

$ORfD_i$ = Oral reference dose of constituent i. The reference doses for this Consent Decree are listed in Table 2 of Appendix IV.

$IRfD_i$ = Inhalation reference dose of constituent i. The reference doses for this Consent Decree are listed in Table 2 of Appendix IV.

Compounds detected below the background concentrations listed in the Table 1 of this Attachment will not be included in either the carcinogenic or non-carcinogenic risk based calculations.

The Primary Maximum Contaminant Levels (MCLs) are from 40 CFR 141. New primary MCLs will automatically be added to the

ground water CALs when they are promulgated.

The Ambient Water Quality Criteria (AWQC) for protection of aquatic life to be used in this Decree are listed in Table 2 of this Attachment. The ground water CALs for the AWQC are calculated by multiplying the AWQC from Table 2 by 3.6.

The CAL can not be less than the background concentrations listed in Table 1, nor be less than the analytical detection limits. The analyses shall at least attain the quantification limits necessary to evaluate attainment of the ground water CALs. However, quantification limits below the lowest practical quantification limits listed for each compound in Appendix IX of 40 CFR 264 shall not be required. If only one constituent is detected in a ground water sample that is calculated to potentially cause a lifetime, incremental carcinogenic risk of 1×10^{-5} or greater, and an MCL has been promulgated for this constituent pursuant to 40 CFR 141, then that constituent will not be used in either the carcinogenic nor the non-carcinogenic risk calculations, and the CAL for that constituent will be either the MCL or the AWQC times 3.6, whichever is less.

TABLE 1 OF APPENDIX II

GROUND WATER BACKGROUND CONCENTRATIONS*

Compound	95 % UCL Midco I	95 % UCL Midco II
ARSENIC	6.00E+00	1.51E+01
BARIUM	1.18E+02	1.07E+02
BERYLLIUM		
CADMIUM		1.50E-01
CHROMIUM (III)	8.00E+00	7.50E+00
CHROMIUM (VI)	8.00E+00	7.50E+00
COPPER		2.52E+01
IRON	3.88E+03	1.53E+04
LEAD		5.60E+00
MANGANESE	1.60E+03	4.64E+02
MERCURY		2.50E-01
NICKEL	5.80E+01	1.23E+01
SELENIUM		
SILVER		4.60E+00
THALLIUM		
VANADIUM	4.33E+00	
ZINC		1.47E+03
CYANIDE	1.04E+01	1.58E+02
VINYL CHLORIDE	1.32E+00	2.20E+00
CHLOROETHANE		
METHYLENE CHLORIDE	1.30E+00	1.90E+00
ACETONE		6.90E+00
CARBON DISULFIDE		
1,1-DICHLOROETHENE		
1,1-DICHLOROETHANE		
TRANS-1,2-DICHLOROETHENE	1.60E-01	6.10E+00
CHLOROFORM		
1,2-DICHLOROETHANE		
2-BUTANONE		
1,1,1-TRICHLOROETHANE		
1,2-DICHLOROPROPANE		
TRICHLOROETHENE		
BENZENE		4.00E-02
2-HEXANONE		

Compound	95 % UCL Midco I	95 % UCL Midco II
4-METHYL-2-PENTANONE		
TETRACHLOROETHENE		
TOLUENE		
ETHYLBENZENE		
XYLENES		
PHENOL		
BIS(2-CHLOROETHYL)ETHER		
BIS(2-CHLOROISOPROPYL)ETHER		
BENZYL ALCOHOL		
CRESOL		
NITROBENZENE		
ISOPHORONE		
2,4-DIMETHYLPHENOL		
BENZOIC ACID		
2,4-DICHLOROPHENOL		
NAPHTHALENE		
2-METHYLNAPHTHALENE		
ACENAPHTHENE		
4-NITROPHENOL		
2,4-DINITROTOLUENE		
DIETHYLPHTHALATE		
FLUORENE		
4-NITROANILINE		
PHENANTHRENE		
DI-N-BUTYLPHTHALATE		3.00E-01
N-NITROSODIPHENYLAMINE	2.60E-01	
PENTACHLOROPHENOL		
BIS(2-ETHYLHEXYL)PHTHALATE	1.50E+00	
DI-N-OCTYLPHTHALATE		
HEPTACHLOR EPOXIDE		
LINDANE		
DIELDRIN		
ENDRIN		
PCBs		

95 % UCL = 95 percent upper confidence limit of the average background ground water concentration at each site from the Feasibility Study for each site.

*All values are given in ug/l.

TABLE 2 OF APPENDIX II

MIDCO I AND II - WATER QUALITY CRITERIA TO BE MET IN THE GROUND WATER

Compound	MIDCO I Surface Water Water Quality Criteria (ug/l)		MIDCO I WQC to be met (ug/l)	MIDCO II Surface Water Water Quality Criteria (ug/l)		MIDCO II WQC to be met (ug/l)
ARSENIC	4.80E+01		1.87E+02	4.80E+01		1.73E+02
BERYLLIUM	5.30E+00		2.07E+01	5.30E+00		1.91E+01
CADMIUM	1.20E+00-6.00E+00	H	4.68E+00	2.90E+00-4.49E+00	H	1.04E+01
CHROMIUM (III)	2.20E+02-1.19E+03	H	8.58E+02	5.58E+02-8.68E+02	H	2.01E+03
CHROMIUM (VI)	1.10E+01		4.29E+01	1.10E+01		3.96E+01
COPPER	1.30E+01-7.30E+01	H	5.07E+01	3.33E+01-5.28E+01	H	1.20E+02
IRON	1.00E+03		3.90E+03	1.00E+03		3.60E+03
LEAD	3.50E+00-4.80E+01	H	1.37E+01	1.49E+01-2.96E+01	H	5.36E+01
MERCURY	1.20E-02		4.68E-02	1.20E-02		4.32E-02
NICKEL	1.68E+02-9.57E+02	H	6.55E+02	4.40E+02-6.94E+02	H	1.58E+03
SELENIUM	3.50E+01		1.37E+02	3.50E+01		1.26E+02
SILVER	1.20E-01		4.68E-01	1.20E-01		4.32E-01
THALLIUM	4.00E+01		1.56E+02	4.00E+01		1.44E+02
ZINC	3.42E+02-1.89E+03	H	1.33E+03	8.78E+02-1.37E+03	H	3.16E+03
CYANIDE	5.20E+00		2.03E+01	5.20E+00		1.87E+01
PENTACHLOROPHENOL	1.30E+01	pH	5.07E+01			
HEPTACHLOR EPOXIDE	3.80E-03		1.48E-02	3.80E-03		1.37E-02
DIELDRIN	1.90E-03		7.41E-03			
ENDRIN	2.30E-03		8.97E-03			
PCBs	1.40E-02		5.46E-02			

WQC = freshwater chronic water quality criteria for the protection of aquatic life; H = hardness dependent, values shown are for the range of hardness present in surface water samples; pH = value is pH dependent (pH = 7.8 used).

Reference: Quality Criteria for Water 1986. U.S. EPA. EPA 440/5-86-001. May 1, 1986.

APPENDIX III

PROCEDURES FOR DETERMINING THE EXTENT OF TREATMENT FOR SOILS AND DEBRIS AT MIDCO II

To define the extent of the treatment by S/S and/or by SVE outside of the minimum area for treatment outlined in Figure 2, samples shall be collected on a square grid with 60 foot centers. The location of the initial grid point shall be determined by the random number technique, and the rest of the grid points measured from the initial point. The grid shall cover the whole soil sample collection area shown in Figure 2 excluding the minimum area for treatment. Split spoon samples shall be collected at each grid point from 1-3 and 4-6 foot depths.

In addition to this grid sampling, one composite sample shall be collected from the pile of contaminated soil in the north corner of Midco II. This composite sample shall be collected using a three dimensional simple random sampling strategy (Test Methods for Evaluating Solid Waste. U.S. EPA, SW-846, Volume 2, 1986.)

The following parameters shall be considered in determining whether the Soil Treatment Action Levels (defined in Section V.C.2) are exceeded at each sampling point:

METALS: total chromium, chromium (VI), lead, antimony, nickel, barium, cadmium, selenium, copper, iron, zinc, vanadium, manganese;

OTHER INORGANICS: arsenic, cyanide;

VOLATILE ORGANIC COMPOUNDS (VOCs): methylene chloride, trichloroethylene, tetrachloroethylene, 2-butanone, acetone, toluene, 1,1,1 trichoroethane, benzene, xylene, ethyl benzene, methyl isobutyl ketone, 1,1-dichloroethylene, 1,2 dichloroethylene, vinyl chloride;

ACID/BASE/NEUTRAL FRACTION: benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3)pyrene, dibenz(a,h)anthracene, bis(2-ethylhexyl)phthalate, diethyl phthalate, di-n-butyl phthalate, isophorone, phenol;

PESTICIDE/PCB FRACTION: chlordane, aldrin, dieldrin, polychlorinated biphenyls.

For any of the grid sampling points that exceed the Soil Treatment Action Levels, either:

(a) The entire area within the 60 foot square centered at the grid point will be treated in accordance with Section V.C.2; or

(b) Further sampling and treatment will be conducted as follows:

(1) The 60-foot square centered at the grid point shall be subdivided into nine squares measuring 20 by 20 feet. The center 20-foot square, where the grid point is located shall be treated in accordance with Section V.C.2.

(2) Samples at 1-3 and 4-6 foot depth shall be collected at the center of each of the eight surrounding 20 foot squares. If any of these samples exceed the Soil Treatment Action Levels, the entire area within these 20 foot squares shall be treated in accordance with Section V.C.2.

(3) Samples at 1-3 and 4-6 foot depth shall be collected at the center of each 20 foot square that is along side a 20-foot square determined to exceed the Soil Treatment Action Levels based on the previous sampling. If any of these samples exceed the Soil Treatment Action Levels, the entire area within these squares shall be treated in accordance with Section V.C.2.

(4) The process in (b)(3) above shall be repeated until each 20 foot square along side a square containing a sample that exceeds the Soil Treatment Action Levels, has been sampled, even if this requires sampling of 20-foot squares that are part of 60-foot squares whose center grid point sample results are less than the Soil Treatment Action Levels.

APPENDIX IV

PROCEDURES FOR CONDUCTING RISK BASED CALCULATIONS FOR SOILS AND SEDIMENTS AT MIDCO II

Risk Calculations

Risk based calculations shall be conducted for each sample for both carcinogenic and non-carcinogenic risks. The calculation shall be the sum of the estimated risks produced by each constituent detected in the sample for the ingestion, dermal contact, and inhalation routes of exposure using a residential development scenario.

The carcinogenic risk based calculation for each exposure route shall be the summation of the lifetime average exposure rate for each constituent times that constituent's carcinogenic potency factor (slope factor). This is summarized by the following equation:

$$CR_s = \Sigma\ (OI)_i(OSF)_i + \Sigma\ (DI)_i(DSF)_i + \Sigma\ (II)_i(ISF)_i$$

CR_s = Cumulative lifetime carcinogenic risk for each sample

Σ = Summation of the carcinogenic risk for each constituent detected in the sample

OI_i = Lifetime exposure rate to constituent i via ingestion

DI_i = Lifetime exposure rate to constituent i via dermal contact

II_i = Lifetime exposure rate to constituent i via inhalation

OSF_i = Oral slope factor or carcinogenic potency factor (CPF) of constituent i

DSF_i = Dermal slope factor or carcinogenic potency factor of constituent i

ISF_i = Inhalation slope factor or carcinogenic potency factor of constituent i

The non-carcinogenic risk based calculation for each exposure route shall be the summation of the non-carcinogenic risk indexes for each constituent. The non-carcinogenic risk index is the ratio of the averaged exposure rate divided by the reference dose. This is summarized by the following equation:

$$NI_s = \Sigma\ (OCDI_i)/(ORfD)_i + \Sigma\ (DCDI)_i/(DRfD)_i + \Sigma\ (ICDI)_i(IRfD)_i$$

NI_s = Cumulative chronic non-carcinogenic risk index for each sample

$OCDI_i$ = Chronic daily intake of constituent i for the ingestion route of exposure

$DCDI_i$ = Chronic daily intake of constituent i for the dermal contact route of exposure

$ICDI_i$ = Chronic daily intake of constituent i for the inhalation route of exposure

$ORfD_i$ = Chronic oral reference dose

$DRfD_i$ = Chronic dermal reference dose

$IRfD_i$ = Chronic inhalation reference dose

Constituents that are not detected shall not be included in the risk calculations. The chemical analyses shall at least attain the quantitation limits necessary to evaluate attainment of soil CALs. However, quantitation limits lower than the detection limits listed in Table 1-7 of the Feasiblity Studies for Midco I and Midco II will not be required. Compounds detected below background concentrations shown in Table 1 shall not be used in the risk calculations. No OSF, ISF, ORfD or IRfD is presently available for lead. Therefore, the soil

treatment action level for lead is set at 1000 mg/kg in the soil, and the sediment/soil CAL is set at 500 mg/kg.

If NI_s exceeds 5.0 for the STALs or 1.0 for the soil/sediment CALs, the organ specific NI_s shall be calculated in a manner consistent with EPA guidance. Then the highest organ specific NI_s shall be used to evaluate whether the criteria for soil treatment is or is not exceeded.

The procedures for the calculations for each exposure route are summarized below:

<u>FOR THE INGESTION ROUTE OF EXPOSURE</u>:

CARCINOGENIC RISK CALCULATION

$CR_{si} = \Sigma\ (OI)_{si}(OSF)_i$

$OI_i = (2.34\ mg/kg/d)(C_i)$

CR_{si} = Cumulative lifetime carcinogenic risk for each sample for the ingestion route of exposure

OI_i = Lifetime exposure rate to constituent i for the ingestion route of exposure

OSF_i = Oral slope factor or carcinogenic potency factor (CPF) of compound i. These are listed in Table 2. The CPFs in Table 2 are from the U.S. EPA "Health Effects Assessment Summary Tables", April 1989, OERR 9200.6-303-(89-2), except for the carcinogenic polyaromatic hydrocarbons, which are from the U.S. EPA Health Effects Assessment Group.

2.34 mg/kg/d = lifetime averaged soil intake based on the following assumptions:

- The soil intake averaged over 70 years (25550 days) corresponding to children age 2-6, with

a body weight of 17 kg, and an ingestion rate of 0.2 grams of soil per day for 5 years, equal to 8.4×10^{-4} g/kg/d.

- The soil intake averaged over 25550 days corresponding to children age 7-12, with a body weight of 29 kg, and an ingestion rate of 0.1 grams of soil per day for 6 years, equal to 3.0×10^{-4} g/kg/d.

- The soil intake averaged over 25550 days corresponding to adults, with a body weight of 70 kg, and an ingestion rate of 0.1 grams of soil per day for 58 years, equal to 12×10^{-4} g/kg/d.

$(8.4 + 3.0 + 12) \times 10^{-4}$ g/kg/d $\times 10^{3}$ mg/g = 2.34 mg/kg/d

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil.

NON-CARCINOGENIC RISK INDEX CALCULATION

$NI_{si} = \Sigma\ (C)_i(11.8\ mg/kg/d)/ORfD_i)$

NI_{si} = Cumulative chronic non-carcinogenic risk index for the ingestion route of exposure

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

11.8 mg/kg/d = Soil intake for children ages 2-6, based on a bodyweight of 17 kg and an ingestion rate of 0.2 grams of soil per day for five years

$ORfD_i$ = Chronic oral reference dose. The oral reference doses for this Decree are listed in Table 2. The RfDs listed in Table 2 are from the U.S. EPA "Health Effects Assessment Summary Tables", April 1989, OERR 9200.6-303-(89-2)

FOR THE DIRECT CONTACT ROUTE OF EXPOSURE:

CARCINOGENCIC RISK CALCULATION

$CR_{sd} = \Sigma (DI)_i(DSF)_i$

$DI_i = (C)_i(DF)_i(14.53 \text{ mg/kg/d})$

CR_{sd} = Cumulative lifetime carcinogenic risk for each sample for the dermal contact route of exposure

DI_i = Lifetime exposure rate to compound i for the dermal contact route of exposure

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

DSF_i = Dermal slope factor or carcinogenic potency factor (CPF) of constituent i. These are listed in Table 2. The dermal CPFs in Table 2 were adjusted from the oral CPFs by dividing the oral CPF by the chemical-specific oral absorption factor that represents the percentage of ingested chemical that is actually absorbed. The absorption factors are also listed in Table 2.

DF_i = Desorption factor. This is a chemical-specific value that takes into account the desorption of a constituent from the soil matrix. The following desorption factors shall be used: volatile organic compounds = 0.25; semivolatile organic compounds = 0.10; inorganics = 0.01.

14.53 mg/kg/d = Lifetime soil to skin adherence based on the following assumptions:

- The soil adherence averaged over 70 years (25550 days) corresponding to children age 2-6, with a body weight of 17 kg, an exposed body surface area of 3160 cm^2, a soil-to skin adherence factor of 0.9 mg/cm^2 (Exposure Factors Handbook, Technical Report, U.S. EPA, 1989, Contract No. 68-02-4254) of soil per day, for 138 days per year, for 5 years, equal to 4.52 mg/kg/d. The exposed body surface area includes arms, legs and hands (50th percentile, children aged 3-4, from Exposure Factors Handbook, 1989).

- The soil adherence averaged over 70 years

(25550 days) corresponding to children age 7-12, with a body weight of 29 kg, an exposed body surface area of 4970 cm^2, a soil-to skin adherence factor of 0.9 mg/cm^2 of soil per day, for 138 days per year, for 6 years, equal to 5.00 mg/kg/d. The exposed body surface area includes arms, legs and hands (50th percentile, children aged 9-10 from Exposure Factors Handbook, 1989).

- The soil adherence averaged over 70 years (25550 days) corresponding to adults, with a body weight of 70 kg, an exposed body surface area of 3120 cm^2, a soil-to skin adherence factor of 0.9 mg/cm^2 of soil per day, for 55 days per year, for 58 years equal to 5.01 mg/kg/d. The exposed body surface area includes arms and hands (50th percentile adults from Exposure Factors Handbook, 1989).

NON-CARCINOGENIC RISK INDEX CALCULATION

$NI_{sd} = \Sigma\ (C)_i(DF)_i(63.25\ mg/kg/d)/(DRfD_i)$

NI_{sd} = Cumulative chronic non-carcinogenic index for the direct contact route of exposure

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

DF_i = Desorption factor. Use definition previously provided for the carcinogenic risk calculation.

63.25 mg/kg/d = The soil adherence corresponding to children age 2-6, with a body weight of 17 kg, an exposed body surface area of 3160 cm^2, a soil-to skin adherence factor of 0.9 mg/cm^2 of soil per day, for 138 days per year, for 5 years.

$DRfD_i$ = Chronic dermal reference dose. The chronic dermal reference doses for this Decree are listed in Table 2. The chronic dermal reference doses listed in Table 2 were adjusted from the oral reference doses by multiplying the oral reference doses by the chemical-specific oral absorption factor that represents the percentage of ingested chemical that is actually absorbed. The oral absorption factors are also listed in Table 2.

FOR THE INHALATION ROUTE OF EXPOSURE:

CARCINOGENIC RISK CALCULATION

$CR_{ai} = \Sigma\ (II)_i(ISF)_i$

$II_i = (C)_i(D)_i(VP)_i(MW)_i(0.033)$

CR_{ai} = Cumulative carcinogenic risk for each sample for the inhalation route of exposure

II_i = Lifetime exposure rate to constituent i for the inhalation route of exposure

ISF_i = Inhalation slope factor or carcinogenic potency factor (CPF) for constituent i. The inhalation CPFs are listed in Table 2 and are from: U.S. EPA, 1989, Health Effects Summary Tables, OERR 9200.6-303-(89-2).

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

D_i = Diffusion coefficient of constituent i in the air, in cm^2/sec

VP_i = Vapor pressure of constituent i, in mm Hg

MW_i = Molecular weight of constituent i, in g/mole

$$0.033 = \frac{(INR)(ET)(EF)(ED)(A)(P^{4/3})(1000\ mg/g)}{(BW)(AT)(h)(u)(w)(L)(R)(T)}$$

INR = Inhalation rate in m^3/hour: 0.76 from 1-6 years; 0.89 from 7-12 years; 0.83 for adults

ET = Exposure time in hours/day: 21.1 from 1-6 years; 18.3 from 7-12 years; 21.1 for adults

EF = Exposure frequency in days/year: 350 for all age groups

ED = Exposure duration in years: 6 years from 1-6 years; 6 years from 7-12 years; and 58 years for adults

A = 1 E+6 cm^2 (a box 1 meter wide and 100 meters long)

P = Total soil porosity: 0.35

BW = Body weight in kg.: 17 kg from 1-6 year; 29 kg. from 6-12 years; and 70 kg adult

AT = Averaging time: 25550 days (365 days/year X 70 years)

h = Mixing height: 1.83 meters

w = Mixing width: 1 meter

u = Wind speed: 2.4 meters/sec.

L = Effective depth of soil cover: 30 cm.

R = Gas constant: 62,361 mm Hg/gmole/°K

T = Temperature: 290 °K

NON-CARCINOGENIC RISK INDEX CALCULATION

$NI_{si} = \Sigma\ (C)_i(D)_i(VP)_i(MW)_i(0.0938)/(IRfD_i)$

NI_{si} = Cumulative chronic non-carcinogenic index for the inhalation route of exposure

C_i = Concentration of constituent i in the sample in milligrams contaminant per milligram soil

D_i, VP_i, and MW_i are as defined above

$$0.0938 = \frac{(INR)(ET)(EF)(ED)(A)(P^{4/3})(1000\ mg/g)}{(BW)(AT)(h)(u)(w)(L)(R)(T)}$$

INR = Inhalation rate in m^3/hour: 0.76 for 1-6 year olds

ET = Exposure time in hours/day: 21.1 for 1-6 year olds

ED = Exposure duration in years: 6 years

BW = Body weight in kg.: 17 kg for 1-6 year olds

AT = Averaging time: 2190 days (365 days/year X 6 years)

A, P, EF, P, h, w, u, L, R, and T are as defined above

$IRfD_i$ = Inhalation reference dose for constituent i. The inhalation CPFs are listed in Table 2 and are from: U.S. EPA, 1989, Health Effects Summary Tables, OERR 9200.6-303-(89-2).

TABLE 1 OF APPENDIX IV

MIDCO I AND II - BACKGROUND SOIL CONCENTRATIONS *

COMPOUND	95% UCL (ug/kg)	COMPOUND	95% UCL (ug/kg)	COMPOUND	95% UCL (ug/kg)
ALUMINUM	8,175,837	1,2-DICHLOROETHANE	0	DIETHYLPHTHALATE	27.1
ANTIMONY	1,290	2-BUTANONE	6.7	FLUORENE	0
ARSENIC	14,014	1,1,1-TRICHLOROETHANE	0	N-NITROSODIPHENYLAMINE	0
BARIUM	80,492	1,1,2,2-TETRACHLOROETHANE	0	PENTACHLOROPHENOL	0
BERYLLIUM	0	TRICHLOROETHENE	0	PHENANTHRENE	131
CADMIUM	2,769	BENZENE	0	ANTHRACENE	0
CALCIUM	10,662,779	2-HEXANONE	0	DI-N-BUTYLPHTHALATE	0
CHROMIUM (III)	19,260	4-METHYL-2-PENTANONE	0	FLUORANTHENE	255
CHROMIUM (VI)	19,260	TETRACHLOROETHENE	0	PYRENE	248
COBALT	4,197	TOLUENE	2.0	BUTYLBENZYLPHTHALATE	112
COPPER	48,876	CHLOROBENZENE	0	BENZO(A)ANTHRACENE	158
IRON	13,673,722	ETHYLBENZENE	0	BIS(2-ETHYLHEXYL)PHTHALATE	985
LEAD	145,843	STYRENE	0	CHRYSENE	238
MAGNESIUM	3,386,934	TOTAL XYLENES	0	DI-N-OCTYLPHTHALATE	36.4
MANGANESE	117,133	PHENOL	0	BENZO(B)FLUORANTHENE	241
MERCURY	288	1,4-DICHLOROBENZENE	0	BENZO(K)FLUORANTHENE	154
NICKEL	17,348	2-METHYLPHENOL	0	BENZO(A)PYRENE	137
POTASSIUM	1,002,938	4-METHYLPHENOL	0	INDENO(1,2,3-CD)PYRENE	103
SELENIUM	0	CRESOL	0	DIBENZ(A,H)ANTHRACENE	0
SILVER	447	NITROBENZENE	0	BENZO(G,H,I)PERYLENE	108
SODIUM	81,517	N-NITROSODIPROPYLAMINE	0	ALDRIN	0
THALLIUM	1,477	ISOPHORONE	0	DIELDRIN	0
TIN	1,581	2,4-DIMETHYLPHENOL	0	ENDRIN	0
VANADIUM	20,553	BENZOIC ACID	0	4,4'-DDD	29.5
ZINC	312,974	2,4-DICHLOROPHENOL	0	4,4'-DDT	127
CYANIDE	0	NAPHTHALENE	0	CHLORDANE	4,098
METHYLENE CHLORIDE	9.4	4-CHLORO-3-METHYLPHENOL	0	AROCLOR-1242	0
ACETONE	13.9	2-METHYLNAPHTHALENE	0	AROCLOR-1248	0
1,1-DICHLOROETHANE	0	ACENAPHTHYLENE	0	AROCLOR-1254	0
TRANS-1,2-DICHLOROETHENE	0	ACENAPHTHENE	0	AROCLOR-1260	0
CHLOROFORM	0	DIBENZOFURAN	0	4,4-DDE	[illegible] 8

* 95% UCL = 95 percent upper confidence limit of the average background soil concentrations. From the Feasibility Study (both sites have the same soil background concentrations).

TABLE 2 OF APPENDIX IV

CHEMICAL SPECIFIC RISK FACTORS

CHEMICAL	CPF-oral $(mg/kg/d)^{-1}$	Chronic Oral RfD (mg/kg/d)	Inhalation CPF $(mg/kg/d)^{-1}$	Chronic Inhalation RfD (mg/kg/d)	Oral Absorption Factor	Dermal CPF[a] $(mg/kg/d)^{-1}$	Chronic Dermal RfD (mg/kg/d)
antimony	NA	4.00E-04	NA	NA	0.05	NA	2.00E-05
arsenic	1.75E+00	1.00E-03	5.00E+01	NA	0.98	1.79E+00	9.80E-04
barium	NA	5.00E-02	NA	1.00E-04	0.10	NA	5.00E-03
beryllium	NA	5.00E-03	8.40E+00	NA	0.001	NA	5.00E-06
cadmium	NA	1.00E-03	6.10E+00	NA	0.06	NA	6.00E-05
chromium(III)	NA	1.00E+00	NA	NA	0.01	NA	1.00E-02
chromium(VI)	NA	5.00E-03	4.10E+00	NA	0.05	NA	2.50E-04
manganese	NA	2.00E-01	NA	3.00E-04	0.05	NA	1.00E-02
mercury	NA	3.00E-04	NA	NA	0.15	NA	4.50E-05
nickel	NA	2.00E-02	8.40E-01	NA	0.05	NA	1.00E-03
selenium	NA	3.00E-03	NA	1.00E-03	0.60	NA	1.80E-03
thallium	NA	7.00E-05	NA	NA	0.05	NA	3.50E-06
tin	NA	6.00E-01	NA	NA	0.05	NA	3.00E-02
vanadium	NA	7.00E-03	NA	NA	0.05	NA	3.50E-04
zinc	NA	2.00E-01	NA	NA	0.50	NA	1.00E-01
cyanide	NA	2.00E-02	NA	NA	0.45	NA	9.00E-03
methylene chloride	7.50E-03	6.00E-02	1.40E-02	3.00E+00	1.00	7.50E-03	6.00E-02
acetone	NA	1.00E-01	NA	NA	0.90	NA	9.00E-02
1,1-dichloroethane	NA	1.00E-01	NA	1.00E-01	0.70	NA	7.00E-02
1,1-dichloroethene	6.00E-01	9.00E-03	1.20E+00	NA	0.93	6.45E-01	9.30E-03
chloroform	6.10E-03	1.00E-02	8.10E-02	NA	1.00	6.10E-03	1.00E-02
1,2-dichloroethane	9.10E-02	NA	9.10E-02	NA	1.00	9.10E-02	NA
2-butanone	NA	5.00E-02	NA	9.00E-02	0.90	NA	4.50E-02
1,1,1-trichloroethane	NA	9.00E-02	NA	3.00E-01	0.90	NA	8.10E-02
carbon tetrachloride	1.30E-01	7.00E-04	1.30E-01	NA	0.80	1.63E-01	5.60E-04
1,1,2,2-tetrachloroethane	2.00E-01	NA	2.00E-01	NA	0.90	2.22E-01	NA
1,2-dichloropropane	6.80E-02	NA	NA	NA	0.90	6.67E-02	NA
trichloroethene	1.10E-02	NA	1.30E-02	NA	0.95	1.16E-02	NA
1,1,2-trichloroethane	5.70E-02	4.00E-03	5.70E-02	NA	0.90	6.33E-02	3.60E-03
benzene	2.90E-02	NA	2.90E-02	NA	1.00	2.90E-02	NA
4-methyl-2-pentanone	NA	5.00E-02	NA	NA	0.90	NA	4.50E-02

CHEMICAL SPECIFIC RISK FACTORS

CHEMICAL	CPF-oral $(mg/kg/d)^{-1}$	Chronic Oral RfD (mg/kg/d)	Inhalation CPF $(mg/kg/d)^{-1}$	Chronic Inhalation RfD (mg/kg/d)	Oral Absorption Factor	Dermal CPF[a] $(mg/kg/d)^{-1}$	Chronic Dermal RfD (mg/kg/d)
tetrachloroethene	5.10E-02	1.00E-02	3.30E-03	NA	0.90	5.67E-02	9.00E-03
toluene	NA	3.00E-01	NA	1.00E+00	1.00	NA	3.00E-01
chlorobenzene	NA	3.00E-02	NA	5.00E-03	0.31	NA	9.30E-03
ethylbenzene	NA	1.00E-01	NA	NA	0.82	NA	8.20E-02
xylenes	NA	2.00E+00	NA	4.00E-01	1.00	NA	2.00E+00
phenol	NA	6.00E-01	NA	NA	0.90	NA	5.40E-01
1,4-dichlorobenzene	2.40E-02	NA	NA	7.00E-01	1.00	2.40E-02	NA
1,2-dichlorobenzene	NA	4.00E-01	NA	4.00E-02	0.90	NA	3.60E-01
cresol	NA	5.00E-02	NA	NA	0.90	NA	4.50E-02
nitrobenzene	NA	5.00E-04	NA	6.00E-04	0.90	NA	4.50E-04
isophorone	4.10E-03	1.50E-01	NA	NA	0.90	4.56E-03	1.35E-01
benzoic acid	NA	4.00E+00	NA	NA	0.40	NA	1.60E+00
2,4-dichlorophenol	NA	3.00E-03	NA	NA	0.90	NA	2.70E-03
1,2,4-trichlorobenzene	NA	2.00E-02	NA	3.00E-03	0.90	NA	1.80E-02
napthalene	NA	4.00E-01	NA	NA	1.00	NA	4.00E-01
4-chloroaniline	3.50E-02	4.00E-03	NA	NA	0.90	3.89E-02	3.60E-03
diethylphthalate	NA	8.00E-01	NA	NA	0.15	NA	1.20E-[illegible]
N-nitrosodiphenylamine	4.90E-03	NA	NA	NA	0.90	5.44E-03	NA
pentachlorophenol	NA	3.00E-02	NA	NA	0.90	NA	2.70E-[illegible]
di-N-butylphthalate	NA	1.00E-01	NA	NA	0.85	NA	8.5[illegible]E-[illegible]
benzidine	2.30E+02	3.00E-03	2.30E+02	NA	0.90	2.56E+02	2.70E-[illegible]
butylbenzylphthalate	NA	2.00E-01	NA	NA	0.15	NA	3.00E-[illegible]
benzo(a)anthracene	1.15E-01	NA	NA	NA	0.50	2.30E-01	NA
bis(2-ethylhexl)phthalate	1.40E-02	2.00E-02	NA	NA	0.15	9.33E-02	3.00E-[illegible]
chrysene	1.15E-01	NA	NA	NA	0.50	2.30E-01	NA
benzo(b)fluoranthene	3.45E+00	NA	NA	NA	0.15	6.90E+00	NA
benzo(a)pyrene	1.15E+01	NA	NA	NA	0.50	2.30E+01	NA
indeno(1,2,3-cd)pyrene	1.15E-01	NA	NA	NA	0.50	2.30E-01	NA
dibenz(a,h)anthracene	1.15E+01	NA	NA	NA	0.50	2.30E+01	NA
aldrin	1.70E+01	3.00E-05	1.70E+01	NA	0.50	3.40E+01	1.50E-05
dieldrin	1.60E+01	5.00E-05	1.60E+01	NA	0.50	3.20E+01	2.50E-05
endrin	NA	3.00E-04	NA	NA	0.50	NA	1.50E-04

CHEMICAL SPECIFIC RISK FACTORS

CHEMICAL	CPF-oral $(mg/kg/d)^{-1}$	Chronic Oral RfD (mg/kg/d)	Inhalation CPF $(mg/kg/d)^{-1}$	Chronic Inhalation RfD (mg/kg/d)	Oral Absorption Factor	Dermal CPF[a] $(mg/kg/d)^{-1}$	Chronic Dermal RfD (mg/kg/d)
4,4'-DDT	3.40E-01	5.00E-04	3.40E-01	NA	0.50	6.80E-01	2.50E-04
chlordane	1.30E+00	5.00E-05	1.30E+00	NA	0.50	2.60E+00	2.50E-05
aroclor-1242	7.70E+00	NA	NA	NA	0.50	1.54E+01	NA
araclor-1248	7.70E+00	NA	NA	NA	0.50	1.54E+01	NA
aroclor-1254	7.70E+00	NA	NA	NA	0.50	1.54E+01	NA
araclor-1260	7.70E+00	NA	NA	NA	0.50	1.54E+01	NA
PCBs	7.70E+00	NA	NA	NA	0.95	8.11E+00	NA

NA Not Available
CPF Carcinogenic Potency Factor
RfD Reference Dose
[a] Dermal risk factors are calculated as follows:

$$\frac{\text{Oral CPF}}{\text{oral absorption factor}} = \text{Dermal CPF}$$

$$\text{Oral RfD} * \text{Oral Absorption Factor} = \text{Dermal RfD}$$

APPENDIX V

PROCEDURE FOR CONDUCTING RISK CALCULATIONS FOR AIR EMISSIONS

The carcinogenic risk calculations shall be the summation of a lifetime averaged exposure rate for each constituent times that constituent's inhalation carcinogenic potency factor. This is summarized in the following equation:

$CR = \Sigma\ (II)_i\ (ISF)_i$

CR = Cumulative lifetime carcinogenic risk.

Σ = Summation of the carcinogenic risk of each constituent in the air emission.

II_i = Lifetime averaged exposure rate to compound i. More information from the design will be needed to determine II_i for each process or combination of processes. However, the values for INR, ET, EF, ED, BW, and AT from Appenidix IV shall be used for exposures to residents. In addition IR for workers shall be 1.3 cubic meters per hour.

ISF_i = Inhalation carcinogenic potency factor (or slope factor) for compound i. The ISFs are listed in Table 2 of Appenidix IV.

The chronic non-carcinogenic risk index is calculated as follows:

$NI = \Sigma\ (II)_i/RfD_i$

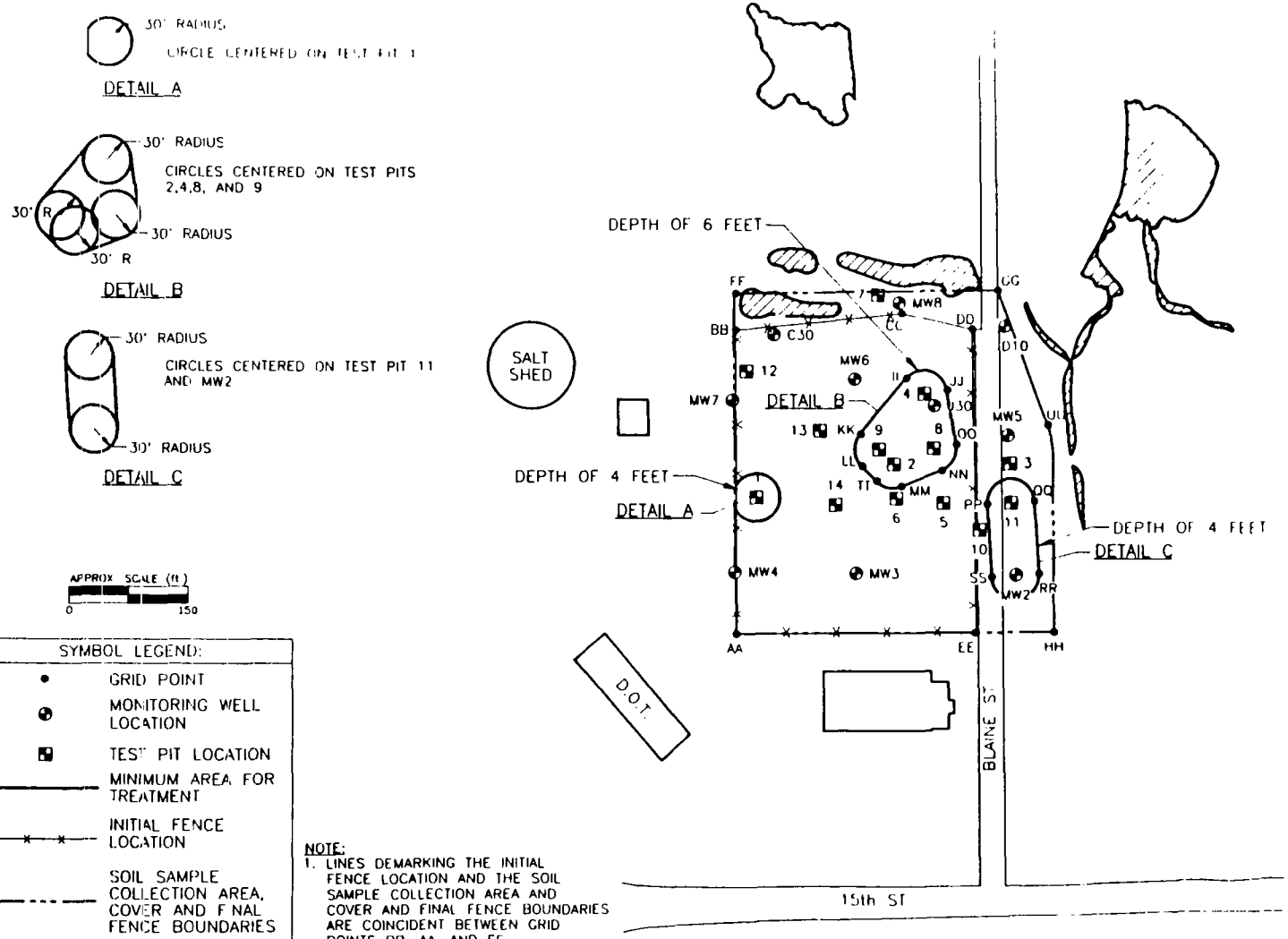
NI = Cumulative chronic non-carcinogenic index

Σ = Summation of chronic non-carcinogenic risk for all constituents affecting the same target organ

II_i = Chronic exposure rate of constituent i. More process specific information is needed to calculate this number.

RfD_i = Inhalation reference dose of constituent i. The RfD_i are listed in Table 2 of Appenidix IV.

APPENDIX 3A



NOTE:
1. LINES DEMARKING THE INITIAL FENCE LOCATION AND THE SOIL SAMPLE COLLECTION AREA AND COVER AND FINAL FENCE BOUNDARIES ARE COINCIDENT BETWEEN GRID POINTS BB, AA, AND EE.

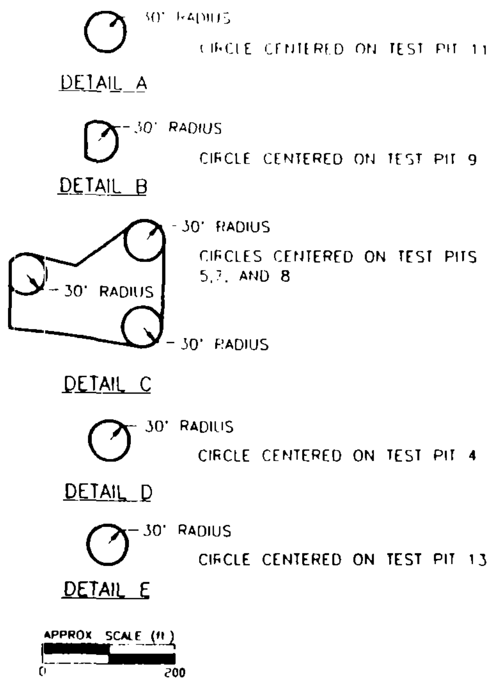
FIGURE 1

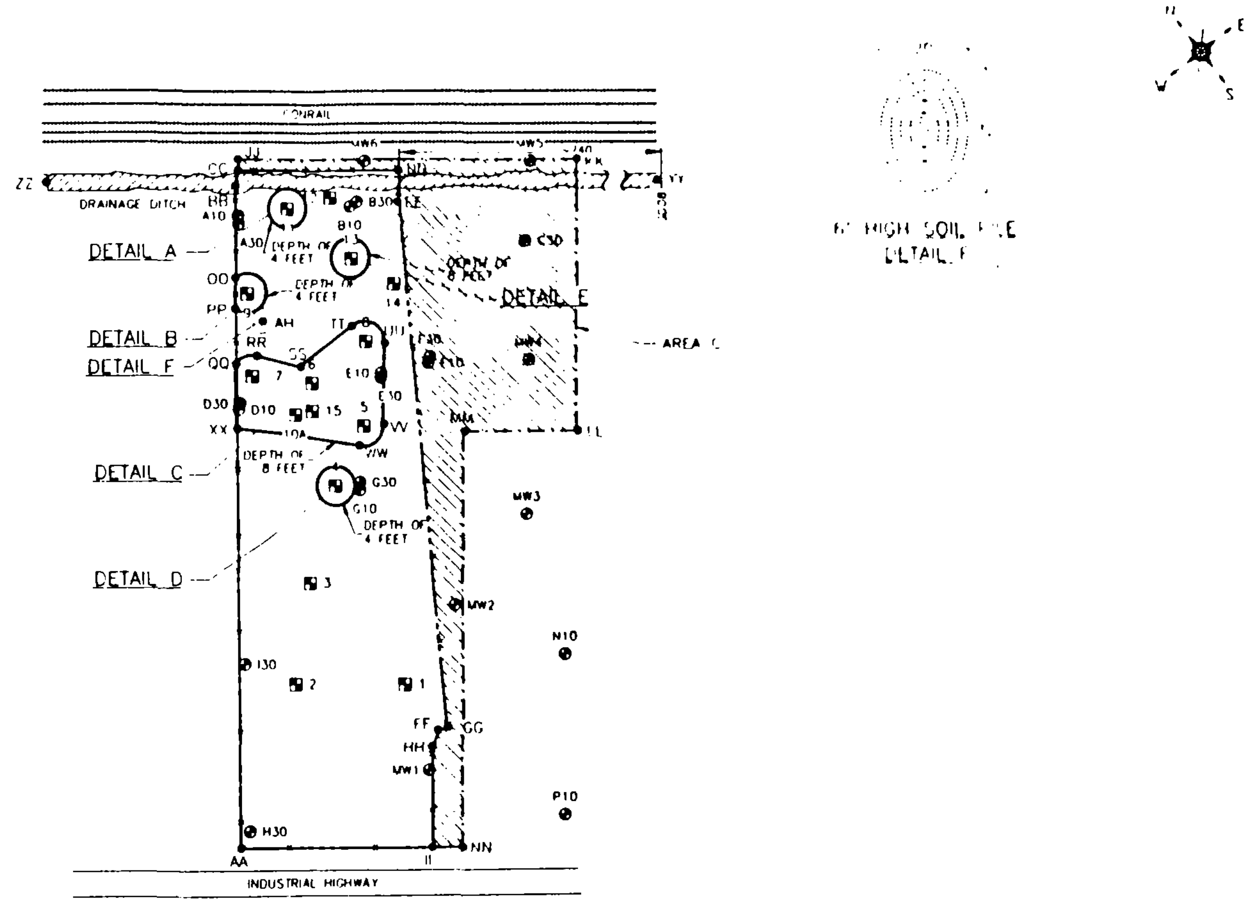
MIDCO I REMEDIATION
MIDCO I
GARY, INDIANA

ERM

PROJECT 0184	FIGURE STI
DRAWN MO-	CHECKED
DATE 12/3/91	APPROVED
CLIENT MIDCO	

APPENDIX 3B





NOTE

1. LINES DEMARKING THE INITIAL FENCE LOCATION AND THE MINIMUM COVER BOUNDARY ARE COINCIDENT
2. LINES DEMARKING THE INITIAL FENCE LOCATION, MINIMUM COVER BOUNDARY, SOIL SAMPLE COLLECTION AREA AND FINAL FENCE BOUNDARIES ARE COINCIDENT BETWEEN GRID POINTS CC, AA, AND II

FIGURE 2

MIDCO II REMEDIATION
MIDCO II
GARY, INDIANA

ERM

MIDCO
12/3/91
MD-
ST2
0184

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APPENDIX 4

Settling Defendants

Primerica Holdings, Inc., successor-in-interest to American Can Company

Motorola, Inc.

Pre Finish Metals Inc.

Premier Coatings, Inc.

Rust-Oleum Corporation

Standard T Chemical Co., Inc.

Zenith Electronics Corporation f/k/a Zenith Radio Corporation

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APPENDIX 5

Settling Class A Third Party Defendants

Accutronics, Inc.

Active Service Corp.

American Rivet Company, Inc.

Armour Pharmaceutical Company

Ashland Chemical, Inc.

Cargill, Incorporated

Connor Forest Industries Inc.

Continental White Cap on behalf of Continental Can

Daubert Chemical Company

Duo-Fast Corporation

American Home Products Corporation on behalf of Ecko Housewares

Ethicon, Inc./Johnson & Johnson Company

Furnas Electric Company

Gilbert & Bennett Manufacturing Company

Henry Pratt Company, formerly a Division of Amsted Industries Inc.

J.M. Huber Corporation

Knaack Manufacturing Co.

McWharter Chemical a/k/a McWhorter Chemical, by IMCERA Group Inc., as successor

Morton International Inc.

National Can by American National Can Company

Pierce & Stevens Corp.

Akzo Coatings Inc., formerly Reliance Universal Inc.

Richardson Graphics House Company, now dissolved, by its indirect parent, Witco Corporation

Size Control Company

Specialty Coatings Company

Stuart Industrial Coatings f/k/a Stuart Chemical and Paint

Sequa Corporation Successor to Sun Chemical

TeePak, Inc.

ICI Specialty Inks f/k/a Thiele-Engdahl

USX Corporation, formerly United States Steel Corp.

Velsicol Chemical Corporation

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APPENDIX 6

Settling Class B Third Party Defendants

Butler Specialty Company

Crown Cork & Seal Co., Inc.

J & S Tin Mill Products Co. Inc./Armstrong Containers, Inc.

Masonite Corp.

Paslode Corporation now Illinois Tool Works, Inc.

PPG Industries, Inc.

R.R. Donnelley & Sons Co.

RHC/Spacemaster Corporation f/k/a Reflector-Hardware Corporation

Schwinn Bicycle Co.

Skil Corp.

Tricil Environmental Services Inc. on behalf of Systech Waste Treatment Center

Universal Tool & Stamping Company, Inc.

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APPENDIX 7

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF INDIANA
HAMMOND DIVISION

UNITED STATES OF AMERICA, Plaintiff, v. MIDWEST SOLVENT RECOVERY, INC., ET AL. Defendants.	)	
AMERICAN CAN COMPANY, INC., ET AL., Third-Party Plaintiffs, v. ACCUTRONICS, ET AL., Third-Party Defendants.	)	Civil Action No. H-79-556 Judge Moody

SETTLEMENT AGREEMENT

WHEREAS, there is pending in the United States District Court for the Northern District of Indiana ("the Court") the case of *United States of America v. Midwest Solvent Recovery, Inc.* ("the MIDCO litigation"), which case involves the undersigned entities as parties, and concerns environmental remediation of two

(2) sites allegedly containing hazardous substances, which sites are known as MIDCO I and MIDCO II;

WHEREAS, the United States Environmental Protection Agency (U.S. EPA) has brought administrative and judicial proceedings against certain defendants (called herein the "Primary Defendants") in the MIDCO litigation under Sections 106 and 107 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), seeking to compel said Primary Defendants to undertake remedial activities at MIDCO I and MIDCO II as set forth in a Record Of Decision ("ROD") issued for each site by U.S. EPA, and to pay the cost of such remedial activities;

WHEREAS, the Primary Defendants have filed and are pursuing third party claims against a number of third parties (the "Third Party Defendants") claiming that if the Primary Defendants are liable for any of the costs sought by the U.S. EPA in the primary action, then the Third Party Defendants are liable to the Primary Defendants;

WHEREAS, the cost of the potential remedial actions remaining to be implemented at the MIDCO sites has now been estimated with reasonable certainty for such estimates;

WHEREAS, the undersigned entities (the "Settling Parties") are desirous of minimizing the costs of the MIDCO litigation;

WHEREAS, the undersigned Settling Parties who are Third Party Defendants in the MIDCO litigation wish to settle the litigation between the Primary Defendants and the U.S. EPA, and are prepared to contribute to the cost of the remedies implemented at the sites consistent with the terms of the Consent Decree to be entered in this cause and to attach this Settlement Agreement thereto;

WHEREAS, the Settling Parties have agreed to provide for the reimbursement of U.S. EPA for certain response costs which are not inconsistent with the National Contingency Plan (NCP);

WHEREAS, the Settling Parties desire to define their mutual rights and obligations with respect to implementing the remedial action(s) and reimbursing the United States, and to establish a common fund in trust to provide for the payment of the obligations of the Settling Parties under this Settlement Agreement;

WHEREAS, the Settling Parties have undertaken thorough investigations, and based on those investigations the Settling Parties have negotiated a fair and equitable allocation of responsibility among the parties which is reflected in this Settlement Agreement;

IT IS HEREBY AGREED, in consideration of the foregoing and of the mutual undertakings set forth herein, as follows;

ARTICLE I
DEFINITIONS

1. Definitions.

A. "Settling Party" means those Primary Defendants that execute this Settlement Agreement and those Third Party Defendants that: (a) execute this Settlement Agreement; and (b) either (i) exercise the "Continuing Participation Option" set forth in Article III (Settling Class A Third Parties that sign the Consent Decree), or (ii) exercise the "Buy Out Option" set forth in Article IV of this Settlement Agreement and make timely payment of their Buy Out obligation (Settling Class B Third Parties that sign the Consent Decree).

B. "Buy Out Settling Party" is a Settling Party that elects the "Buy Out Option" set forth in Article IV of this Settlement Agreement.

C. "Participating Settling Parties " are all Settling Parties that execute the Consent Decree and also execute this Settlement Agreement, other than those who elect the "Buy Out Option" in Article IV of this Agreement.

D. "MIDCO Trust Fund", or the "Trust Fund" is the fund created and maintained pursuant to Article V and any earnings thereon.

E. "Trust Agreement" is the Trust Agreement to be entered into among the Participating Settling Parties, the Participating Settling Parties' Trustees and the Financial Trustee.

F. "Participating Settling Parties' Trustees" are those individuals chosen in accordance with the provisions of the Trust Agreement, or their successors from time to time who serve as trustees on behalf of Participating Settling Parties, pursuant to this Settlement Agreement and the Trust Agreement.

G. "Financial Trustee" is an institution authorized to act as a trustee under Illinois law or Indiana Law.

H. "Primary Defendants" are Insilco Corporation (as representing the waste generated by Enterprise Paint Company); Rust-Oleum, Inc.; Zenith Radio Corporation; Standard T. Chemical Company, Inc.; Pre-Finish Metals, Inc.; Premier Coatings Inc.; American Can Company Inc.; Motorola, Inc; and DeSoto, Inc.

I. "Proportional Share" is the percentage amount for each party set forth in Column J of Appendix A, attached hereto, which percentage amount shall be applied to determine the financial obligation of each of the Settling Parties under either the Continuing Participation Option or the Buy Out Option.

J. "Remedial Action" shall mean the remedial measures which are performed by the Primary Defendants pursuant to the Consent Decree.

K. "Remedial Action Costs" shall mean the costs of the Remedial Action, the costs of administering the MIDCO Trust Fund, the costs of any natural resource damages, and such response costs of the U.S. EPA and the Indiana Department of Environmental Management (IDEM), if any, as are not inconsistent with the NCP. Remedial Action Cost shall not include litigation costs, treble damages and/or penalties of any kind, or tort liability. Remedial Action Costs mean only (i) the costs of administering the MIDCO Trust Fund; (ii) those costs that the Primary Defendants are obligated to pay pursuant to either court order or agreement with U.S. EPA, IDEM, or Natural Resources Trustee as defined in CERCLA; and (iii) those costs incurred by the Settling Primary Defendants for expert consulting fees after January 1, 1991 in connection with negotiations of the settlement with the government.

ARTICLE II

PRIMARY AND SECONDARY OBLIGATIONS OF SETTLING PARTIES

2. The Settling Parties acknowledge and agree that the Primary Defendants and the Settling Third Party defendants who do not exercise the "Buy Out Option" set forth in Article IV below shall have the following primary and secondary obligations:

A. **Third Party Obligations Under Consent Decree Secondary.** The Primary Defendants shall have primary responsibility and liability to U. S. EPA for conducting the work and discharging all of the obligations set out in the Consent Decree. With respect to claims by U.S. EPA to enforce the terms of the Consent Decree or otherwise relating to conditions at the Midco I and Midco II sites, it is understood and agreed that the obligations of the settling Third Party Defendants shall be secondary to

the obligations of the Settling Primary Defendants, and that U.S. EPA shall not assert any claim against any settling Third Party Defendant unless all of the Settlement Primary Defendants have first failed to perform such obligations and either (a) Settling Primary Defendants are collectively financially unable to perform such obligations, or (b) the United States has made reasonable efforts to compel compliance with such obligations by Primary Settling Defendants.

B. **Dismissal of Claims and Indemnity.** Each Settling Primary Defendant hereby agrees, upon entry of the Consent Decree, (i) to dismiss any and all claims that have been or could have been asserted against Settling Third Party Defendants with respect to Remedial Action Costs, and (ii) to indemnify, hold harmless, and defend Settling Third Party Defendants from and against any and all claims with respect to the Midco sites that may hereafter be asserted by the United States or the State of Indiana against any Settling Third Party(s) Defendant(s); provided, however, that this indemnity obligation shall inure to the benefit only of those Settling Third Party Defendants that remain current with all of their obligations under this agreement, and the indemnity shall not apply in any event to claims for natural resource damages, if any.

C. **Access to Trust Fund.** In the event that the United States or the State of Indiana obtains a court order requiring the Settling Third Party Defendants to discharge the obligations of the Settling Primary Defendants under the Consent Decree, the Settling Third Party Defendants shall have the power to elect trustees to replace Settling Primary Defendants Trustees and the power to thereafter administer the Trust Fund in accord with the Trust Agreement, and shall have full access, at their option and in their sole discretion, to all contractors,

agents, or other parties necessary to perform the work and discharge any other obligations set out in the Consent Decree.

ARTICLE III
CONTINUING PARTICIPATION OPTION

3. This Continuing Participation Option applies to the Participating Settling Parties, *i.e.*, those Primary Defendants that execute this Settlement Agreement and the Consent Decree and those Third Party Defendants that execute the Consent Decree as Settling Class A Third Parties and that execute this Settlement Agreement but do not exercise the "Buy Out Option" set forth in Article IV below.

4. Each Participating Settling Party agrees to pay its Proportional Share shown on Appendix A hereto of all Remedial Action Costs as defined herein. Each Proportional Share has been calculated assuming that the total sum of such shares is raised only from those entities listed on Appendix A.

5. The payments by Participating Settling Parties shall be made in installments as the need for funds is determined by the Participating Settling Parties' Trustees. No funds shall be required of the Participating Settling Parties until the Participating Settling Parties' Trustees have determined that all Buy Out Option funds under Article IV will be exhausted and that additional funds will be needed to meet current obligations or to maintain the Trust Agreement. Any Participating Settling Party who fails to pay its designated installment within ninety (90) days of written notice by the Participating Settling Parties' Trustees shall pay a penalty to the Trust Fund of five percent (5%) of the installment amount per month for any late payment, and hereby confesses judgment that the Participating Settling Parties' Trustees may have judgment entered by the Court

in the amount of the delinquent installment, plus penalties and costs, and may execute on that judgment against delinquent Participating Settling Parties.

6. After the Agreement becomes effective, as set forth below, the Settling Primary Defendants must pay the Proportional Share of any persons or entities listed in Appendix A, except Uniroyal, who do not enter into this Settlement Agreement, and must contribute to the Trust Fund the full amount allocable to such persons or entities, as shown on Appendix A, as such amounts are assessed by the Trustees. The Settling Primary Defendants shall make such contribution according to the relative proportions of their Proportional Shares, as set forth in Appendix A.

To pay the Proportional Share of Uniroyal, the Proportional Share, as set forth on Appendix A, of each Third Party Defendant that executes the Consent Decree as a Settling Class A Third Party and that executes this Settlement Agreement (but does not exercise the "Buy Out Option" set forth in Article IV below) shall be increased by 18.56%. The difference, if any, between the full amount allocable to Uniroyal, and the amount generated by the Third Party Defendants to be applied toward the Uniroyal Proportional Share shall be paid by the Settling Primary Defendants, according to the relative proportions of their Proportional Shares. All such amounts shall be contributed to the Trust Fund as such amounts are assessed by the Trustees. Each Participating Settling Party that contributes toward the Proportional Share of Uniroyal shall be entitled to share, on a pro rata basis, in any recovery (after reimbursement of litigation costs) from Uniroyal.

7. The obligation of the Settling Primary Defendants set forth in Paragraph 6 above does not extend to Settling Parties who fail or refuse to pay any assessment(s) by the Participating Settling Parties' Trustees. In the event

such Settling Parties do not pay, and their obligation is determined by the Participating Settling Parties' Trustees to be uncollectible, then:

A. If the non-payment by a Settling Party is by a Primary Defendant, such non-payment loss shall be charged to and paid by the remaining Settling Primary Defendants, according to their proportional Shares set forth in Appendix A.

B. If the non-payment by a Settling Party is by a Third Party Defendant, such non-payment loss shall be charged to the remaining Participating Settling Third Party Defendants, according to their Proportional Shares set forth in Appendix A.

8. Each Participating Settling Party is liable for the Proportional Share set forth in Appendix A or adjusted pursuant to this Agreement for any Remedial Action Costs, whether such costs are more than or less than current estimates for Remedial Action Costs. Settling Parties who exercise the Buy Out Option of Article IV shall neither be obligated to pay increases above their specified Buy Out amount, nor shall such parties be entitled to any reductions or refunds.

9. Each Participating Settling Party hereby covenants not to sue any other Participating Settling Party with respect to any claims or actions for Remedial Action Costs which are now pending or which may be asserted in the future against such other Participating Settling Party so long as such other Participating Settling Party is in full compliance with its obligations under this Agreement.

10. This Settlement Agreement shall become effective when signed by those Primary Defendants who decide to settle with the Settling Third Party Defendants and by the Settling Third Party Defendants who represent at least 27.75% of the adjusted revised total drum volume listed in Appendix A or such

lesser percentage as may later be agreed by the Settling Parties and upon approval and entry of the Consent Decree by the Court. (The Proportional Share on Appendix A of those Third-Party Defendants that sign the Consent Decree as Class E Third Parties shall be applied toward the 27.75%.) However no demand shall be made for payment until the Court approves the Consent Decree.

ARTICLE IV
THE BUY OUT OPTION

11. Any Third Party Defendant may "Buy Out" of all Remedial Action Costs under this Settlement Agreement by paying an amount equal to 1.6 times its Proportional Share shown at column J on Appendix A multiplied by $40,000,000. In order to be eligible for the Buy Out Option, the Settling Third Party Defendant must execute the Consent Decree as a Settling Class B Third Party and submit its payment to the Participating Settling Parties' Trustees within sixty (60) days after notice from the Trustee that the Consent Decree has been entered.

12. The Settling Primary Defendants hereby agree to indemnify, hold harmless and defend such Buy Out Settling Parties from any claims for Remedial Action Costs which are pending or which may arise, including claims now pending in the MIDCO litigation, and for future Remedial Action Costs for remedial work at the MIDCO I and MIDCO II sites. Buy Out Settling Parties covenant not to sue Settling Primary Defendants and Participating Third Party Defendants for any claims for Remedial Action Costs which are pending or which may arise, including claims now pending in the MIDCO litigation, and for future Remedial Action Costs for remedial work at the MIDCO I and MIDCO II sites. The terms of Article IV do not cover natural resource damage claims in excess of Five Hundred Thousand Dollars ($500,000) or toxic tort claims.

ARTICLE V
TRUST FUND

13. The funds collected from the Settling Parties under Article III and Article IV shall be collected in a Trust Fund to be administered by the Participating Settling Parties' Trustees in accordance with the terms of the Trust Agreement.

14. Failure of any Participating Settling Party to make timely payment of any amount required of it pursuant to the terms of this Agreement in accordance with Appendix A, or any additional amounts due the Financial Trustee following any recomputation of its share pursuant to this Agreement, shall not relieve the Participating Settling Party of any obligations under this Settlement Agreement, but such party shall not be entitled to any benefits under this Settlement Agreement until it has paid the deficient amount, plus penalties, as set forth in paragraph 5 hereof.

ARTICLE VI
GENERAL PROVISIONS

15. Settling Third Party Defendants hereby assign to Settling Primary Defendants any and all rights which the Settling Third Party Defendants may have against any non-Participating Third Party Defendants or any other potentially responsible party for recovery of moneys resulting from or relating to the MIDCO I and MIDCO II facilities. This assignment does not include any obligation on the part of the Settling Third Party Defendants to support, cooperate, or assist in the prosecution of said claims.

16. Participating Third Party Defendants hereby agree that:

A. Any surplus funds (*i.e.*, funds in excess of the Buy Out Settling Parties' Proportional Shares set forth in Appendix A) generated by the Buy Out Option shall inure to the benefit of the Settling Primary Defendants as

follows: the surplus funds shall first be used in accordance with Paragraph 5, and said amounts shall then be credited to the benefit of Settling Primary Defendants against their assessments under Paragraphs 4 and 6;

B. Except as provided in paragraph 16D below, any moneys recovered by the Settling Primary Defendants from any non-Settling Third Party Defendants shall inure solely to the benefit of the Primary Defendants and not to the benefit of any Settling Third Party Defendants;

C. Any moneys recovered by the Settling Primary Defendants from any landowners, or from other parties who are neither generators nor transporters of hazardous substances to either MIDCO I or MIDCO II, or from any non-parties to the litigation shall inure solely to the benefit of the Primary Defendants and not to the benefit of any Settling Third Party Defendant;

D. Any monies recovered by Settling Primary Defendants from any party identified in Appendix B, after payment of Primary Defendants' litigation costs reasonably allocable to recovery from such party, for the recovery of such Monies, shall inure to the benefit of all Settling Parties pursuant to the Proportional Shares set forth in Appendix A.

E. In the event that Settling Primary Defendants collect moneys pursuant to sub-paragraphs 16(A), (B) and (C) in excess of the amounts Primary Defendants are obligated to pay under Paragraph 6 of this Agreement, after reimbursement of Settling Primary Defendants' litigation costs, all Participating Settling Parties shall share in any surplus funds collected pursuant to sub-paragraph 16(A), according to the Proportional Shares set forth in Appendix A.

17. This Settlement Agreement is for the purpose of reducing litigation costs in settlement of disputed claims, and in no way is to be deemed evidence or otherwise construed or used by any person as an admission by any party hereto of any fact concerning the MIDCO litigation or of liability to any person

or persons, under any theory of law or evidence whatsoever; provided that this Settlement Agreement shall be enforceable in accordance with its terms.

18. Each party verifies that he/she is authorized to sign this Agreement on behalf of his/her company.

19. As a condition precedent to be eligible to participate in this Settlement Agreement, any party that did not participate in the 1985 Participation Agreement hereby agrees to make a one hundred seventy percent (170%) payment of its share under the 1985 Participation Agreement as a payment to the trustees under the 1985 Partial Consent Decree, said amount to be paid within thirty (30) days after the effective date of this Agreement.

20 This Settlement Agreement and the performance hereunder shall be governed by the laws of the State of Illinois

21. Whenever possible, each provision of this Settlement Agreement shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Settlement Agreement shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of the Settlement Agreement.

22. This Settlement Agreement and each of its provisions shall bind and inure to the benefit of the parties hereto and their respective heirs, successors and assigns, beneficiaries, legatees, devisees and representatives.

23. It is agreed for purposes of this Agreement that the proportional shares for American Can Company and National Can Corporation do not include any allocation of any responsibility for any potential liability associated with the hazardous substances or actions of U.S. Reduction Company associated with the clean-up at the MIDCO sites. It is asserted that: Primerica Holdings, Inc. was formerly known as American Can Company; that Primerica Holdings

Inc. has no liability for U.S. Reduction Company; that the stock of U.S. Reduction Company, a separate and distinct corporation, was owned by American Can Company; that American National Can Company was formerly known as National Can Corporation; that American National Can Company has no liability for U.S. Reduction Company; and that National Can Corporation never owned stock or assets in U.S. Reduction Company. Notwithstanding any provision of this Agreement or representations of any party thereto, the Settling Parties hereto reserve their claim or right to bring any action against any person or persons liable for the actions or substances of U.S. Reduction Company.

24. In the event National Can Corporation were to default on its obligations pursuant to Paragraph 3, then the obligation to reimburse the Participating Settling Parties' Trustees for such nonpayment shall be charged to the Primary Defendants pursuant to Paragraph 6A.

25. This Settlement Agreement and the Consent Decree to which it will be an attachment contain the entire agreement between the parties hereto, and supersede all negotiations, representations, warranties, commitments, offers, contracts or writings prior to the date hereof. No waiver and no modification or amendment of any provision of this Settlement Agreement shall be effective unless specifically made in writing and duly signed by the party to be bound thereby.

26. This Settlement Agreement may be executed in several counterparts, each of which shall be deemed an original, and all of which shall constitute one and the same instrument.

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Primerica Holdings, Inc., Successor in interest to American Can Company
Name of Company

65 East 55th Street

New York, NY 10022
Address

By: Jerome T. Fadden
Name of Officer (Please Type)

Jerome T. Fadden
Signature of Officer

Vice President, Financial Planning & Analysis
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Mark James Jenkins
Its Assistant Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Motorola, Inc.
Name of Company

1301 E. Algonquin Road

Schaumburg, IL 60196
Address

By: Robert S. Hall
Name of Officer (Please Type)

Signature of Officer

Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its Asst Secretary

Richard H. Whited

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

PRE FINISH METALS INC.

Name of Company

2300 E. PRATT BOULEVARD

ELK GROVE VILLAGE, IL 60007

Address

By: JAMES J. WACLAWIK

Name of Officer (Please Type)

Signature of Officer

VICE PRESIDENT AND CONTROLLER

Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Premier Coatings, Inc.
Name of Company

2250 Arthur Avenue

Elk Grove Village, IL 60007
Address

By: Edward R. Andrus, Jr.
Name of Officer (Please Type)

Edward R. Andrus Jr.
Signature of Officer

President & CEO
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Paul F. Kelly
Its _____ **Secretary**

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Rust-Oleum Corporation

Name of Company

11 Hawthorn Parkway

Vernon Hills, IL 60061

Address

By: Richard Manning

Name of Officer (Please Type)

Richard Manning

Signature of Officer

Vice President

Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

STANDARD T CHEMICAL CO., INC.
Name of Company

10th & Washington

Chicago Heights, IL 60411
Address

By: Richard Bergel
Name of Officer (Please Type)

Richard Bergel
Signature of Officer

President
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ **Secretary**

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Zenith Electronics Corporation, f/k/a Zenith Radio Corporation

Name of Company

1000 Milwaukee Avenue

Glenview, Illinois 60025-2493

Address

By: John Borst, Jr.

Name of Officer (Please Type)

Signature of Officer

Vice President - General Counsel

Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

ACCUTRONICS, INC.
Name of Company

225 West Washington Street

Chicago, Illinois 60606
Address

By: Gerald T. Shannon
Name of Officer (Please Type)

Signature of Officer

Vice President
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

STATE OF ILLINOIS)
) SS:
COUNTY OF C O O K)

This is to certify that Gerald T. Shannon, Vice President of Accutronics, Inc., personally known to me to be the same person whose name is subscribed to the foregoing document appeared before me, Carol D'Ascenzo, a Notary Public, this 9th day of January, 1992, and expressly acknowledged to me the execution of said foregoing document as the free and voluntary act of Accutronics, Inc.

Carol D'Ascenzo
Notary Public

My Commission expires on:

"OFFICIAL SEAL"
CAROL D'ASCENZO
Notary Public, State of Illinois
My Commission Expires Dec. 1, 1992

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

ACTIVE SERVICE CORP.
Name of Company

1712 Church Street

Evanston, Illinois 60201
Address

By: Richard DeBoer
Name of Officer (Please Type)

Signature of Officer

PRES
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

American Rivet Company, Inc.
Name of Company

11330 W. Melrose Avenue

Franklin Park, IL 60131
Address

By: Anthony W. Reibel
Name of Officer (Please Type)

Anthony W. Reibel
Signature of Officer

Vice President, Secretary
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Anthony W. Reibel
Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Armour Pharmaceutical Company

Name of Company

500 Arcola Road, P.O. Box 1200

Collegeville, PA 19426

Address

By: Gary C. Floyd

Name of Officer (Please Type)

Gary C. Floyd

Signature of Officer

Vice President, Marketing & Operations

Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Paula McCall

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

ASHLAND CHEMICAL, INC.
Name of Company

P.O. BOX 2219

COLUMBUS, OHIO 43216
Address

By: SCOTTY B. PATRICK
Name of Officer (Please Type)

USAD
Signature of Officer

GROUP VICE PRESIDENT
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Thomas F. Dan
Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Cargill, Incorporated
Name of Company

15407 West McGinty Road

Wayzata, Minnesota 55391-2399
Address

By: John P. Sweeney
Name of Officer (Please Type)

Signature of Officer

President, Resin Products Division
Title

(CORPORATE SEAL)

Settling as a Class A Third-Party Defendant

ACKNOWLEDGED BY:

Its _____ Secretary

John F. McGrory Senior
Vice President and Secretary

Please send notices regarding this matter to:

LaRaye M. Osborne
Cargill, Incorporated - Law/24
15407 West McGinty Road
Wayzata, Minnesota 55391-2399

(Phone) 612-475-6374
(Fax) 612-475-6349

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

CONNOR FOREST INDUSTRIES INC.
Name of Company

9701 Wilshire Blvd., Ste. [illegible]00
Beverly Hills, CA 90212
Address

By: H. Andrew Thornburg
Name of Officer (Please Type)

Signature of Officer

Chief Executive Officer
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Lori J. Poulos
Its Corporate Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Continental White Cap
Name of Company

1140 31st St.

Downers Grove, IL 60515
Address

By: Albert Schnell
Name of Officer (Please Type)

Signature of Officer

V.P. of Manufacturing
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

_____
Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Daubert Chemical

Name of Company

One Westbrook Corporate Center
Suite 1000

Westchester, Illinois 60154

Address

By: M. Lawrence Garman

Name of Officer (Please Type)

M. Lawrence Garman

Signature of Officer

Chairman

Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

John R Cooley

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Duo-Fast Corporation, Settling Class A Third
Name of Company

3702 N. River Road

Franklin Park, Illinois 60131
Address

By: Paul Noland
Name of Officer (Please Type)

Paul Noland
Signature of Officer

Executive Vice President
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

American Home Products Corporation c
behalf of Ekco Housewares

Name of Company

685 Third Avenue

New York, New York 10017

Address

By: Gerald A. Jibilian

Name of Officer (Please Type)

Signature of Officer

Vice President

Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Ethicon / Johnson & Johnson

Name of Company

One Johnson & Johnson Plaza

New Brunswick, NJ 08933-7003

Address

By: Bonni Fine Kaufman

Name of Officer (Please Type)

Bonni Fine Kaufman

Signature of Officer

Counsel / Willkie Farr & Gallagher

Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

_____

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Option Exercise:
Option A Continuing Participation Option

FURNAS ELECTRIC COMPANY
Name of Company

1000 MCKEE STREET

BATAVIA, ILLINOIS 60510
Address

By: Gilbert R. Nary
Name of Officer (Please Type)

Gilbert R. Nary
Signature of Officer

Vice Chairman & C.O.O.
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Robert E. Trumpey
its Assistant Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Gilbert & Bennett Manufacturing Comp
Name of Company

One North Main Street

Georgetown, Ct. 06829

Address

By: Paul L. Gossling, President
Name of Officer (Please Type)

Signature of Officer

President

Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Henry Pratt Company, Formerly a
Division of AMSTED Industries Inc
Name of Company

205 N. Michigan Avenue

Chicago, IL 60601
Address

By: David S. O'Neill
Name of Officer (Please Type)

Signature of Officer

Environmental Attorney
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

J. M. Huber Corporation
Name of Company

333 Thornall Street

Edison, New Jersey 08818
Address

By: James E. Coleman
Name of Officer (Please Type)

James E Coleman
Signature of Officer

Vice President
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Knaack Manufacturing Company

Name of Company

420 E. Terra Cotta Avenue

Crystal Lake, IL 60014

Address

By: Robert L. Ripley

Name of Officer (Please Type)

Signature of Officer

President

Title

Option Exercise:
Option A
Continuing Participation Option

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its Ass't. Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

McWharter Chemical a/k/a McWhorter Chemic
by IMCERA Group Inc., as successor

Name of Company

2315 Sanders Road

Northbrook, ILLINOIS 60062

Address

By: Douglas K. Larsen

Name of Officer (Please Type)

Signature of Officer

Vice President, Environmental

Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its Assistant Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Morton International, Inc.
Name of Company

100 North Riverside Plaza

Chicago, Illinois 60606-1596
Address

By: Robert B. Covalt
Name of Officer (Please Type)

Robert B. Covalt
Signature of Officer

Executive Vice President
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

American National Can Company
Name of Company
on behalf of National Can Company
8770 W. Bryn Mawr Avenue

Chicago, IL 60631
Address

By: Neil Chernikoff
Name of Officer (Please Type)

Signature of Officer

Sr. Vice President Research and Engineering
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

_____
Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Pierce & Stevens Corp.

Name of Company

710 Ohio St.

P. O. Box 1092, Buffalo, NY 14240

Address

By: James R. Boldt

Name of Officer (Please Type)

James R Boldt

Signature of Officer

Treasurer & Secretary

Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its Assistant Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Akzo Coatings Inc.
Name of Company

1310 Bishop Ln., Ste. 1650
Louisville, KY 40218
Address

By: Paul E. Brooks, Jr.
Name of Officer (Please Type)

Signature of Officer

Director, Health, Safety & Environmental Engineering
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Secretary

The undersigned Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in United States of America v. Midwest Solvent Recovery, Inc., et al.

Richardson Graphics Company, now dissolved, by its indirect parent, Witco Corporation

2701 Lake Street
Melrose Park, Illinois 60160

By: William C. Grabarek
William C. Grabarek
Senior Attorney
Witco Corporation

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Size Control Company
Name of Company

853 Dundee Avenue
Elgin, Illinois 60120
Address

By: William H. Murphy
Name of Officer (Please Type)

Signature of Officer

President
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

_____
Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Specialty Coatings
Name of Company

2500 Delta Lane

Elk Grove Village, IL 60007
Address

By: Seymour S. Neems
Name of Officer (Please Type)

Signature of Officer

President
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Jack Neems

Its _____ Secretary

Jack Neems

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Stuart Industrial Coatings, F/K/A
~~Stuart Chemical and Paint~~
Name of Company

Settling Class A
Third Party

11740 S. Front, Chicago, IL
Address

By: Charles J. Kowalski
Name of Officer (Please Type)

Signature of Officer

President
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Sequa Corporation f/k/a Sun Chemical

Name of Company

200 Park Avenue

New York, NY 10166

Address

By: Jeffrey H. Teitel

Name of Officer (Please Type)

Signature of Officer

Director of Environmental Law

Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Teepak, Inc.
Name of Company

Three Westbrook Corporate Center

Westchester, IL 60154
Address

By: Geoffrey C. Upton
Name of Officer (Please Type)

Geoffrey C. Upton
Signature of Officer

Treasurer
Title

(CORPORATE SEAL)

State of Ill., County of Cook
Signed before me on this 9th day
of June, 19 92 by GC Upton
M J FitzGerald
Notary Public Pamela A. Gray

ACKNOWLEDGED BY:
Martin J. FitzGerald

Martin J. FitzGerald
Its _____ Secretary

" OFFICIAL SEAL "
PAMELA A. GRAY
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 3/7/95

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

ICI Specialty Inks (f.k.a Thiele-Engdahl)
Name of Company

7830 N. Point Blvd., Suite 101

Winston-Salem, NC 27106-3209
Address

By: Peter J. Cloud
Name of Officer (Please Type)

Signature of Officer

Business General Manager
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

NORTH CAROLINA
FORSYTH COUNTY

Sworn to and subscribed before me this the 10th day of January, 1992.
Witness my hand and official seal.

NOTARY PUBLIC

My Commission Expires September 29, 1992

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

USX Corporation (formerly United States Steel Corporation)

Name of Company

600 Grant Street

Pittsburgh, PA 15219

Address

By: Donald M. Laws

Name of Officer (Please Type)

Signature of Officer

General Counsel, U. S. Steel Group

Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its Assistant Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Velsicol Chemical Corporation
Name of Company

2603 Corporate Ave., Suite 100

Memphis, TN 38132
Address

By: Charles R. Hanson
Name of Officer (Please Type)

CRHanson
Signature of Officer

Vice President of Environmental Management
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

_____

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

ARTICLE IV, BUY OUT OPTION SELECTED.

BUTLER SPECIALTY COMPANY
Name of Company

8200 South Chicago Avenue
Chicago, Illinois 60617
Address

By: BURTON BERGMAN
Name of Officer (Please Type)

Signature of Officer

President
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Crown Cork & Seal Company, Inc.
Name of Company

9300 Ashton Road

Philadelphia, Pa. 19136

Address

By: William T. Gallagher, Esq.
Name of Officer (Please Type)

William T. Gallagher
Signature of Officer

Attorney, Authorized Signatory
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Linda L. Lazarski
Its Corporate Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

J & S Tin Mill Products Co., Inc/
Armstrong Containers, Inc.
Name of Company

2235 Enterprise Drive - Suite 3506

Westchester, IL. 60154
Address

By: Edward J. Flemming
Name of Officer (Please Type)

Signature of Officer

Vice President, Administration - Armstrong Containers, Inc.
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its Assistant Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Masonite Corporation
Name of Company

One South Wacker Drive

Chicago, IL 60606
Address

By: John V. Faraci
Name of Officer (Please Type)

Signature of Officer

Vice President/General Manager
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Edward G. Markin Jr.
Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Paslode Corporation

Name of Company

Two Marriott Drive

Lincolnshire, IL 60069

Address

By: Stewart S. Hudnut

Name of Officer (Please Type)

Signature of Officer

Vice President and Secretary

Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Frederick N. Bates

Its Assistant Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

PPG Industries, Inc.
Name of Company

One PPG Place

Pittsburgh, PA 15272
Address

By: E. B. Mosier
Name of Officer (Please Type)

Signature of Officer

Group Vice President - C&R
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its Asst Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

R.R. DONNELLEY & SONS COMPANY
Name of Company

4223 KING DRIVE
CHICAGO IL 60616
Address

By: David C. Hart
Name of Officer (Please Type)

David C. Hart
Signature of Officer

Vice President, General Counsel & Secretary
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Patricia A. Jelkman
Its Assistant Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

RHC/Spacemaster Corporation
f/k/a Reflector-Hardware Corporation
Name of Company

1400 North 25th Avenue

Melrose Park, Illinois 60160
Address

By: Thomas E. Berger
Name of Officer (Please Type)

Thomas E Berger
Signature of Officer

Vice President of Finance
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its Assistant Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Schwinn Bicycle Company
Name of Company

217 N. Jefferson Street

Chicago, IL 60661
Address

By: Brian D. Fiala
Name of Officer (Please Type)

Signature of Officer

Vice President
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Skil Corporation signs as a Class B Third Party Settling Defendent under the Buy-out Option.

Skil Corporation
Name of Company

4300 W. Peterson Ave.
Chicago, IL 60646
Address

By: G. Thomas McKane
Name of Officer (Please Type)

G. Thomas McKane
Signature of Officer

President
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

W. O. Maskwell
Its _____ Secretary

The undersigned Settling Defendant or Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

TRICIL ENVIRONMENTAL SERVICES, INC.
(Systech Waste Treatment Center)
Name of Company

Legal Department
Post Office Box 210799

Columbia, SC 29221-0799
Address

By: William E. Stilwell, Jr.
Name of Officer (Please Type)

William E. Stilwell, Jr., President
Signature of Officer

President
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its _____ Secretary
Henry H. Taylor

The undersigned ~~Settling Defendant or~~ Class B Settling Third Party Defendant hereby agrees to the terms of the foregoing Settlement Agreement between certain Defendants and certain Third Party Defendants in *United States of America v. Midwest Solvent Recovery, Inc., et al.*

Universal Tool & Stamping Company, Inc.
Name of Company

P.O. Box 100, Main and Commerce

Butler, Indiana 46721-0100
Address

By: Brian W. H. Marsden
Name of Officer (Please Type)

Signature of Officer

Brian W. H. Marsden
Chairman and Chief Executive Officer
Title

(CORPORATE SEAL)

ACKNOWLEDGED BY:

Its Assistant Secretary
Roberta A. Glab

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APPENDIX 8

DEED RESTRICTION

_____, owner in fee simple of the real estate described below, hereby imposes restrictions on the described real estate ("_____ Property"), which is part of the Midco _ Facility, Township _____, Lake County, State of Indiana.

[Description of land]

Containing ___ acres, more or less.

The following restrictions are imposed on the _____ Property, its present and any future owners, their authorized agents, assigns, employees or persons acting under their direction or control, for the purpose of protecting public health and the environment and preventing interference with remedial action work and maintenance work approved by the United States Environmental Protection Agency ("USEPA") and/or the United States District Court for the Northern District of Indiana at the Midco _ Facility located at or about _____, Gary, Indiana ("Midco _ Facility").

1. Until the final approval by USEPA of the completion of all remedial action work and achievement of all cleanup and performance standards at the Midco _ Facility, there shall be no consumptive or other use of the groundwater underlying the _____ Property that could cause exposure of humans or animals to the groundwater underlying the _____ Property or the Midco _ Facility;

2. Until the final approval by USEPA of the completion of all remedial action work and achievement of all cleanup and performance standards at the Midco _ Facility, there shall be no residential, commercial, or agricultural use of the _____ Property, including but not limited to the construction, installation or use of any structures or buildings for residential, commercial, or agricultural purposes;

3. Until the final approval by USEPA of the completion of all remedial action work and achievement of all cleanup and performance standards at the Midco _ Facility, there shall be no use of the _____ Property that would allow the continued presence of humans at the _____ Property, other than presence necessary for implementation of remedial action work or maintenance work approved by USEPA and/or the United Stats District Court for the Northern District Court of Indiana. Prohibit uses which would allow the continued presence of humans at the _____ Property will include but not necessarily be limited to recreational and educational uses.

4. Until the final approval by USEPA of the completion of all remedial action work and achievement of all cleanup and performance standards at the Midco _ Facility, there shall be no installation, removal, construction or use of any buildings, wells, pipes, roads, ditches or any other structures at the _____ Property except as approved by USEPA.

5. There shall be no tampering with, or removal of, any containment or monitoring systems or remedial action work on the _____ Property.

6. There shall be no interference with the performance of work and remedial action, or with the maintenance of remedial measures approved by USEPA and/or the United States District Court for the Northern District of Indiana.

7. After the final approval by USEPA of the completion of all remedial action work and achievement of all cleanup and performance standards at the Midco _ Facility, all uses of the _____ Property shall be consistent with the final remedial action implemented at the Midco _ Facility.

All of the above restrictions shall run with the land and continue in perpetuity.

IN WITNESS WHEREOF, _____ has caused these Deed Restrictions to be executed this _____ day of _____, 199_.

_____

By: _____

ATTEST:

APPENDIX 9A

Settling Class D Third Parties

Class D Third Party	Payment Amount
Bretford Manufacturing Inc.	$33,000
County of DuPage	$16,500
Whittaker Corporation on behalf of Dutone Corporation	$24,750
Knape & Vogt Manufacturing Company	$109,000
Whirlpool Corporation for and on behalf of St. Charles Manufacturing	$33,000

Company	Drum Total
Bretford Manufacturing Inc.	38
County of DuPage	14
Whittaker Corporation on behalf of Dutone Corporation	30
Knape & Vought Manufactruing Company	145
Whirlpool Corporation for and on behalf of St. Charles Manufacturing	34

Address List for Notices To Settling Class D Third Parties

Edward Petrick
President
Bretford Manufacturing Company
9715 Soreng Ave.
Schiller Park, IL 60176

Delbert S. Lyle
Assistant State's Attorney
DuPage County
505 N. County Farm Rd.
Wheaton, IL 60187

Gordon J. Loutit
Vice-President, Asst. General Counsel
Whittaker Corp.
10880 Wilshire Blvd.
Los Angeles, CA 90024-4163

John P. Stansbury
Legal Counsel
Whirlpool Corp.
Administrative Center
Benton Harbor, MI 49022

William H. Merrill
Varnum, Riddering, Schmidt & Howlett
171 Monroe Avenue, N.W.
Grand Rapids, MI 49503

APPENDIX 9B

Settling Class E Third Parties

Settling Class E Third Party	Required Class E Payment Amount	Amount To Be Paid To Set. Defs' Trust Fund	Amount To Be Paid To EPA
Ecodyne Corporation, Indemnitor for American Nameplate	$33,000	$30,379	$2,621
Artisan Handprints, Inc.	[redacted]	[redacted]	[redacted]
Cooper Industries, Inc., on behalf of Belden Corp.	[redacted]	[redacted]	[redacted]
C&C Industrial Maintenance/Navistar International Transportation Corp. (Internattional Harvester)/Laidlaw Waste Systems, Inc.	[redacted]	[redacted]	[redacted]
General Instrument Corp. (C.P. Clare)	[redacted]	[redacted]	[redacted]
C.P. Hall Company	[redacted]	[redacted]	[redacted]
Kreuger Ringier, Inc. f/k/a Chicago Rotoprint	[redacted]	[redacted]	[redacted]
Consumers Paint Factory, Inc. n/d/b/a Courtlands Coatings Inc.	[redacted]	[redacted]	[redacted]
DAP, Inc.	[redacted]	[redacted]	[redacted]
Deublin Company	[redacted]	[redacted]	[redacted]
Extruded Metals, Inc.	[redacted]	[redacted]	[redacted]
Felt Products Mfg. Co.	[redacted]	[redacted]	[redacted]
Flint Ink Corp.	[redacted]	[redacted]	[redacted]

Settling Class E Third Party	Required Class E Payment Amount	Amount To Be Paid To Set. Defs' Trust Fund	Amount To Be Paid To EPA
Gearmaster (Emerson Motor Co. -- Division of Emerson Electric Co.)	[redacted]	[redacted]	[redacted]
Hydrite Chemical Co.	[redacted]	[redacted]	[redacted]
Naz-Dar Company	[redacted]	[redacted]	[redacted]
Pyle National by its successor Akzo America Inc.	[redacted]	[redacted]	[redacted]
Schmidt & Liquidating Corporation, Successor to Riverside Laboratories, Inc. d/b/a R-Lite	[redacted]	[redacted]	[redacted]
Regal Tube Co.	[redacted]	[redacted]	[redacted]
Sheldahl, Inc.	[redacted]	[redacted]	[redacted]
Sommer & Maca Industries, Inc.	[redacted]	[redacted]	[redacted]
Acco USA, Inc., formerly Swingline Inc. for Spotnails	[redacted]	[redacted]	[redacted]
United Resin Adhesives, Inc.	[redacted]	[redacted]	[redacted]
Westvaco Corporation on behalf of U.S. Envelope	[redacted]	[redacted]	[redacted]
Browning-Ferris Industries of Illinois, Inc., as successor in interest to Van Der Molen Disposal Company	[redacted]	[redacted]	[redacted]
Dana Corp. on behalf of Victor Gasket	[redacted]	[redacted]	[redacted]

Settling Class E Third Party	Required Class E Payment Amount	Amount To Be Paid To Set. Defs' Trust Fund	Amount To Be Paid To EPA
Dana Corp. on behalf of Warner Electric Brake and Clutch	[redacted]	[redacted]	[redacted]
Xerox Corporation	[redacted]	[redacted]	[redacted]

Settling Class E Third Party	Drum Total
Ecodyne Corporation, Indemnitor for American Nameplate	32
Artisan Handprints, Inc.	5
Cooper Industries, Inc., on behalf of Belden Corp.	18
C&C Industrial Maintenance/Navistar International Transportation Corp. (Internattional Harvester)/Laidlaw Waste Systems, Inc.	63
General Instrument Corp. (C.P. Clare)	68
C.P. Hall Company	57
Kreuger Ringier, Inc. f/k/a Chicago Rotoprint	28
Consumers Paint Factory, Inc. n/d/b/a Courtlands Coatings Inc.	118
DAP, Inc.	105

Settling Class E Third Party	Drum Total
Deublin Company	25
Extruded Metals, Inc.	69
Felt Products Mfg. Co.	127
Flint Ink Corp.	28
Gearmaster (Emerson Motor Co. -- Division of Emerson Electric Co.)	22
Hydrite Chemical Co.	142
Pyle National by its successor Akzo America Inc.	61
Naz-Dar Company	52
Schmidt & Liquidating Corporation, Successor to Riverside Laboratories, Inc. d/b/a R-Lite	52
Regal Tube Co.	71
Sheldahl, Inc.	8
Sommer & Maca Industries, Inc.	26
Acco USA, Inc., formerly Swingline Inc. for Spotnail	31
United Resin Adhesives Inc.	27
Westvaco Corporation on behalf of U.S. Envelope	166
Browning-Ferris Industries of Illinois, Inc., as successor in interest to Van Der Molen Disposal Company	300

Settling Class E Third Party	Drum Total
Dana Corp. on behalf of Victor Gasket	73
Dana Corp. on behalf of Warner Electric Brake and Clutch	32
Xerox Corporation	47

Address List for Notices To Settling Class E Third Parties

Thomas B. Golz
Fagel & Haber
140 S. Dearborn
Chicago, IL 60603

Artisan Handprints, Inc.
c/o Lawrence S. Adler
19 S. LaSalle St.
Rm. 1450
Chicago, IL 60603-1407

Carl J. Plesnicher, Jr.
Cooper Industries, Inc.
P.O. Box 4446
Houston, TX 77210

C&C Industrial Maintenance
1315 East Chicago Ave.
East Chicago, IN 46312

Navistar International Transp. Corp.
455 N. CityFront Plaza Dr.
Chicago, IL 60525

Laidlaw Waste Systems, Inc.
3221 North Service Road
Burlington, Ontario L7R348 Canada

David S. Machlowitz
General Instrument Corp.
181 West Madison
Chicago, IL 60602

James R. Klusendorf
The C.P. Hall Company
7300 South Central Ave.
Chicago, IL 60638

H. Rodriguez
Kreuger Ringier, Inc.
One Pierce Place
Itasca, IL 60143

W.R. Niblock
Courtaulds Coatings Inc.
P.O. Box 1439
Louisville, KY 40201

Beth Anne Spanninger
Smith Kline Beckman
One Franklin Plaza
P.O. Box 7929
Philadelphia, PA 19101-7929

Donald L. Deubler
Deublin Company
1919 Stanley St.
Northbrook, IL 60062

George M. Dykhuizen
Extruded Metals, Inc.
302 Ashfield St.
Belding, MI 48809

Harold M. Rosen
Felt Products Mfg. Co.
7450 North McCormick Blvd.
Skokie, IL 60076

Thomas W. Clarke
Flint Ink Corporation
25111 Glendale Ave.
Detroit, MI 48239

J.T. Slattery
Gearmaster/Emerson Electric Co.
8100 W. Florissant Ave.
St. Louis, MO 63136

John Honkamp
Hydrite Chemical Co.
300 N. Patrick Blvd.
Brookfield, WI 53045

J. Jeffrey Thrall
Naz-Dar Company
1087 N. North Branch St.
Chicago, IL 60622-4292

Edward K. Duplaga, Esq.
300 S. Riverside Plaza
Chicago, IL 60606

Robert L. Schmidt
Schmidt Liquidating Corporation
1108 South Sixth Street
St. Charles, IL 60174

William A. Wolfe
Regal Tube Co.
7401 S. Linder Ave.
Chicago, IL 60638

Gerald E. Magnuson
Sheldahl, Inc.
1150 Sheldahl Road
P.O. Box 170
Northfield, MN 55057-0170

Richard J. Carroll
Sommer & Maca
5501 West Ogden Ave.
Chicago, IL 60650

Kenton R. Rose
510 Lake Cook Road, Suite 175
Deerfield, IL 60015

Richard E. Loderhose
United Resin Adhesives, Inc.
7852 West 47th St.
Lyons, IL 60534

F.C. Haas
Westvaco Corporation
299 Park Avenue
New York, NY 10171

Michael Miller, Director of CERCLA Activities
Browning-Ferris
757 N. Eldridge
Houston, TX 77079

John Doddridge
Dana Corporation
P.O. Box 1000
Toledo, OH 43697

James C. MacKenzie
Xerox Corporation
Xerox Square 021B
Rochester, NY 14644

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APPENDIX 10

SETTLEMENT AGREEMENT

This SETTLEMENT AGREEMENT is made and entered into this ____ day of _____, 1992, by and among Premier Coatings, Inc., Motorola, Inc., Rust Oleum, Inc., DeSoto, Inc., Pre Finish Metals, Inc., American Can Company, Inc., Standard T. Chemical Co., Inc., and Zenith Radio Corporation (hereinafter collectively referred to as "Primary Generator Defendants"), and the State of Indiana and the Indiana Department of Transportation, formerly known as the Indiana Department of Highways (hereinafter collectively referred to as "INDOT").

WHEREAS a civil action was commenced by the United States of America under Cause No. H79-556 in the United States District Court, Northern District of Indiana, Hammond Division ("Action"), seeking various remedies against Primary Generator Defendants and others, including the recovery of past and future costs of response in regard to Midco I, 7406 W. 15th Avenue, Gary, Indiana, and Midco II, 5900 Industrial Avenue, Gary, Indiana (hereinafter "Midco I," "Midco II," or collectively, the "Midco sites" as appropriate); and

WHEREAS Primary Generator Defendants in the Action have brought third-party actions against various parties seeking various remedies including contribution for proportionate share

of all relief sought by the United States against Primary Generator Defendants; and

WHEREAS Primary Generator Defendants have filed a third-party complaint in the Action against INDOT seeking various remedies, including contribution and/or indemnity for a share of response costs, if any, attributable to Midco I for which Primary Generator Defendants are held liable to the United States; and

WHEREAS Primary Generator Defendants and INDOT recognize that the Primary Generator Defendants may decide for financial and/or other reasons to agree with the United States to inject extracted groundwater which has been treated to remove excessive levels of hazardous substances, but without treatment of elevated levels of chlorides or other total dissolved solids, into a deep well or wells located on or near the Midco sites (including the possibility of locating such wells on INDOT property); and

WHEREAS a reliable and safe means of transporting treated groundwater from or between the Midco sites may be had through the use of certain state-owned rights-of-way; and

WHEREAS it might be found that a direct discharge of treated groundwater consistent with the constituents, concentration and mass identified in Exhibits A and B, hereto, to the Grand Calumet River system would be protective of the human health and environment and would be consistent with applicable laws and regulations; and

WHEREAS Primary Generator Defendants and INDOT are desirous of settling all claims and causes of action between them arising out of the subject matter of the Action.

NOW THEREFORE in consideration of the premises and of the mutual covenants and understandings of the parties, Primary Generator Defendants and INDOT do hereby stipulate and agree as follows:

1. The Primary Generator Defendants shall apprise INDOT of the status of their negotiations with the United States of America. In the event that deepwell injection of treated water from the Midco sites is agreed to, the provisions of paragraphs 2, 3, or 4, and 8-15 shall apply. In the event that Primary Generator Defendants and Plaintiff agree upon an alternative for treated water from the Midco sites other than either deepwell injection or a direct discharge to the Grand Calumet River or they fail to agree on any alternative within two years or they agree to a direct discharge to the Grand Calumet River but an NPDES permit is not obtained within two years, the provisions of paragraphs 7-15 shall apply. In the event that a direct discharge of treated water from the Midco sites to the Grand Calumet River is agreed to and an NPDES permit for such discharge is obtained, the provisions of paragraphs 5-6 and 8-15 shall apply. For purposes of this settlement, a final judgment entered by the United States District Court for the Northern District of Indiana in cause H79-556 which specifies the remedy to be pursued shall be

deemed an agreement between the Primary Generator Defendants and the United States of America.

2. This paragraph shall apply in the event that the Primary Generator Defendants reach an agreement with the United States of America to dispose of groundwater by a deepwell injection option, within two years of this date. In that event, and upon the request of the Primary Generator Defendants, the following will occur:

a. (i) If the Primary Generator Defendants reach a settlement with the United States which includes a covenant not to sue that covers claims for alleged injury to wetlands and natural resources, then they will covenant not to sue and to hold harmless the State of Indiana and the Indiana Department of Transportation, their officers, agents, employees, successors and assigns, and each of them, from any and all claims, demands, causes of action or liabilities, known or unknown, contingent or fixed, liquidated or unliquidated, which have been asserted by the United States in the Action and which the Primary Generator Defendants ever had or now have and all present claims that could have been asserted, against the State of Indiana and the Indiana Department of Transportation and their respective officers, agents, employees, successors and assigns, and each of them, upon or by reason of any matter, cause or claim arising out of the subject matter of the Action.

(ii) If the Primary Generator Defendants do not reach an agreement with the United States as described in the preceding subparagraph (i), then they will covenant not to sue and to hold harmless the State of Indiana and the Indiana Department of Transportation, their officers, agents, employees, successors and assigns, and each of them, from any and all claims, demands, causes of action or liabilities, known or unknown, contingent or fixed, liquidated or unliquidated, except any claims respecting injury to wetlands or to natural resources arising at least in part from the presence of chlorides in surface water or groundwater which have been asserted by the United States in the Action and which the Primary Generator Defendants ever had or now have and all present claims that could have been asserted, against the State of Indiana and the Indiana Department of Transportation and their respective officers, agents, employees, successors and assigns, and each of them, upon or by reason of any matter, cause or claim arising out of the subject matter of the Action.

b. The Primary Generator Defendants will cause the aforementioned third-party complaint against INDOT in the Action to be dismissed with prejudice, each party to bear its own costs.

c. Primary Generator Defendants or their designated representative(s) shall submit construction plans for

pipeline(s) associated with said deepwell injection to INDOT. Upon review and approval by INDOT, INDOT shall issue permit(s) to the Primary Generator Defendants, or to their designated representative(s), to lay pipe along or over state-owned right(s) of way for the transmission of treated groundwater that meets the requirements for deepwell injection.

d. The Primary Generator Defendants shall be responsible for all costs of design of said pipeline(s).

e. Subject to variations based upon local ground conditions as determined by INDOT, the pipeline(s) shall follow selected private or state-owned right(s)-of-way from the Midco sites to the deepwell(s).

f. INDOT agrees to bid the pipe-laying project set out in this paragraph under the bid procedures established pursuant to I.C. 8-23-9 and 8-23-10 and 105 I.A.C. 8. INDOT agreed to incorporate all reasonable pre-qualification criteria that are timely recommended by the Primary Generator Defendants or their designated representative(s), provided that the criteria are consistent with I.C. 8-23-9, 8-23-10, and 105 I.A.C. 8.

g. Within thirty days of acceptance of the prime contractor's bid, the Primary Generator Defendants or their designated representative(s) shall deposit with INDOT cash in an amount equal to the amount of the accepted bid less INDOT's share determined in accordance with section 2(h).

h. The Primary Generator Defendants agree to provide for the payment of the site construction costs for said pipeline(s) as determined by the successful bidder's bid price, provided that INDOT agrees to pay for fifty per cent (50%) of said costs attributable to the pipeline from the Midco I site up to a maximum amount of two hundred thousand dollars ($200,000).

i. INDOT will make payments to the successful bidder in accordance with the construction contract.

j. INDOT may inspect construction of the pipeline(s) located on or along any state-owned right-of-way and at any other location in its discretion, during the construction process. The Primary Generator Defendants or their designated representative(s) may also inspect construction of the pipeline(s). Prior to final acceptance of the project, the project will be inspected by a representative of the Primary Generator Defendants, which representative shall have the authority to approve the work and accept the project on behalf of the Primary Generator Defendants or their designated representative(s).

k. If a change order is issued which increases the cost of the project to any party other than INDOT, Primary Generator Defendants or their designated representative(s) shall deposit cash equal to the increase with INDOT within 90 days after the change order is approved.

l. Following completion and acceptance of the project, INDOT shall convey title to the pipeline(s) (but not to the real property on or in which the pipeline is located) to the Primary Generator Defendants or to their designated representative(s), whichever the Primary Generator Defendants specify, and shall grant to the holder of said title a permit over its right(s)-of-way for the purpose of necessary construction, reconstruction and maintenance of the pipeline(s). Repair and maintenance of the pipeline(s) shall be the joint and several responsibility of the Primary Generator Defendants and their designated representative(s). Upon completion of the required groundwater treatment for the sites, the pipeline(s) shall be closed in accordance with all applicable requirements for such activity and title to any remaining pipeline(s) shall return to INDOT.

m. The Primary Generator Defendants and their designated representative(s) agree to deliver water to and provide monitoring before entry into the pipeline(s) treated consistent with the requirements of the Maximum Allowable Contaminants specified in the SOW of the Consent Decree. The Primary Generator Defendants warrant and covenant, on behalf of themselves, their agents, employees, successors, and assigns, and all persons and other entities in privity with them, that all water delivered shall not

exceed applicable parameters. Primary Generator Defendants jointly and severally agree to release and hold harmless their respective Indiana Department of Transportation and the State of Indiana and officers, agents, employees, successors, and assignees, and each of them, for any liability which may accrue by virtue of the failure of the treated groundwater to meet all said parameters, including but not limited to liability under CERCLA, other than any such failure that results from any act(s) or omission(s) of INDOT.

n. Should reconstruction or relocation of the pipeline(s) become necessary due to weather conditions, natural disasters, construction, reconstruction or maintenance of any roadway or railroad crossing, or general obsolescence, Primary Generator Defendants agree to bear the full cost of said reconstruction or relocation of the pipeline.

o. The Primary Generator Defendants or their designated representatives shall devote such personnel or resources as shall be necessary to assure that on-the-scene response may be made at any time as required.

p. Primary Generator Defendants jointly and severally shall covenant not to sue and to hold harmless the Indiana Department of Transportation and the State of

Indiana, and their respective officers, agents, employees, successors, and assignees and each of them, for any liability arising out of the actions of the Primary Generator Defendants and/or their designated representatives relating to the construction, maintenance, operation of, repairs to, releases from, or emergency response pertaining to, the pipeline(s) constructed pursuant to this Settlement Agreement, including but not limited to liability under CERCLA other than any such failure that results from the acts or omissions of INDOT.

q. Nothing other than groundwater from the Midco sites shall be transported through the pipeline(s) without the written consent of the Commissioner of INDOT or his/her designee.

r. The Primary Generator Defendants or their designated representative shall monthly supply INDOT with information concerning the compliance of the treated water with all applicable permits and laws. All records of pipeline operation shall be made available to INDOT upon request.

s. All design and inspection work described in this agreement shall be performed by a licensed registered engineer acceptable to INDOT.

3. This paragraph shall apply in the event that the Primary Generator Defendants reach an agreement with the United States

of America to dispose of groundwater by a deepwell injection option, within two years of this date, and Primary Generator Defendants do not request the use of INDOT right(s)-of-way within 365 days of the agreement with the United States of America. In that event, the following will occur:

a. INDOT shall pay to the Primary Generator Defendants the sum of $200,000.00.

b. The Primary Generator Defendants shall execute appropriate releases, hold harmless agreements and covenants not to sue consistent with paragraphs 2(a)-(b) above.

4. This paragraph shall apply in the event that the Primary Generator Defendants desire to install in INDOT's Gary Subdistrict site either a test well or a deep well to be used in connection with a deep well injection option or both.

Upon request of the Primary Generator Defendants, INDOT will provide a temporary right-of-access or otherwise permit the drilling of an exploratory test well in an area 200' by 200' in the northwest corner of its facility located adjacent to the Midco I site ("Test Well Site"). The Primary Generator Defendants shall be responsible for obtaining all necessary permits and approvals necessary to drill and operate the exploratory test well on the Test Well Site. Before using the Test Well Site for a test well, the Primary Generator Defendants shall pay $7,500 to INDOT. The Primary Generator

Defendants and their contractors and agents shall have access to INDOT's Gary Subdistrict during INDOT's regular business hours. The Test Well Site may be used for a well to test the Eau Claire aquifer for a maximum of one year beginning upon its completion. The Primary Generator Defendants shall be responsible for the disposal of all soil and other material removed during drilling operations and all costs associated therewith. The Primary Generator Defendants shall be responsible for repairing any and all damage to INDOT property and cleaning up the Test Well Site upon completion of the exploratory test well operations.

In addition, upon the request of the Primary Generator Defendants, INDOT will provide a temporary access to or otherwise permit the use of an area 50' by 50' in the northwest corner of its facility adjacent to the Midco I site for deep well injection ("Deep Well Site"). Before any deep well injection on the Deep Well Site begins, the Primary Generator Defendants shall pay $5,000 to INDOT. The Primary Generator Defendants shall be responsible for obtaining all necessary permits and approvals necessary to drill and operate the well on the Deep Well Site. The Primary Generator Defendants and their contractors and agents may have access to INDOT's Gary Subdistrict during INDOT's regular business hours and to the deepwell at any other time to respond to emergent conditions. The Primary Generator Defendants shall be responsible for the

disposal of all soil and other material removed during drilling operations and all costs associated therewith. The Primary Generator Defendants shall be responsible for repairing any and all damage to INDOT property and cleaning up the Deep Well Site upon completion of deep well injection and all costs associated therewith. The Primary Generator Defendants may use the Deep Well Site until EPA no longer requires deep well injection to remediate the Midco I and Midco II sites. Only treated ground water from the Midco I and Midco II sites may be injected into the well on the Deep Well Site without the prior written consent of the commissioner of INDOT or his/her designee.

The Primary Generator Defendants jointly and severally agree to release and hold harmless INDOT and the State of Indiana and their respective officers, agents, employees, successors, and assignees, and each of them of any liability, including liability under CERCLA, which may accrue by virtue of the Primary Generator Defendants' use of INDOT property for a test well and/or for any deep well injection. Upon completion of operations on INDOT property, the Primary Generator Defendants shall close the well(s) in accordance with all applicable federal, state and local requirements in effect at such time. If the Primary Generator Defendants fail to repair, maintain or clean up any INDOT property as required above, INDOT or its designee shall perform the work and the Primary Generator Defendants shall reimburse INDOT for all reasonable costs associated therewith.

5. In that IDEM has developed parameters applicable to a discharge to surface waters near the Midco I and Midco II sites and has adopted water quality criteria applicable to all waters of the state, including the Grand Calumet River system (See Indiana Register Vol. 13, No. 6, March 1, 1990, at p. 1024), the discharge(s) proposed in any application for an NPDES permit shall be consistent with all such discharge parameters and water quality standards, and any other applicable requirements.

6. This paragraph shall apply in the event that a direct discharge of treated water from the MIDCO Site(s) to the Grand Calumet River is agreed to and a final and effective NPDES permit (or permits) is issued which authorize(s) a discharge from the Midco I and Midco II sites to surface waters of the Grand Calumet River system, including the Indiana Harbor Canal, consistent with the parameters and water quality standards described in paragraph 5 above. In that event, the following will occur:

a. (i) If the Primary Generator Defendants reach a settlement with the United States which includes a covenant not to sue that covers claims for alleged injury to wetlands and natural resources, then they will covenant not to sue and to hold harmless the State of Indiana and the Indiana Department of Transportation, their officers, agents, employees, successors and assigns, and each of them, from any and all claims, demands, causes of action or

liabilities, known or unknown, contingent or fixed, liquidated or unliquidated, which have been asserted by the United States in the Action and which the Primary Generator Defendants ever had or now have and all present claims that could have been asserted, against the State of Indiana and the Indiana Department of Transportation and their respective officers, agents, employees, successors and assigns, and each of them, upon or by reason of any matter, cause or claim arising out of the subject matter of the Action.

(ii) If the Primary Generator Defendants do not reach an agreement with the United States as described in the preceding subparagraph (i), then they will covenant not to sue and to hold harmless the State of Indiana and the Indiana Department of Transportation, their officers, agents, employees, successors and assigns, and each of them, from any and all claims, demands, causes of action or liabilities, known or unknown, contingent or fixed, liquidated or unliquidated, except any claims respecting injury to wetlands or to natural resources arising at least in part from the presence of chloride in surface water or groundwater which have been asserted by the United States in the Action and which the Primary Generator Defendants ever had or now have and all present claims that could have been asserted, against the State of Indiana and the Indiana

Department of Transportation and their respective officers, agents, employees, successors and assigns, and each of them, upon or by reason of any matter, cause or claim arising out of the subject matter of the Action.

b. The Primary Generator Defendants will cause the aforementioned third-party complaint against INDOT in the Action to be dismissed with prejudice, each party to bear its own costs.

c. Primary Generator Defendants or their designated representative(s) shall submit construction plans for pipeline(s) associated with said discharge(s) to INDOT. Upon review and approval by INDOT, INDOT shall issue permit(s) to the Primary Generator Defendants, or to their designated representative(s), to lay pipe along or over state-owned right of way for the transmission of treated groundwater that meets the requirements for discharge specified in any NPDES permit to the selected discharge point(s).

d. The Primary Generator Defendants shall be responsible for all costs of design of said pipeline(s).

e. Subject to variations based upon local ground conditions as determined by INDOT, the pipeline(s) shall follow selected private or state-owned rights-of-way from the Midco sites to the discharge point(s) specified in the NPDES permit.

f. INDOT agrees to bid the pipe-laying project set out in this paragraph under the bid procedures established pursuant to I.C. 8-23-9 and 8-23-10 and 105 I.A.C. 8. INDOT agreed to incorporate all reasonable pre-qualification criteria that are timely recommended by the Primary Generator Defendants or their designated representative(s), provided that the criteria are consistent with I.C. 8-23-9, 8-23-10, and 105 I.A.C. 8.

g. Within thirty days of acceptance of the prime contractor's bid, the Primary Generator Defendants or their designated representative(s) shall deposit with INDOT cash in an amount equal to the amount of the accepted bid less INDOT's share determined in accordance with section 6(h).

h. The Primary Generator Defendants agree to provide for the payment of the site construction costs for said pipeline(s) as determined by the successful bidder's bid price, provided that INDOT agrees to pay for fifty per cent (50%) of said costs attributable to the pipeline from the Midco I site up to a maximum amount of two hundred thousand dollars ($200,000).

i. INDOT will make payments to the successful bidder in accordance with the construction contract.

j. INDOT may inspect construction of the pipeline(s) located on or along any state-owned right-of-way and at any other location in its discretion, during the construction

process. The Primary Generator Defendants or their designated representative(s) may also inspect construction of the pipeline(s). Prior to final acceptance of the project, the project will be inspected by a representative of the Primary Generator Defendants, which representative shall have the authority to approve the work and accept the project on behalf of the Primary Generator Defendants or their designated representative(s).

k. If a change order is issued which increases the cost of the project to any party other than INDOT, Primary Generator Defendants or their designated representative(s) shall deposit cash equal to the increase with INDOT within 90 days after the change order is approved.

l. Following completion and acceptance of the project, INDOT shall convey title to the pipeline(s) (but not to the real property on or in which the pipeline is located) to the Primary Generator Defendants or to their designated representative(s), whichever the Primary Generator Defendants specify, and shall grant to the holder of said title a permit over its right-of-way for the purpose of necessary construction, reconstruction and maintenance of the pipeline(s). Repair and maintenance of the pipeline(s) shall be the joint and several responsibility of the Primary Generator Defendants and their designated representative(s). Upon completion of the

required groundwater treatment for the sites, the pipeline(s) shall be closed in accordance with all applicable requirements for such activity and title to any remaining pipeline(s) shall return to INDOT.

m. The Primary Generator Defendants and their designated representative(s) agree to deliver water to and provide monitoring before entry into the pipeline(s) consistent with requirements of paragraph 5 above. The *Primary Generators warrant and covenant, on behalf of* themselves, their agents, employees, successors, and all persons and other entities in privity with them, that all water delivered shall not exceed applicable parameters; nor shall said water contain substances which exceed applicable water quantity standards established by IDEM for the Grand Calumet River system. Primary Generator Defendants jointly and severally agree to release and hold harmless respectively INDOT and the State of Indiana and officers, agents, employees, successors and assignees, and each of them, for any liability which may accrue by virtue of the failure of the treated water to meet all said parameters and/or water quality standards, including but not limited to liability under CERCLA, other than any such failure that results solely from the acts or omissions of INDOT.

n. Should reconstruction or relocation of the pipeline(s) become necessary due to weather conditions,

natural disasters, construction, reconstruction or maintenance of any roadway or railroad crossing, or general obsolescence, Primary Generator Defendants agree to bear the full cost of said reconstruction or relocation of the pipeline.

o. The Primary Generator Defendants or their designated representatives shall devote such personnel or resources as shall be necessary to assure that on-the-scene response may be made at any time as required by the NPDES permit(s).

p. Primary Generator Defendants jointly and severally shall covenant not to sue and to hold harmless the Indiana Department of Transportation and the State of Indiana, and their respective officers, agents, employees, successors, and assignees and each of them, for any liability arising out of the actions of the Primary Generator Defendants and/or their designated representatives relating to the construction, maintenance, operation of, repairs to, releases from, or emergency response pertaining to, the pipeline(s) constructed pursuant to this Settlement Agreement, including but not limited to liability under CERCLA other than any such failure that results from the acts or omissions of INDOT.

q. Nothing other than treated groundwater from the Midco sites shall be transported through the pipeline(s)

without the written consent of the Commissioner of INDOT or his/her designee.

r. The Primary Generator Defendants or their designated representative shall monthly supply INDOT with information concerning the compliance of the treated water with all applicable permits and laws. All records of pipeline operation shall be made available to INDOT upon request.

s. All design and inspection work described in this agreement shall be performed by a licensed registered engineer acceptable to INDOT.

7. This paragraph shall apply in the event that the Primary Generator Defendants neither obtain the issuance of an NPDES permit as described in paragraphs 5-6 above, nor reach an agreement with the United States of America which provides for a direct discharge or deepwell injection option as described in paragraphs 2, 3 or 4 above, within two years of this date. In that event, the following will occur:

a. INDOT shall pay to the Primary Generator Defendants the sum of $200,000.00.

b. The Primary Generator Defendants shall execute appropriate releases, hold harmless agreements and covenants not to sue consistent with paragraphs 2(a)-(b) and 6(a)-(b) above.

8. The Primary Generator Defendants shall not assist parties not signatories to this Settlement Agreement to pursue any claim arising out of the transactions or occurrences giving rise to any aspect of the Action unless legally obligated to do so.

9. The Parties hereto agree that in the event that fewer than all of the Primary Generator Defendants reach an agreement with U.S. EPA that would trigger the parties' obligations under Paragraphs 2, 3, 4, or 6 of this Settlement Agreement, then those parties which reach such an agreement with U.S. EPA shall have the exclusive rights and obligations accorded to the Primary Generator Defendants under this Settlement Agreement. INDOT agrees that those Primary Generator Defendants, who actually reach an agreement with U.S. EPA pursuant to Paragraphs 2, 3, 4, or 6 above shall be deemed to be the only persons with rights and duties under this Settlement Agreement.

10. The Primary Generator Defendants may assign their rights or obligations under this Settlement Agreement only to a person or persons who is/are capable of performing and agree to fully perform the rights and obligations of the Primary Generator Defendants established by this Settlement Agreement; and no such assignment may be made without the express written consent of INDOT, which consent shall not be unreasonably withheld. Any such request for approval and the approval shall become a part of this Settlement Agreement and shall be binding upon the participants and any assignee or designee.

11. This Settlement Agreement shall be binding upon the Parties and shall be enforceable by the District Court. The Parties agree that this Settlement Agreement may be made part of a Consent Decree, acceptable to INDOT, between the United States and one or all of the Primary Generator Defendants. The Parties further agree that INDOT shall be entitled to the covenant protection provided under such Consent Decree. If the proposed Consent Decree is not entered by July 1, 1992, the Primary Generator Defendants and INDOT agree to jointly move the Court (a) for the entry of an Order barring any claims by any other party against the State of Indiana and/or the Indiana Department of Transportation relating to the Midco sites, and (b) for a finding that this Settlement Agreement was entered into in good faith.

12. Nothing in this Settlement Agreement shall be deemed an admission by any party to it; and this Settlement Agreement shall not be admissible as evidence for any purpose in any proceeding other than to enforce the terms of this Settlement Agreement.

13. The Parties agree to use their best efforts consistent with applicable law to effectuate the terms of this Settlement Agreement.

14. The Primary Generator Defendants and INDOT agree to execute such additional documents as may be necessary to carry out the terms, intent, and spirit of this Settlement Agreement,

including (but not limited to) a Covenant Not To Sue as referred to in paragraph 2(a), 6(a) or 7(b) above and a Stipulation Of Dismissal With Prejudice as referred to in paragraph 2(b), 6(b) or 7(b) above.

15. This Settlement Agreement is subject only to those contingencies specified herein.

16. This Settlement Agreement constitutes the entire understanding for the parties, except as may be amended by further agreement hereafter.

IN WITNESS WHEREOF, the parties hereto have executed this Settlement Agreement the day and year first written above.

PREMIER COATINGS, INC.

By:_____
Its:_____

MOTOROLA, INC.

By:_____
Its:_____

RUST OLEUM, INC.

By:_____
Its:_____

DeSOTO, INC.

By:_____
Its:_____

PRE FINISH METALS, INC.

By: _____
Its: _____

AMERICAN CAN COMPANY, INC.

By: _____
Its: _____

STANDARD T. CHEMICAL CO., INC.

By: _____
Its: _____

ZENITH RADIO CORPORATION

By: _____
Its: _____

STATE OF INDIANA

By: _____
Its: _____

THE INDIANA DEPARTMENT OF TRANSPORTATION

By: _____
Its: _____

APPROVED AS TO LEGALITY AND FORM

BY: _____
Deputy Attorney General,
on behalf of LINLEY
PEARSON, ATTORNEY GENERAL
OF STATE OF INDIANA

1031L(1)

PRE FINISH METALS, INC.

By: _____
Its: _____

Primerica Holdings, Inc. succession in interest
AMERICAN CAN COMPANY, ~~INC~~.

By: _____
Its: _____

STANDARD T. CHEMICAL CO., INC.

By: _____
Its: _____

ZENITH RADIO CORPORATION

By: _____
Its: _____

STATE OF INDIANA

By: _____
Its: _____

THE INDIANA DEPARTMENT OF
TRANSPORTATION

By: _____
Its: _____

APPROVED AS TO LEGALITY AND FORM

BY: _____
Deputy Attorney General,
on behalf of LINLEY
PEARSON, ATTORNEY GENERAL
OF STATE OF INDIANA

1031L(1)

including (but not limited to) a Covenant Not To Sue as referred to in paragraph 2(a), 6(a) or 7(b) above and a Stipulation Of Dismissal With Prejudice as referred to in paragraph 2(b), 6(b) or 7(b) above.

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16. This Settlement Agreement constitutes the entire understanding for the parties, except as may be amended by further agreement hereafter.

IN WITNESS WHEREOF, the parties hereto have executed this Settlement Agreement the day and year first written above.

PREMIER COATINGS, INC.

By:_____
Its:_____

MOTOROLA, INC.

By:_____
Its:_____

RUST OLEUM, INC.

By:_____
Its:_____

DeSOTO, INC.

By:_____
Its: President and Chief Operating Officer, T. Farrell Shoffeitt

including (but not limited to) a Covenant Not To Sue as referred to in paragraph 2(a), 6(a) or 7(b) above and a Stipulation Of Dismissal With Prejudice as referred to in paragraph 2(b), 6(b) or 7(b) above.

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16. This Settlement Agreement constitutes the entire understanding for the parties, except as may be amended by further agreement hereafter.

IN WITNESS WHEREOF, the parties hereto have executed this Settlement Agreement the day and year first written above.

PREMIER COATINGS, INC.

By: _____
Its: _____

MOTOROLA, INC.

By: _____
Its: _____

RUST OLEUM, INC.

By: _____
Its: _____

DeSOTO, INC.

By: _____
Its: _____

PRE FINISH METALS, INC.

By: _____
Its: VICE PRESIDENT AND CONTROLLE

AMERICAN CAN COMPANY, INC.

By: _____
Its: _____

STANDARD T. CHEMICAL CO., INC.

By: _____
Its: _____

ZENITH RADIO CORPORATION

By: _____
Its: _____

STATE OF INDIANA

By: _____
Its: _____

THE INDIANA DEPARTMENT OF
TRANSPORTATION

By: _____
Its: _____

APPROVED AS TO LEGALITY AND FORM

BY: _____
Deputy Attorney General,
on behalf of LINLEY
PEARSON, ATTORNEY GENERAL
OF STATE OF INDIANA

1031L(1)

including (but not limited to) a Covenant Not To Sue as referred to in paragraph 2(a) or 6(a) above and a Stipulation Of Dismissal With Prejudice as referred to in paragraph 2(b) or 6(b) above.

15. This Settlement Agreement is subject only to those contingencies specified herein.

16. This Settlement Agreement constitutes the entire understanding for the parties, except as may be amended by further agreement hereafter.

IN WITNESS WHEREOF, the parties hereto have executed this Settlement Agreement the day and year first written above.

PREMIER COATINGS, INC.

By: Edward R. Cardine Jr.
Its: President

MOTOROLA, INC.

By: _____
Its: _____

RUST OLEUM, INC.

By: _____
Its: _____

DeSOTO, INC.

By: _____
Its: _____

including (but not limited to) a Covenant Not To Sue as referred to in paragraph 2(a), 6(a) or 7(b) above and a Stipulation Of Dismissal With Prejudice as referred to in paragraph 2(b), 6(b) or 7(b) above.

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IN WITNESS WHEREOF, the parties hereto have executed this Settlement Agreement the day and year first written above.

PREMIER COATINGS, INC.

By: _____
Its: _____

MOTOROLA, INC.

By: _____
Its: _____

RUST OLEUM, INC.

By: _____
Its: _____

DeSOTO, INC.

By: _____
Its: _____

PRE FINISH METALS, INC.

By: _____
Its: _____

AMERICAN CAN COMPANY, INC.

By: _____
Its: _____

STANDARD T. CHEMICAL CO., INC.

By: Richard R. Berger
Its: President

ZENITH RADIO CORPORATION

By: _____
Its: _____

STATE OF INDIANA

By: _____
Its: _____

THE INDIANA DEPARTMENT OF TRANSPORTATION

By: _____
Its: _____

APPROVED AS TO LEGALITY AND FORM

BY: _____
Deputy Attorney General,
on behalf of LINLEY
PEARSON, ATTORNEY GENERAL
OF STATE OF INDIANA

1031L(1)

PRE FINISH METALS, INC.

By: _____
Its: _____

AMERICAN CAN COMPANY, INC.

By: _____
Its: _____

STANDARD T. CHEMICAL CO., INC.

By: _____
Its: _____

Zenith Electronics Corporation, f/k/
ZENITH RADIO CORPORATION

By: _____
Its: Vice President-Treasurer

STATE OF INDIANA

By: _____
Its: _____

THE INDIANA DEPARTMENT OF
TRANSPORTATION

By: _____
Its: _____

APPROVED AS TO LEGALITY AND FORM

BY: _____
Deputy Attorney General
on behalf of LINLEY
PEARSON, ATTORNEY GENERAL
OF STATE OF INDIANA

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved. OMB No. 2040-0086 Approval expires 7-31-

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, af it in the designated space. Review the infor ation carefully; if any of it is incorrect, cr through it and enter the correct data in t appropriate fill-in area below. Also, if any the preprinted data is absent *(the area to t left of the label space lists the informati that should appear)*, please provide it in t proper fill-in area*(s)* below. If the label complete and correct, you need not compl Items I, III, V, and VI *(except VI-B wh must be completed regardless)*. Complete items if no label has been provided. Refer the instructions for detailed item descr tions and for the legal authorizations unc which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)		X		D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)	X		X
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3) Haz. waste site cleanup - No Form 3	X			F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X		J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP Waldo I

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 Milano Elsie Project Manager	708 940 7200

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 [illegible] Wilmot Rd Suite 300

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 Deerfield	IL	60015

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 1400 West 15th Avenue

B. COUNTY NAME

Lake

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 Gary	IN	46407	

EXHIBIT

Please type or print in the unshaded areas only

EPA ID Number (copy from Item 1 of Form 1)

Form Approved
OMB No. 2040-0086
Approval expires 7-31-88

Form 2D NPDES

EPA New Sources and New Dischargers Application for Permit to Discharge Process Wastewat

I. Outfall Location

For each outfall, list the latitude and longitude, and the name of the receiving water.

Outfall Number (list)	Latitude Deg	Latitude Min	Latitude Sec	Longitude Deg	Longitude Min	Longitude Sec	Receiving Water (name)
1	41	36	45	87	25	25	Grand Calumet River

II Discharge Date (When do you expect to begin discharging?)

January, 1995

III Flows, Sources of Pollution, and Treatment Technologies

A. For each outfall, provide a description of (1) All operations contributing wastewater to the effluent, includir process wastewater, sanitary wastewater, cooling water, and stormwater runoff; (2) The average flow contri uted by each operation; and (3) The treatment received by the wastewater. Continue on additional shee if necessary

Outfall Number	1 Operations Contributing Flow (list)	2 Average Flow (include units)	3 Treatment (Description or List Codes from Table 2C
1	Extraction of contaminated groundwater	13 gpm	1-K, 2-A, 2-B, 2-C

CONTINUED FROM THE FRONT	EPA ID Number (copy from Item 1 of Form 1)	Outfall Number
		1

V. Effluent Characteristics

A. and B: These items require you to report estimated amounts *(both concentration and mass)* of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions *(See table 2D-2 for Pollutants)*

Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.

1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
Flow		13 gpm	4
Total Suspended Solids		<100mg/L, <7085g	4
pH		6 - 9	4

Pollutant	Average Daily Value ug/L	Average Daily Value, g	Source
Aluminum	150	11	4
Arsenic	10	0.7	4
Barium	528	37.4	4
Cadmium	5	0.4	4
Chromium (Total)	300	21.3	4
Cobalt	19	1.3	4
Copper	13	0.9	4
Iron	3880	274.9	4
Lead	13.5	1.0	4
Magnesium	58400	4138.4	4
Manganese	1400	99.2	4
Mercury	0.2	0.014	4
Nickel	100	7.1	4
Selenium	5	0.4	4
Silver	10	0.7	4
Zinc	20	1.4	4
Cyanide	71	5.0	4
Vinyl Chloride	130	9.2	4
Chloroethane	97	6.9	4
Methylene Chloride	157	11.1	4
1,1-Dichloroethene	2.8	0.2	4
1,1-Dichloroethane	81	5.7	4
Trans-1,2-Dichloroethene	400	28.3	4
Chloroform	111	7.9	4
1,2-Dichloroethane	4.5	0.3	4
1,1,1-Trichloroethane	412	29.2	4
Trichloroethene	42	3.0	4
Benzene	300	21.3	4
Tetrachloroethene	12	0.9	4
Toluene	600	42.5	4
Ethylbenzene	280	19.8	4
Phenol	510	36.1	4
Bis(2-chloroethyl)ether	10	0.7	4
Nitrobenzene	10	0.7	4
Isophorone	106	7.5	4

CONTINUE ON REVE

CONTINUED FROM THE FRONT	EPA ID Number (copy from item 1 of Form 1)	Outfall Number
		1

V Effluent Characteristics

A. and B: These items require you to report estimated amounts *(both concentration and mass)* of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions *(See table 2D-2 for Pollutants)*

Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.

1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
Pollutant	Average Daily Value ug/L	Average Daily Value, g	Source
2,4-Dimethylphenol	8.8	0.6	4
2,4-Dichlorophenol	3.9	0.3	4
Naphthalene	10	0.7	4
n-Nitrosodiphenylamine	10	0.7	4
Pentachlorophenol	36	2.6	4
bis(2-Ethylhexyl)Phthalate	10	0.7	4
Lindane (Gamma BHC)	0.04	0.003	4
Dieldrin	0.02	0.0014	4
Endrin	0.06	0.004	4

EPA ID Number (copy from item one of Form 1)

VII. Other Information (Optional)

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations for the proposed facility. Attach additional sheets if necessary.

- The average concentrations and amounts reported in Section V are estimates based on groundwater data gathered at the site during an RI/FS, estimated treatment efficiencies, and cleanup action levels for the site. There is no basis for estimating maximum values.
- pH and TSS were estimated based on the treatment train to be used at the site.

VIII. Certification

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

A. Name and Official Title (type or print)

B. Phone No.

C. Signature

D. Date Signed

(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved. OMB No. 2040-0086 Approval Expires 7-31-

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, a it in the designated space. Review the info ation carefully; if any of it is incorrect, cr through it and enter the correct data in appropriate fill-in area below. Also, if any the preprinted data is absent *(the area to left of the label space lists the informat that should appear)*, please provide it in proper fill-in area*(s)* below. If the label complete and correct, you need not compl Items I, III, V, and VI *(except VI-B wh must be completed regardless)*. Complete items if no label has been provided. Refer the instructions for detailed item desc tions and for the legal authorizations un which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTAC
A. Is this facility a **publicly owned treatment works** which results in a **discharge to waters of the U.S.**? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge to waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges to waters of the U.S.** other than those described in A or B above? (FORM 2C)		X		D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge to waters of the U.S.**? (FORM 2D)	X		X
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3) Haz. waste site cleanup - No Form 3	X			F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP Midco II

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 Millano Elsie Project Manager	708 940 7200

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 [illegible] Wilmot Rd. Suite 300

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 Deerfield	IL	60015

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 5900 Industrial Hwy

B. COUNTY NAME

Lake

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 Gary	IN	46406	

EXHIBIT

Please type or print in the unshaded areas only

EPA ID Number (copy from Item 1 of Form 1)

Form Approved
OMB No. 2040-0086
Approval expires 7-31-84

Form 2D NPDES

EPA New Sources and New Dischargers Application for Permit to Discharge Process Wastewat

I. Outfall Location

For each outfall, list the latitude and longitude, and the name of the receiving water.

Outfall Number (list)	Latitude Deg	Latitude Min	Latitude Sec	Longitude Deg	Longitude Min	Longitude Sec	Receiving Water (name)
1	41	36	45	87	25	25	Grand Calumet River

II Discharge Date (When do you expect to begin discharging?)

January 1995

III Flows, Sources of Pollution, and Treatment Technologies

A. For each outfall, provide a description of (1) All operations contributing wastewater to the effluent, includin process wastewater, sanitary wastewater, cooling water, and stormwater runoff; (2) The average flow contrit uted by each operation; and (3) The treatment received by the wastewater. Continue on additional shee if necessary.

Outfall Number	1. Operations Contributing Flow (list)	2. Average Flow (include units)	3. Treatment (Description or List Codes from Table 2D
1	Extraction of contaminated groundwater	28 gpm	1-K, 2-A, 2-B, 2-C

CONTINUED FROM THE FRONT	EPA ID Number (copy from item 1 of Form 1)	Outfall Number
		1

V. Effluent Characteristics

A. and B: These items require you to report estimated amounts *(both concentration and mass)* of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions *(See table 2D-2 for Pollutants)*

Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.

1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
Flow		28 gpm	4
pH		6 - 9	4
Total Suspended Solids		<100 mg/L, <15,265 g	4

Pollutant	Average Daily Value ug/L	Average Daily Value, g	Source
Aluminum	150	22.9	4
Arsenic	15.1	2.3	4
Barium	350	53.4	4
Beryllium	5	0.8	4
Cadmium	5	0.8	4
Chromium (Total)	17	2.6	4
Cobalt	9	1.4	4
Copper	119	18.2	4
Iron	15300	2335.2	4
Lead	50	7.6	4
Magnesium	71200	10867.3	4
Manganese	464	70.8	4
Mercury	0.25	0.04	4
Nickel	100	15.3	4
Selenium	35	5.3	4
Silver	10	1.5	4
Thallium	10	1.5	4
Zinc	1470	224.4	4
Vinyl Chloride	2.2	0.3	4
Chloroethane	10	1.5	4
Methylene Chloride	157	24.0	4
1,1-Dichloroethene	1.3	0.2	4
1,1-Dichloroethane	36	5.5	4
Trans-1,2-Dichloroethene	200	30.5	4
1,1,1-Trichloroethane	77	11.8	4
1,2-Dichloropropane	4.6	0.7	4
Trichloroethene	800	122.1	4
Benzene	8.7	1.3	4
Tetrachloroethene	14	2.1	4
Toluene	635	96.9	4
Ethylbenzene	700	106.8	4
Phenol	73	11.1	4
Bis(2-chloroethyl)ether	10	1.5	4
Bis(2-chloroisopropyl)ether	10	1.5	4
Isophorone	950	145.0	4

CONTINUED FROM THE FRONT	EPA ID Number *(copy from Item I of Form 1)*	Outfall Number

V. Effluent Characteristics

A. and B: These items require you to report estimated amounts *(both concentration and mass)* of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.

General Instructions *(See table 2D-2 for Pollutants)*

Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.

1. Pollutant	2. Maximum Daily Value *(include units)*	3. Average Daily Value *(include units)*	4. Source *(see instructions)*

Pollutant	Average Daily Value ug/L	Average Daily Value, g	Source
2,4-Dimethylphenol	28	4.3	4
Bis(2-Chloroethoxy)methane	10	1.5	4
2,4-Dichlorophenol	3.9	0.6	4
Naphthalene	21	3.2	4
Acenaphthene	10	1.5	4
4-Nitrophenol	50	7.6	4
Diethylphthalate	4.9	0.7	4
Fluorene	10	1.5	4
Phenanthrene	10	1.5	4
Di-n-butylphthalate	9.4	1.4	4
Bis(2-ethylhexyl)phthalate	10	1.5	4
Di-n-octylphthalate	10	1.5	4
Heptachlor Epoxide	0.05	0.008	4

EPA ID Number (copy from item one of Form 1)

VII. Other Information (Optional)

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations for the proposed facility. Attach additional sheets if necessary.

- The average concentrations and amounts reported in Section V are estimates based on groundwater data gathered at the site during an RI/FS, estimated treatment efficiencies, and cleanup action levels for the site. There is no basis for estimating maximum values.
- pH and TSS were estimated based on the treatment train to be used at the site.

VIII. Certification

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

A. Name and Official Title (type or print)	B. Phone No.
C. Signature	**D. Date Signed**

11

APPENDIX 11

DEED RESTRICTION

_____, owner in fee simple of the real estate described below, hereby imposes restrictions on the described real estate ("_____ Property"), in Township _____, Lake County, State of Indiana.

[Description of land]

Containing ___ acres, more or less.

The following restrictions are imposed on the _____ Property, its present and any future owners, their authorized agents, assigns, employees or persons acting under their direction or control, for the purpose of conserving and protecting natural resources and habitat on the Property pursuant to a Consent Decree entered in United States v. Midwest Solvent Recovery, et al., No. H79-556. The _____ Property may be used for only the following uses and purposes and no other use or purpose:

1. For restoration or replacement of natural resources or habitat.

2. For scientific research in such fields as ecology, taxonomy, genetics, forestry, pharmacology, agriculture, soil science, geology, paleontology, conservation, and similar fields.

3. For the teaching of biology, natural history, ecology, geology, conservation, and other subjects.

4. As a habitat for plant and animal species and communities and other natural objects.

5. As a reservoir of natural materials.

6. As a place of natural interest and beauty.

7. As a living illustration of our natural heritage wherein one may observe and experience natural biotic and environmental systems of the earth and their processes.

8. To promote understanding and appreciation of the esthetic, cultural, scientific and spiritual values of such areas by the people of the state of Indiana and the United States.

9. For the preservation and protection of the _____ Property against modification or encroachment resulting from occupation, development, or other use which would destroy its natural or esthetic conditions.

All of the above restrictions shall run with the land and continue in perpetuity.

IN WITNESS WHEREOF, _____ has caused these Deed Restrictions to be executed this _____ day of _____, 199_.

_____

By: _____

ATTEST: