BEFORE THE

OHIO ENVIRONMENTAL PROTECTION AGENCY

In the matter of:

Hancock Manufacturing Company, Inc.
3560 West Market Street
Suite 300
Akron, OH 44333

Dallas Properties, Inc.
3560 West Mark Street
Suite 300
Akron, OH 44333

Respondents

For the Site known as:

Hancock Manufacturing Company Site
Toronto, Jefferson County, Ohio

Director's Final
Findings and Orders
For Remedial Design
and Remedial Action

I certify this to be a true and accurate copy of the official documents as filed in the records of the Ohio Environmental Protection Agency.

By: _____ Date: 2-12-08

Findings & Orders for RD/RA - Table of Contents

PREAMBLE

It is agreed to by the Parties hereto as follows:

I. JURISDICTION

1. These Director's Final Findings and Orders ("Orders") are issued to Hancock Manufacturing Company, Inc. and Dallas Properties, Inc. ("Respondents"), pursuant to the authority vested in the Director of Ohio EPA under Ohio Revised Code ("ORC") §§ 3734.13, 3734.20, 6111.03, and 3745.01.

II. PARTIES BOUND

2. These Orders shall apply to and be binding upon Respondents and their successors in interest liable under Ohio law.

3. No change in ownership or corporate status of the Respondents, including, but not limited to, any transfer of assets or real or personal property shall in any way alter Respondents' obligations under these Orders.

4. Work Respondent shall provide a copy of these Orders to all contractors, subcontractors, laboratories and consultants retained to conduct any portion of the Work performed pursuant to these Orders, within fourteen (14) days of the effective date of these Orders or upon date of retention. Work Respondent shall ensure that all contractors, subcontractors, laboratories and consultants retained to perform the Work pursuant to these Orders also comply with the applicable provisions of these Orders.

III. DEFINITIONS

5. Unless otherwise expressly provided herein, all terms used in these Orders or in any appendices shall have the same meaning as defined in ORC Chapters 3734 and 6111, CERCLA, and the rules promulgated thereunder. Whenever the terms listed below are used in these Orders or in any appendices, attached hereto and incorporated herein, the following definitions shall apply:

a. "CERCLA" means the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. 9601 et seq.

b. "Contaminant" and "Contamination" means (1) any "hazardous waste" under ORC § 3734.01(J); (2) any "industrial waste" under ORC § 6111.01(C); and/or (3) any "other wastes" under ORC § 6111.01(D), including any release of one or more of the same.

c. "Day" means a calendar day unless expressly stated to be a business day. "Business day" shall mean a day other than a Saturday, Sunday, or state holiday. In computing any period of time under these Orders, where the last day would fall on a Saturday, Sunday, or state holiday, the period shall run until the close of the next business day.

d. "Decision Document" means the document detailing the remedial action selected by Ohio EPA for the Site as set forth in the document attached to these Orders as Attachment A.

e. "Feasibility Study" ("FS") means a study undertaken to develop and evaluate options for remedial action and is more fully described in the Statement of Work. The FS is generally performed concurrently and in an interactive fashion with the Remedial Investigation. The term also refers to a report that describes the results of the study.

f. "Landowner Respondent" means Dallas Properties, Inc. (Dallas Properties).

g. "NCP" means the National Oil and Hazardous Substances Pollution Contingency Plan, codified at 40 C.F.R. Part 300 (1990), as amended.

h. "Ohio EPA" means the Ohio Environmental Protection Agency and its designated representatives.

i. "Orders" means these Director's Final Findings and Orders and all attachments hereto.

j. "Paragraph" means a portion of these Orders identified by an arabic numeral or an uppercase or lowercase letter.

k. "Parties" means Respondents and the Ohio EPA.

l. "Property" means the industrial facility located at Cleveland and Fifth Streets in Toronto, Jefferson County, Ohio, currently owned by Dallas Properties, Inc. and formerly operated by Hancock Manufacturing Company, Inc.

m. "Remedial Action Plan" ("RAP") means the Remedial Action Plan submitted to the Ohio Department of Development on June 25, 2007 in connection with the Property.

n. "Respondents" means Hancock Manufacturing Company, Inc. (Hancock Manufacturing) and Dallas Properties.

o. "Response Costs" means all costs incurred by Ohio EPA including, but not limited to, payroll costs, contractor costs, travel costs, direct costs, overhead costs, legal and enforcement related costs, oversight costs, laboratory costs, and the costs of reviewing or developing plans, reports, and other items pursuant to these Orders, verifying the Work, or otherwise implementing or enforcing these Orders.

p. "Section" means a portion of these Orders identified by a roman numeral.

q. "Site" means the industrial facility located at Cleveland and Fifth Streets in Toronto, Jefferson County, Ohio, where the treatment, storage, and/or disposal of hazardous waste, and/or the discharge to waters of the state of industrial waste or other wastes have occurred, including any other area where such hazardous wastes, industrial wastes, and/or other wastes have migrated or threaten to migrate.

r. "Statement of Work" ("SOW") means the "Generic Statement of Work for Conducting Remedial Design/Remedial Action" for the implementation of the Remedial Design and Remedial Action at the Site, as set forth in Attachment B of these Orders. The SOW is not specific to any Site.

s. "Supporting Documents" means the field sampling plan ("FSP"), quality assurance project plan ("QAPP") and health and safety plan ("HASP") developed concurrently with the RD/RA Work Plan pursuant to these Orders and Section 4 of the SOW.

t. "Transferee" means any future owner of any interest in the Site, including but not limited to, owners of an interest in fee simple, mortgagors, easement holders, and lessees.

u. "Work" means all activities Work Respondent is required to perform under the Performance of Work and Additional Work Sections of these Orders.

v. "Work Respondent" means Hancock Manufacturing.

IV. FINDINGS

6. The Director of Ohio EPA has determined the following findings:

a. The former Hancock Manufacturing Site is located at Cleveland and Fifth Streets in Toronto, Jefferson County, Ohio.

b. Hancock Manufacturing leased and operated a metal stamping facility at the Site.

c. Dallas Properties owns the parcel where Hancock Manufacturing operated the metal stamping facility during the period of time when Hancock Manufacturing was in operation.

d. Trichloroethylene ("TCE") is a volatile organic compound ("VOC") used to degrease metal products at the Site. TCE was used by Hancock Manufacturing for metal degreasing as part of Hancock Manufacturing's normal operations.

e. TCE is a degreasing solvent that is classified as a hazardous waste within the meaning of Rule 3745-51-31 of the Ohio Administrative Code ("OAC") after the solvent has been used.

f. On April 10, 1986, Ohio Drilling Company notified Ohio EPA, at Hancock Manufacturing's request, of VOC contamination in the groundwater production well located at the Site. Sample results of water from the well indicated a TCE concentration of 8,400 parts per billion ("ppb").

g. On July 15, 1987, Ohio EPA invited Hancock Manufacturing to negotiate administrative orders for the performance of a Remedial Investigation and Feasibility Study ("RI/FS") at the Site. After negotiations failed, the Ohio EPA issued Director's Final Findings and Orders to Hancock Manufacturing on June 16, 1988.

h. Hancock Manufacturing appealed the issuance of the Findings and Orders to the Environmental Board of Review in July 1988. Ohio EPA and Hancock Manufacturing settled this action with the issuance of new Findings and Orders, effective August 30, 1990. The new Findings and Orders also called for the performance of an RI/FS at the Site by Hancock Manufacturing.

i. Results of the remedial investigation revealed the presence of TCE in soils at the Site in three distinct areas. The sources areas are identified as: (1) the batch degreaser/TCE storage area; (2) the drainage ditch along the railroad tracks; and

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i. Results of the remedial investigation revealed the presence of TCE in soils at the Site in three distinct areas. The source areas are identified as: (1) the batch degreaser/TCE storage area; (2) the drainage ditch along the railroad tracks; and

(3) the "B-2" area near the southwest corner of the manufacturing building. The concentrations of TCE found in these areas ranged from 79 parts per million ("ppm") to 4,600 ppm.

j. Quarterly sampling performed during the remedial investigation of both on-Site and off-Site monitoring wells revealed the presence of TCE in the groundwater beneath Hancock Manufacturing's facility. The groundwater contamination extended beyond the facility boundary to the southeast in the direction of the Ohio River.

k. Ohio EPA approved the Remedial Investigation (RI) Report on April 30, 1992. This RI Report included a risk assessment which concluded that the estimated risk to people potentially exposed to groundwater from the Site was unacceptable.

l. Ohio EPA approved the Feasibility Study (FS) Report on December 12, 1994. This FS Report evaluated potential remedial alternatives to address both soil and groundwater contamination.

m. The Decision Document, released by Ohio EPA on July 31, 1996, identifies the remedy selected by the Ohio EPA to address conditions at the Site. The selected remedy includes soil vapor extraction ("SVE") to address soil contamination as well as pump and treat to address groundwater contamination.

n. The Ohio EPA Voluntary Action Program ("VAP") was created by statute in September 1994. Rules governing this program were adopted in December 1996.

o. In May 1999 Ohio EPA issued an Invitation to Negotiate ("ITN") Director's Final Finding and Orders to Hancock Manufacturing for the performance of Remedial Design and Remedial Action ("RD/RA") at the Site.

p. In June 1999 Hancock Manufacturing submitted a demonstration of sufficient evidence of entry into the VAP. In March 2000, the Director of the Ohio EPA ("Director") accepted Hancock Manufacturing's sufficient evidence demonstration.

q. The Decision Document was amended by Ohio EPA in August 2000 based on significant differences found during Ohio EPA's re-evaluation of the two ground water alternatives that involve pumping and treating ground water. Ground water data and the issuance of an Indirect Discharge Permit support the decision to change the remedy from "pump, treat on-site, with discharge of treated

groundwater to the Ohio River" to "pump and discharge to the City of Toronto Publicly Owned Treatment Works (POTW) in compliance with the Indirect Discharge Permit."

r. In 2001 and 2002, a VAP Phase II investigation was conducted and confirmed the presence of TCE, however, at reduced concentrations in both soil and groundwater.

s. Hancock Manufacturing entered into Director's Final Findings and Orders (DFF&Os) on March 18, 2002 to reimburse Ohio EPA for past Oversight Costs incurred by Ohio EPA in the course of overseeing the RI/FS which was conducted at the Site.

t. Hancock Manufacturing stopped operations on or about July 2002 resulting in the closure of the facility.

u. In October 2002, Ohio EPA rescinded Hancock Manufacturing's eligibility to participate in the VAP after determining that Hancock Manufacturing had stopped performing work at the Site.

v. Hancock Manufacturing Company was referred to the Ohio Attorney General for enforcement in 2002 after violating the DFF&Os for cost recovery by failing to make any payments, and to require implementation of appropriate remedies to abate pollution in order to protect the public health and safety.

w. The parcel owned by Dallas Properties and formerly used by Hancock Manufacturing is an abandoned, idled, or under-used property meeting the definition of a "brownfield," as defined in ORC Section 122.65(D).

x. The City of Toronto, in order to revitalize this brownfield, has applied for and been awarded a Clean Ohio Assistance Fund grant to be used to implement the remedy set forth in the 1996 Decision Document, as described in the RAP.

y. The Site is a hazardous waste facility, solid waste facility or other location where hazardous waste was treated, stored or disposed.

z. Trichloroethylene is an "industrial waste" as defined in the Ohio Revised Code ("ORC") Section 6111.01(C), and/or "hazardous waste," as defined in ORC Section 3734.01(J).

aa. The ground and surface waters at the Site are "waters of the state," as defined in ORC Section 6111.01(H).

bb. The migration and threatened migration of Contaminants to soil, ground water, or surface water at or from the Site constitutes a discharge to "waters of the state," as the term is defined in ORC § 6111.01(H).

cc. The discharge, deposit, injection, dumping, leaking, spilling, or placing of TCE into or on the soil, groundwater, surface water at, under, or from the Site constitutes "disposal" of hazardous waste, as defined in ORC Section 3734.01(F).

dd. Ohio EPA has incurred Response Costs and continues to incur Response Costs associated with this Site.

ee. Hancock Manufacturing and Dallas Properties are each considered a "person," as that term is defined in ORC Sections 3734.01(G) and 6111.01(I).

ff. Conditions at the Site constitute a substantial threat to public health or safety or are causing or contributing or threatening to cause or contribute to air or water pollution or soil contamination, as provided in ORC § 3734.20(B).

gg. The Work required pursuant to these Orders will contribute to the prohibition or abatement of the discharge of Contaminants to waters of the State.

hh. In issuing these Orders, the Director has given consideration to, and based his determination on, evidence relating to technical feasibility and economic reasonableness of complying with these Orders, and to evidence relating to conditions calculated to result from compliance with these Orders, and their relation to the benefits to the people of the state to be derived from such compliance.

ii. The actions to be taken pursuant to these Orders are reasonable and necessary to protect the public health or safety or the environment as provided in ORC § 3734.20.

jj. A reasonable time for beginning and completing the actions required by these Orders has been provided herein.

V. GENERAL PROVISIONS

7. Objectives of the Parties

The objectives of the Parties in entering into these Orders are to protect public health or safety or the environment from the disposal, discharge, or release of Contaminants at the Site through design, construction, operation, and maintenance of the remedy by Work Respondent as set forth in the Decision Document and in accordance with these Orders.

8. Commitment of Respondents

Work Respondent agrees to perform the Work in accordance with these Orders including but not limited to the SOW, all relevant guidance documents, and all standards, specifications, and schedules as approved by Ohio EPA pursuant to these Orders. Work Respondent also agrees to reimburse Ohio EPA for its Response Costs. Work Respondent and Landowner Respondent each agree to perform all other obligations that have been designated as their individual responsibility under the Orders.

9. Compliance With Law

a. All activities undertaken by Respondents pursuant to these Orders shall be performed in accordance with the requirements of all applicable federal, state and local laws and regulations, and in a manner consistent with the NCP.

b. Ohio EPA expects that activities conducted pursuant to these Orders, if approved by Ohio EPA, would be considered necessary and consistent with the NCP.

c. Where any portion of the Work requires a permit, license or other authorization from Ohio EPA or any other state, federal or local government agency, Work Respondent shall submit applications in a timely manner and take all other actions necessary to obtain such permit, license or other authorization. These Orders are not, and shall not be construed to be, a permit, license or other authorization issued pursuant to any statute or regulation.

VI. PERFORMANCE OF THE WORK BY RESPONDENTS

10. Supervising Contractor

All Work performed pursuant to these Orders shall be under the direction and supervision of a contractor with expertise in hazardous waste site investigation and

remediation. Prior to the initiation of the Work, Work Respondent shall notify Ohio EPA in writing of the name of the supervising contractor and any subcontractor to be used in performing the Work under these Orders.

11. Remedial Design and Remedial Action

a. *RD/RA project initiation meeting*. Within seven (7) days of the issuance of these Orders, unless otherwise mutually agreed to by the Parties, Work Respondent shall meet with Ohio EPA to discuss the requirements of the RD/RA Work Plan.

b. *Submission of RD/RA Work Plan*. Within thirty (30) days after the issuance of these Orders, unless otherwise specified in writing by Ohio EPA, Work Respondent shall submit to Ohio EPA a RD/RA Work Plan and schedule for implementation of the Work required under the Performance of Work Section of these Orders. The RD/RA Work Plan shall provide for the design, construction, final operation and maintenance of the remedy as set forth in the Decision Document. Paragraph 11.c. herein refers to the criteria for development of the RD/RA Work Plan

c. *Criteria for RD/RA Work Plan development*. The RD/RA Work Plan, Supporting Documents, and any other deliverables required under the approved RD/RA Work Plan shall be developed in conformance with the RD/RA SOW contained in Attachment B of these Orders, and the guidance documents listed in Attachment C of these Orders. The RD/RA Work Plan shall include a proposed schedule that includes a completion date for each task. Ohio EPA acknowledges that Work Respondent intends to submit the RAP as its RD/RA Work Plan for review pursuant to Paragraph 11.e. If Ohio EPA determines that any additional or revised guidance documents affect the Work to be performed in implementing the RD/RA, Ohio EPA will notify Work Respondent, and the RD/RA Work Plan and other affected documents shall be modified accordingly.

d. *Handling any inconsistencies.* Should Work Respondent identify any inconsistency among any of the laws and regulations and guidance documents that Work Respondent is required to follow by these Orders, Work Respondent shall notify Ohio EPA in writing of each inconsistency and the effect of the inconsistencies upon the Work to be performed. Work Respondent shall also recommend, along with a supportable rationale justifying each recommendation, the requirement that Work Respondent believes should be followed. Work Respondent shall implement the affected Work as directed in writing by Ohio EPA.

e. *Review of RD/RA Work Plan*. Ohio EPA will review the RD/RA Work Plan and Supporting Documents pursuant to the procedures set forth in the Review of Submissions Section of these Orders.

f. *Implementation of the RD/RA Work Plan*. Upon Ohio EPA's approval of the RD/RA Work Plan, Respondents shall implement the RD/RA Work Plan as approved. Work Respondent shall submit all plans, reports, or other deliverables required under the approved RD/RA Work Plan for review and approval pursuant to the Review of Submissions Section.

12. Operation and Maintenance (O&M) Plan

The O&M Plan, including a schedule for implementation, shall be submitted in accordance with the approved RD/RA Work Plan. Ohio EPA acknowledges that Work Respondent intends to submit an O&M Plan reflective of the operational and maintenance requirements described in the RAP. Ohio EPA will review the O&M Plan pursuant to the procedures set forth in the Review of Submissions Section of these Orders. Upon approval of the O&M Plan by Ohio EPA, Work Respondent shall implement the O&M Plan. Work Respondent shall submit all plans, reports, or other deliverables required under the approved O&M Plan, in accordance with the approved O&M schedule set forth therein, for review and approval pursuant to the Review of Submissions Section of these Orders.

VII. ASSURANCE OF ABILITY TO COMPLETE WORK

13. Within thirty (30) days of the effective date of these Orders, unless otherwise specified in writing by Ohio EPA, Work Respondent shall establish and maintain financial security in the amount of seventy-five thousand dollars ($75,000), which is the estimated cost of the operation and maintenance of the monitoring system identified in the Decision Document. The financial security shall be an escrow agreement approved by Ohio EPA substantially in the form of Attachment E hereto.

14. Verification of the existence of the approved escrow agreement shall be submitted to the Ohio EPA annually by Work Respondent on the anniversary of the effective date of these Orders, or upon request of Ohio EPA. If Work Respondent can show that the estimated cost to complete the remaining Work has diminished below the financial security amount set forth in this Section, the Work Respondent may request that the amount of the financial security be reduced to the estimated cost of the remaining Work to be performed. This request for a reduction is available no more frequently than biannually. Information relied upon in calculating the revised estimate of costs must be provided with the request for reduction. A reduction in the amount of the financial security can only be made with the approval of Ohio EPA.

VIII. LAND USE AND CONVEYANCE OF TITLE

15. Environmental Covenant

Within thirty (30) days after the effective date of these Orders, or after acquiring an interest in the property, Landowner Respondent shall record with the Jefferson County Recorder's Office an Environmental Covenant for the Property that is part of the Site owned by the Landowner Respondent. The Environmental Covenant, substantially in the form attached hereto as Attachment D, shall be signed by Landowner Respondent and shall be approved and signed by Ohio EPA. The Environmental Covenant must be recorded in the deed or official records of the County Recorder of Jefferson County, Ohio pursuant to R.C. 5301.82. The terms and conditions of the Environmental Covenant are incorporated into these Orders and shall be binding upon Landowner Respondent.

16. Proof of Filing Environmental Covenant

Within thirty (30) days after filing with the Jefferson County Recorder the executed Environmental Covenant, Landowner Respondent shall certify to Ohio EPA that the Environmental Covenant has been filed for recording, and include with the certification a file and date-stamped copy of the recorded Environmental Covenant. Upon each conveyance by Landowner Respondent of an interest in any portion of the Property, including but not limited to easements, deeds, leases and mortgages, Landowner Respondent shall include in the instrument of conveyance a restatement consistent with paragraph 10 of the Environmental Covenant. The terms and conditions of the Environmental Covenant are hereby incorporated into these Orders and shall be binding upon the Landowner Respondent. If the Environmental Covenant is violated or breached by Respondents, the Respondents shall be in violation of these Orders.

17. Land Use Self-Reporting Requirement

While it possesses an ownership interest in the Property, Landowner Respondent shall ensure that no portion of the Site will be used in any manner that would adversely affect the integrity of any security, containment, treatment, or monitoring systems at the Site.

IX. ADDITIONAL WORK

18. Ohio EPA or Work Respondent may determine that in addition to the tasks defined in the approved RD/RA Work Plan, additional Work is necessary to accomplish the Objectives of the Parties as provided in the General Provisions Section of these Orders. Such additional Work may include, pursuant to ORC § 3734.20 or other applicable law,

the implementation of interim actions to address substantial threats to public health or safety or the environment should such threats be identified during the conduct of the RD/RA.

19. Within thirty (30) days of receipt of written notice from Ohio EPA that additional Work is necessary, unless otherwise specified in writing by Ohio EPA, Work Respondent shall submit a proposed addendum to the RD/RA Work Plan ("RD/RA Work Plan Addendum"), which contains (a) a work plan for the implementation of the additional Work, (b) any revisions to the Supporting Documents and other RD/RA deliverable, as appropriate, (c) a schedule for the performance of the additional Work, and (d) revisions to other schedules impacted by the additional Work, if any. If Work Respondent disputes the necessity or nature of the proposed additional Work, Work Respondent shall initiate the procedures for dispute resolution set forth in the Dispute Resolution Section of these Orders within fourteen (14) days after receipt of Ohio EPA's notification of the need for additional Work, which initiation shall stay the requirement to submit an RD/RA Work Plan Addendum. The RD/RA Work Plan Addendum shall conform to the standards and requirements set forth in the documents attached to these Orders as Attachments B and C (RD/RA SOW and list of relevant guidance documents). Upon approval of the RD/RA Work Plan Addendum by Ohio EPA pursuant to the Review of Submissions Section of these Orders, Work Respondent shall implement the approved RD/RA Work Plan Addendum in accordance with the schedules contained therein.

20. If Work Respondent determines that additional Work is necessary, Work Respondent shall submit a proposal to Ohio EPA to explain what the additional Work is, why the additional Work is necessary, and what impact, if any, the additional Work will have on the RD/RA Work Plan and schedule. If Ohio EPA concurs with the request to perform additional Work, Work Respondent shall submit a RD/RA Work Plan Addendum, as described above, for the performance of additional Work. The RD/RA Work Plan Addendum shall conform to the standards and requirements set forth in the documents attached to these Orders as Attachments B and C. Upon approval of the RD/RA Work Plan Addendum by Ohio EPA pursuant to the Review of Submissions Section of these Orders, Work Respondent shall implement the approved RD/RA Work Plan Addendum in accordance with the schedules contained therein. Additional Work does not include any activity performed in response to an emergency at the Site for which Work Respondent shall submit to Ohio EPA written notice of the performed activity.

X. SAMPLING AND DATA AVAILABILITY

21. Unless otherwise agreed to by the Site Coordinators, Work Respondent shall notify Ohio EPA not less than fifteen (15) days in advance of all sample collection activity.

Upon request, Work Respondent shall allow split and/or duplicate samples to be taken by Ohio EPA or its designated contractor. Ohio EPA shall also have the right to take any additional samples it deems necessary. Upon request, Ohio EPA shall allow Work Respondent to take split and/or duplicate samples of any samples Ohio EPA takes.

22. Within seven (7) days of Work Respondent's receipt of a request by Ohio EPA, Respondents shall submit to Ohio EPA copies of the results of all sampling and/or tests or other data, including raw data and original laboratory reports, generated by or on behalf of Work Respondent with respect to the Site and/or the implementation of these Orders. An electronic copy shall also be provided in a format approved by Ohio EPA. Work Respondent may submit to Ohio EPA any interpretive reports and written explanations concerning the raw data and original laboratory reports. Such interpretive reports and written explanations shall not be submitted in lieu of original laboratory reports and raw data. Should Work Respondent subsequently discover an error in any report or raw data, Work Respondent shall promptly notify Ohio EPA of such discovery and provide the correct information.

XI. ACCESS

23. Ohio EPA and its contractors shall have access at all reasonable times to the Site and any other property to which access is required for the implementation of these Orders, to the extent access to the property is controlled by Respondents. Access under these Orders shall be for the purpose of conducting any activity related to these Orders including but not limited to the following:

a. Monitoring the Work;

b. Conducting sampling including at background monitoring wells;

c. Inspecting and copying records, operating logs, contracts, and other documents related to the implementation of these Orders;

d. Conducting investigations and tests related to the implementation of these Orders; and

e. Verifying any data and/or other information submitted to Ohio EPA.

24. To the extent that the Site or any other property to which access is required for the implementation of these Orders is owned or controlled by persons other than Respondents, Work Respondent shall use its best efforts to secure from such persons access for Work Respondent and Ohio EPA and its contractors as necessary to effectuate these Orders. Copies of each access agreement obtained by Work

Respondent shall be provided to Ohio EPA upon execution of the access agreement. If any access required to implement these Orders is not obtained prior to Work Respondent's submission of the RD/RA Work Plan, unless otherwise agreed to in writing by Ohio EPA, Work Respondent shall promptly notify Ohio EPA in writing of the steps it has taken to attempt to obtain access. Ohio EPA may, as it deems appropriate, assist Work Respondent in obtaining access.

25. Notwithstanding any provision of these Orders, the State of Ohio retains all of its access rights and authorities, including enforcement authorities related thereto, under any applicable statute or regulation including but not limited to ORC §§ 3734.20 and 6111.05.

XII. DESIGNATED SITE COORDINATORS

26. Within seven (7) days of the effective date of these Orders, Work Respondent shall notify Ohio EPA, in writing, of the name, address and telephone number and email address of its designated Site Coordinator and Alternate Site Coordinator.

27. As used in these Orders, the term "Site Coordinator" refers interchangeably to the Site Coordinator and the Alternate Site Coordinator designated for a named party. If any designated Site Coordinator is changed, the identity of the successor will be given to the other Party at least seven (7) days before the changes occur, unless impracticable, but in no event later than the actual day the change is made.

28. To the maximum extent practicable, except as specifically provided in these Orders, communications between Work Respondent and Ohio EPA concerning the implementation of these Orders shall be made between the Site Coordinators. Work Respondent's Site Coordinator shall be available for communication with Ohio EPA regarding the implementation of these Orders for the duration of these Orders. Each Site Coordinator shall be responsible for ensuring that all communications from the other Party are appropriately disseminated and processed. Work Respondent's Site Coordinator shall be present on the Site or on call during all hours of Work at the Site.

29. Without limitation of any authority conferred on Ohio EPA by statute or regulation, Ohio EPA's Site Coordinator's authority includes but is not limited to the following:

a. Directing the type, quantity and location of samples to be collected by Work Respondent pursuant to an approved Work Plan;

b. Collecting samples;

c. Observing, taking photographs, or otherwise recording information related to the implementation of these Orders, including the use of any mechanical or photographic device;

d. Directing that the Work stop whenever Ohio EPA's Site Coordinator determines that the activities at the Site may create or exacerbate a threat to public health or safety, or threaten to cause or contribute to air or water pollution or soil contamination;

e. Conducting investigations and tests related to the implementation of these Orders;

f. Inspecting and copying records, operating logs, contracts and/or other documents related to the implementation of these Orders; and

g. Assessing Respondents' compliance with these Orders.

XIII. PROGRESS REPORTS AND NOTICE

30. Unless otherwise directed by Ohio EPA, Work Respondent shall submit a written progress report to the Ohio EPA by the tenth (10) day of every month. At a minimum, the progress reports shall include that information designated in Section 10 of the SOW. Monthly reports may not be used to propose modifications to approved plans; Work Respondent shall submit such requests to Ohio EPA in a separate written correspondence.

31. Progress reports (one copy only) shall be sent either by e-mail with confirmed receipt or by hard copy to the address listed below. All other documents (two copies) required to be submitted pursuant to these Orders to Ohio EPA shall be sent to the following agency address(es):

Michael D. Sherron
Ohio EPA
Southeast District Office
2195 Front Street
Logan, Ohio 43138

Email address: Michael.Sherron@epa.state.oh.us

All written (including electronic) correspondence to Respondents shall be directed to:

John T. Garvey
Partners Environmental
31100 Solon Road, Suite G
Solon, OH 44139

Email address: jgarvey@partnersenv.com

A Party may designate an alternative contact name or address upon written notification to the other Party and in accordance with the Designated Site Coordinator Section of these Orders, as applicable.

XIV. REVIEW OF SUBMISSIONS

32. Ohio EPA shall review any work plan, report, or other item required to be submitted pursuant to these Orders.

33. Upon review, Ohio EPA may in its sole discretion: (a) approve the submission; (b) approve the submission with specified conditions; (c) approve the submission, in part, specifying the deficiencies; (d) disapprove the submission, specifying the deficiencies; or (e) any appropriate combination of the above. The results of Ohio EPA's review shall be detailed in writing and provided to Respondents. Excluded from Ohio EPA approval, pursuant to this Section, are the health and safety plan (HASP), and progress reports. Ohio EPA shall be given the opportunity to review the HASP.

34. In the event that Ohio EPA approves or partially approves an initial submission, Work Respondent shall proceed to take the approved actions. In the event that Ohio EPA approves with conditions or modifications an initial submission, Work Respondent shall either (a) proceed to take such action as required by Ohio EPA, or (b) initiate the procedures for dispute resolution set forth in the Dispute Resolution Section of these Orders, within fourteen (14) days of receipt of Ohio EPA's written response to Respondents' submission. Work Respondent shall proceed to take any action required by an unmodified or unconditioned portion of the submission, as those portions are considered approved.

35. In the event that Ohio EPA disapproves a submission in whole or in part, or conditionally approves a submission and notifies Work Respondent in writing of the deficiencies or conditions, Work Respondent shall within fourteen (14) days, or such longer period of time as specified by Ohio EPA in writing, correct the deficiencies, and/or incorporate the conditions, and submit a revised submission to Ohio EPA for approval. The revised submission shall incorporate all of the undisputed changes, additions, and/or deletions specified by Ohio EPA in its notice of disapproval. Revised submissions shall be accompanied by a letter indicating how and where each of Ohio

EPA's comments was incorporated into the revised submission. To facilitate review of the revised submission, those portions of the document not affected by the Ohio EPA comments should remain unchanged. The letter accompanying the submission should indicate, however, any indirect changes necessitated by Ohio EPA's written notice.

36. To the extent that Work Respondent disputes any of Ohio EPA's deficiencies or conditions to an initial submission, Work Respondent shall initiate the procedures for dispute resolution set forth in the Dispute Resolution Section of these Orders, within fourteen (14) days after receipt of Ohio EPA's written notice of disapproval. Notwithstanding the disapproval, Work Respondent shall proceed to take any action required by a non-deficient or unconditionally approved portion of the submission that is not specified as disapproved in the notice of disapproval.

37. In the event that Ohio EPA disapproves a revised submission, in whole or in part, and notifies Work Respondent in writing of the deficiencies, Work Respondent shall within fourteen (14) days, or such longer period of time as specified in writing by Ohio EPA, either: (1) correct the deficiencies and incorporate all changes, additions, and/or deletions, and submit the revised submission to Ohio EPA for approval; or (2) initiate the dispute resolution process pursuant to the Dispute Resolution Section of these Orders. If Work Respondent fails to submit a revised submission incorporating all changes, additions, modifications and/or deletions within fourteen (14) days, or such longer period of time as specified by Ohio EPA in writing, Work Respondent shall be considered in breach and/or violation of these Orders. If Work Respondent is in breach and/or violation of these Orders, Ohio EPA retains the right to: (1) perform any additional remediation, including complete or partial Remedial Design or Remedial Action; and/or (2) enforce the terms of these Orders as provided in the Reservation of Rights Section of these Orders.

38. All work plans, reports, or other items required to be submitted to Ohio EPA under these Orders shall, upon approval by Ohio EPA, be deemed to be incorporated in and made an enforceable part of these Orders. In the event that Ohio EPA approves a portion of a work plan, report, or other item, the approved portion shall be deemed to be incorporated in and made an enforceable part of these Orders.

XV. DISPUTE RESOLUTION

39. The Site Coordinators shall, whenever possible, operate by consensus.

40. In the event of a dispute regarding a conditional approval or partial or complete disapproval by Ohio EPA of a submission by Work Respondent, or regarding the Work required to be performed by Work Respondent under these Orders, Work Respondent's Site Coordinator shall notify Ohio EPA's Site Coordinator in writing that Work

Respondent wishes to invoke an informal dispute pursuant to this Section. The notification to invoke an informal dispute shall occur prior to the submission deadline.

41. The Parties shall have ten (10) days from the date written notice of the informal dispute is received by Ohio EPA's Site Coordinator to negotiate in good faith to resolve the dispute. This informal dispute resolution period may be extended by agreement of the Site Coordinators for up to twenty (20) additional days.

42. In the event that the dispute is not resolved during the informal dispute resolution period, Work Respondent's Site Coordinator shall notify Ohio EPA's Site Coordinator in writing by the end of the informal dispute resolution period that Work Respondent wishes to invoke a formal dispute pursuant to this Section. This notice shall include a brief description of the item(s) in dispute. Within twenty (20) days of receipt of the written notice invoking the formal dispute resolution procedure, the Site Coordinators shall exchange written positions, including the technical rationale supporting their positions. The Site Coordinators shall have ten (10) days from the date they have exchanged written positions to negotiate in good faith to resolve the formal dispute. This formal dispute period may be extended by agreement of the Site Coordinators for up to twenty (20) additional days.

43. In the event the dispute is not resolved in the formal dispute resolution period, Work Respondent's Site Coordinator shall notify Ohio EPA's Site Coordinator in writing by the end of the formal dispute resolution period whether Work Respondent wishes to submit final written positions to a DERR District Manager for review and resolution. The Site Coordinators shall have ten (10) days from the end of the formal dispute resolution period to submit their written positions. The DERR District Manager will resolve the dispute based upon and consistent with these Orders, the SOW, the RD/RA Work Plan, and other appropriate federal and state laws and regulations. The decision of the DERR District Manager is considered final for the purposes of these Orders.

44. The pendency of a dispute under this Section shall extend only the time period for completion of the item(s) in dispute, except that upon mutual agreement of the Site Coordinators, any time period may be extended as is deemed appropriate under the circumstances. Such agreement shall not be unreasonably withheld by Ohio EPA. Elements of the Work not affected by the dispute shall be completed in accordance with the applicable schedules and time frames.

45. This Section does not apply to the Reimbursement of Costs Section of these Orders.

XVI. UNAVOIDABLE DELAYS

46. Work Respondent shall cause all Work to be performed in accordance with applicable schedules and time frames set forth in these Orders or any approved work plan unless (1) otherwise agreed to by the Parties, or (2) any such performance is prevented or delayed by an event that constitutes an unavoidable delay. For purposes of these Orders, an "unavoidable delay" shall mean an event beyond the control of Work Respondent that prevents or delays performance of any obligation required by these Orders and that could not be overcome by due diligence on the part of Work Respondent. Increased cost of compliance, among other circumstances, shall not be considered an event beyond the control of Work Respondent for the purposes of these Orders.

47. Work Respondent shall notify Ohio EPA in writing within ten (10) days after the occurrence of an event that Work Respondent contends is an unavoidable delay. Such written notification shall describe the anticipated length of the delay, the cause or causes of the delay, the measures taken and to be taken by Work Respondent to minimize the delay, and the timetable under which these measures will be implemented. Work Respondent shall have the burden of demonstrating that the event constitutes an unavoidable delay.

48. If Ohio EPA does not agree that the delay has been caused by an unavoidable delay, Ohio EPA will notify the Work Respondent in writing of that finding and of the noncompliance with these Orders. If Ohio EPA agrees that the delay is attributable to an unavoidable delay, Ohio EPA will notify Work Respondent in writing of the length of the extension for the performance of the obligations affected by the unavoidable delay.

XVII. REIMBURSEMENT OF COSTS

49. Ohio EPA has incurred and continues to incur Response Costs in connection with the Site. Work Respondent shall reimburse Ohio EPA for all Response Costs incurred after the effective date of these Orders.

50. For Response Costs incurred after the effective date of these Orders, Ohio EPA will submit to Work Respondent on an annual basis an itemized invoice of its Response Costs for the previous year. Within thirty (30) days of receipt of such itemized invoice, Work Respondent shall remit payment for all of Ohio EPA's Response Costs for the previous year. In the event that Work Respondent does not remit payment of Response Costs within sixty (60) days after receipt of such invoice, Work Respondent shall remit payment for unpaid balance and the interest accrued on the unpaid balance. Interest shall accrue beginning thirty (30) days from the date of the invoice until the date payment is remitted, and shall be calculated at the rate specified by ORC § 5703.47(B)

or any subsequent rate adjustments.

51. Work Respondent shall remit payments to Ohio EPA pursuant to this Section as follows:

a. Payment shall be made by bank check payable to "Treasurer, State of Ohio / Hazardous Waste Special Cleanup Account" and shall be forwarded to Office of Fiscal Administration, Attn: Brenda Case, Ohio EPA, Lazarus Government Center, P.O. Box 1049, Columbus, Ohio 43216-1049;

b. A copy of the transmittal letter and check shall be sent to the Fiscal Officer, DERR, Ohio EPA, P.O. Box 1049, Columbus, Ohio 43216-1049, and to the Site Coordinator; and

c. Each payment shall identify the name and address of the party making payment, the Site name, and Ohio EPA's revenue number identified on the associated invoice.

XVIII. ACCESS TO INFORMATION

52. Upon request, Respondents shall provide to Ohio EPA within fourteen (14) days, copies of all documents and information within their possession or control or that of their contractors or agents relating to events or conditions at the Site including but not limited to manifests, reports, correspondence, or other documents or information related to the Work. This provision shall not be a limitation on any request for information to the Respondents by Ohio EPA made under state or federal law for information relating to events or conditions at the Site.

53. Respondents may assert a claim that documents or other information submitted to Ohio EPA pursuant to these Orders are confidential under the provisions of OAC 3745-50-30(A) or ORC § 6111.05(A). If no such claim of confidentiality accompanies the documents or other information when it is submitted to Ohio EPA, it may be made available to the public without notice to Respondents.

54. Respondents may assert that certain documents or other information are privileged under the attorney-client privilege or any other privilege recognized by state law. If Respondents make such an assertion, they shall provide Ohio EPA with the following: (1) the title of the document or information; (2) the date of the document or information; (3) the name and title of the author of the document or information; (4) the name and title of each addressee and recipient; (5) a general description of the contents of the document or information; and (6) the privilege being asserted by Respondents.

55. No claim of confidentiality shall be made with respect to any data or reports, including but not limited to laboratory or interpretive reports, and all sampling, analytical, and monitoring data.

56. Work Respondent shall preserve for the duration of these Orders and for a minimum of ten (10) years after termination of these Orders, all documents and other information within its possession or control, or within the possession or control of its contractors or agents, which in any way relate to the Work notwithstanding any document retention policy to the contrary. Work Respondent may preserve such documents by microfiche or other electronic or photographic device. At the conclusion of this document retention period, Work Respondent shall notify Ohio EPA at least sixty (60) days prior to the destruction of these documents or other information; and upon request, shall deliver such documents and other information to Ohio EPA.

XIX. PERIODIC REVIEW

57. Work Respondent shall conduct studies and investigations as requested by Ohio EPA in order to permit Ohio EPA to conduct reviews as to the effectiveness of the Remedial Action at least every five (5) years as described in section 121(c) of CERCLA and any applicable regulations.

58. If Ohio EPA determines that information received, in whole or in part, during a review conducted pursuant to the Periodic Review Section of these Orders indicates that the Remedial Action is not protective of public health and safety and the environment, the Work Respondent shall undertake any further response actions Ohio EPA has determined are appropriate. Work Respondent shall submit a plan for such work to Ohio EPA for approval in accordance with the procedures set forth in the Review of Submittals Section of these Orders, within thirty (30) days of receiving a request from Ohio EPA to submit such a work plan.

59. Work Respondent may invoke the procedures in the Dispute Resolution Section to dispute (1) Ohio EPA's determination that the Remedial Action is not protective of public health and safety and the environment, or (2) Ohio EPA's selection of further response actions as unlawful or unreasonable.

XX. MODIFICATIONS

60. These Orders may be modified by agreement of the Parties. Modifications shall be in writing, signed by the authorized representative of the Respondents and by the Director, and shall be effective on the date entered in the Journal of the Director of Ohio EPA.

XXI. INDEMNITY

61. Respondents agree to indemnify, save, and hold harmless Ohio EPA from any and all claims or causes of action arising from, or related to, the implementation of these Orders or to events or conditions at the Site, including any acts or omissions of Respondents, and its successors in interest. Said indemnification shall not apply to acts or omissions of the State of Ohio, its employees, agents or assigns at, on, upon, or related to the Site if said acts are negligent, performed outside the scope of employment or official responsibilities, or performed with malicious purpose, in bad faith, or in a wanton or reckless manner. Ohio EPA shall not be considered a party to and shall not be held liable under any contract entered into by Work Respondent in carrying out the activities pursuant to these Orders. Ohio EPA agrees to provide notice to Respondents within thirty (30) days after receipt of any claim that may be the subject of indemnity as provided in this Section, and to cooperate with Respondents in the defense of any such claim or action against Ohio EPA. Landowner Respondent's obligations under this section shall cease when it sells the Property.

XXII. CONTRIBUTION AND AGREEMENT NOT TO REFER

62. With respect to matters addressed in these Orders, the Parties hereto agree that these Orders constitute an administrative settlement for purposes of CERCLA sections 113(f)(2) and 113 (f)(3)(B), 42 U.S.C. § 9613(f)(2) and § 9613(f)(3)(B), pursuant to which Respondents have resolved their liability to the State, and that Respondents are entitled to contribution protection and contribution rights as of the effective date of these Orders as to any liable persons who are not parties to these Orders, as provided by CERCLA section 113(f)(2) and (f)(3)(B), 42 U.S.C. § 9613(f)(2) and (f)(3)(B), provided that Respondents comply with these Orders. The "matters addressed" in these Orders are all investigative and remedial actions taken or to be taken and all response costs incurred or to be incurred by Ohio EPA or any other person with respect to the Site, including without limitation the Work and Response Costs under these Orders.

63. During the implementation of these Orders, and provided Respondents are considered by Ohio EPA to be in compliance with these Orders, Ohio EPA agrees not to refer Respondents to the Ohio Attorney General's Office for enforcement, or take administrative enforcement action against Respondents or their successors in interest liable under Ohio law for Work required under these Orders at the Site. Upon termination of these Orders pursuant to the Termination Section, Ohio EPA agrees to not refer Respondents to the Ohio Attorney General's Office for enforcement, or take administrative enforcement action against, Respondents and their successors in interest liable under Ohio law for Work required under these Orders at the Site. Ohio EPA

agrees not to refer Respondents to the Attorney General's Office for recovery of Response Costs incurred by Ohio EPA before the effective date of these Orders.

XXIII. OTHER CLAIMS

64. Nothing in these Orders shall constitute or be construed as a release from any claim, cause of action, or demand in law or equity against any person, firm, partnership, or corporation not a Party to these Orders, for any liability arising from, or related to, events or conditions at the Site.

XXIV. RESERVATION OF RIGHTS

65. Ohio EPA reserves the right to seek legal and/or equitable relief to enforce the terms and conditions of these Orders, including penalties against Respondents for noncompliance with these Orders. Except as provided herein, Respondents reserve any rights they may have to raise any legal or equitable defense in any action brought by Ohio EPA to enforce the terms and conditions of these Orders.

66. Ohio EPA reserves the right to terminate these Orders and/or perform all or any portion of the Work or any other measures in the event that the requirements of these Orders are not wholly complied with within the time frames required by these Orders.

67. Except as provided herein, Ohio EPA reserves the right to take any action, including but not limited to any enforcement action, action to recover costs, or action to recover damages to natural resources, pursuant to any available legal authority as a result of past, present, or future violations of state or federal laws or regulations or the common law, and/or as a result of events or conditions arising from, or related to, the Site. Upon termination pursuant to the Termination Section of these Orders, Respondents shall have resolved their liability to Ohio EPA only for the Work performed pursuant to these Orders.

XXV. TERMINATION

68. Respondents' obligations under these Orders shall terminate upon approval in writing of Respondents' written certification to Ohio EPA that all Work required to be performed under these Orders including payment of Response Costs has been completed. Each Respondent's certification shall contain the following attestation: "I certify that the information contained in or accompanying this certification is true, accurate, and complete." This certification shall be submitted by Respondents to Ohio EPA and shall be signed by a responsible official of each Respondent. The termination of Respondents' obligations under these Orders shall not terminate the Respondents' obligations under the Reservation of Rights, Access to Information, Indemnity, Other

Claims and Land Use and Conveyance of Title Sections of these Orders.

XXVI. WAIVER AND AGREEMENT

69. In order to resolve disputed claims, without admission of fact, violation, or liability, Respondents consent to the issuance of these Orders, and agrees to comply with these Orders.

70. Respondents hereby waive the right to appeal the issuance, terms and conditions, and service of these Orders and Respondents hereby waive any and all rights that they may have to seek administrative or judicial review of these Orders either in law or equity.

71. Notwithstanding the limitations herein on Respondents' right to appeal or seek administrative or judicial review, Ohio EPA and Respondents agree if these Orders are appealed by any other party to the Environmental Review Appeals Commission, or any court, Respondents retain the right to intervene and participate in such appeal. In such event, Respondents shall continue to comply with these Orders notwithstanding such appeal and intervention unless these Orders are stayed, vacated or modified.

XXVII. EFFECTIVE DATE

72. The effective date of these Orders shall be the date these Orders are entered in the Journal of the Director of Ohio EPA.

XXVIII. SIGNATORY AUTHORITY

73. Each undersigned representative of a Party to these Orders certifies that he or she is fully authorized to enter into these Orders and to legally bind such Party to these Orders.

IT IS SO ORDERED AND AGREED:

OHIO ENVIRONMENTAL PROTECTION AGENCY

Chris Korleski, Director
Ohio Environmental Protection Agency

Date 2/11/08

IT IS SO AGREED:

Hancock Manufacturing Company

BY: _____ 1/11/08
Signature Date

William A Broadhurst, Vice President
Printed Name & Title

IT IS SO AGREED:

Dallas Properties

BY: _____ 1/11/08
Signature Date

William D. Broadhurst, Vice President
Printed Name & Title

Place Holders - Each appendix is a separate document with the appendix letter typed or labeled on the first page.

Attachment A

Attach copy of Decision Document

Attachment B

Attach copy of RD/RA SOW

Attachment C

Attach copy of List of Relevant Guidance Documents

Attachment D

Proposed Environmental Covenant

Attachment E

Escrow Agreement Template

ATTACHMENT A

OHIO ENVIRONMENTAL PROTECTION AGENCY'S

DECISION DOCUMENT
FOR THE

HANCOCK MANUFACTURING SITE
TORONTO, OHIO

July 1996

Declaration for the Decision Document

Site Name and Location

Hancock Manufacturing
Toronto, Ohio

Introduction

This Decision Document presents the selected remedial action for the Hancock Manufacturing site, in Toronto, Ohio. This document summarizes the site history, the Remedial Investigation (RI) and the Feasibility Study (FS) and the clean-up alternatives evaluated in the FS and presented in the Preferred Plan for the site. The Decision Document presents the Ohio EPA's selected alternative to clean-up the site contamination and the rationale and justification for that preference. The Decision Document also incorporates responses to comments received during the public comment period on the Preferred Plan. A responsiveness summary detailing the comments received and the Ohio EPA response is appended to this document.

Community Participation

Documents pertaining to the investigation at the site including the RI/FS and subsequent documents are public documents in the Ohio EPA files. Public documents pertaining to past and future activities at Hancock Manufacturing are available to the public at the Ohio EPA Southeast District Office in Logan, Ohio.

A document repository has been established in the Public Library of Steubenville and Jefferson County - Toronto Branch. The document repository contains copies of the RI/FS and the Preferred Plan. A copy of this Decision Document will be added to the repository. Copies of all final design documents and site reports will also be added to the repository after they are received and approved by the Ohio EPA.

Description of the Selected Remedy

The selected remedial action for the Hancock Manufacturing site addresses the source of contamination by using a soil vapor extration (SVE) system to remove contaminants from soil and by treating contaminated groundwater. The soil remedial alternative will consist of the following:

(1) a soil vapor extraction system (SVE) to remove the contaminants from soils in the two source areas and possibly in the third, potential, source area depending on the results from the pre-design soil sampling in this area,

(2) collection of SVE emissions with an absorptive material system with monitoring of any residual emissions and

(3) a soil sampling program and an air monitoring program to evaluate the effectiveness of the SVE system, ensure compliance with the SVE system's air permit and determine when the cleanup levels have been attained.

The groundwater remedial alternative will consist of the following:

(1) capturing the contaminated ground water plume with one or more pumping wells,

(2) using ultraviolet (UV) oxidation to treat the contaminated groundwater (UV oxidation involves exposing the recovered water to UV light, which causes molecular bonds to break),

(3) discharging treated ground water to the Ohio River in accordance with a National Pollution Discharge Elimination System (NPDES) permit, and

(4) quarterly sampling, at a minimum, of a network of monitoring wells both on-site and off-site until clean-up levels have been achieved.

The selection of UV oxidation as the treatment option is contingent upon the demonstration, through pre-design studies, that this technology will be effective at this site. If the pre-design studies reveal that this technology would not be effective, then air stripping, with carbon adsorption to reduce air emissions and water pollutant discharge, would be implemented at this site.

Decision Summary
Hancock Manufacturing Site
Toronto, Ohio

Decision Summary
Hancock Manufacturing
Toronto, Ohio

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I. SITE DESCRIPTION AND HISTORY

The Hancock Manufacturing Site is located at Cleveland and Fifth Streets in Toronto, Ohio in Jefferson County *(see Figure 1)*. The 7 acre Site is bordered by residences to the north, south and east and by railroad tracks to the west.

For an undetermined period before 1945, the site was used by the American Sewer Pipe Company for the production of ceramic products. Hancock Manufacturing Company (HMC), a separate corporation from the Hancock Manufacturing Company currently leasing the plant site, occupied the plant site from 1945 until 1979. During this time period unregulated use and disposal of a solvent, trichloroethylene (TCE), resulted in the contamination of soil and groundwater at the Site. Since 1945, the plant site has been occupied and used first by the former HMC owner and later by the current Hancock Manufacturing Company, as a metal stamping and drawing plant that manufactures oil filter casings and refrigeration compressor housings.

TCE has been used at the plant site since the early 1950's, where it is used to remove drawing oils from the stampings during the final stages of production. No plant records exist which describe the procedures used by the former company in the disposal of waste TCE sludge. Information from employees indicate that until the early 1960's, waste TCE sludge was disposed of in the southwest corner of the plant property. Additionally, some TCE may have spilled around the TCE storage tank formerly located at the east side of the plant building. Currently, waste TCE is handled, in accordance with Ohio EPA regulations, by storing the material in steel containers prior to off-site disposal.

Hancock Manufacturing notified the Ohio EPA in 1986 when TCE was detected in the facility's production well. As a result of this contamination, Ohio EPA invited Hancock to negotiate an administrative consent order whereby Hancock would perform a remedial investigation/feasibility study (RI/FS). These negotiations failed and in June 1988, Hancock was ordered by Ohio EPA to conduct an RI/FS. In July 1988, Hancock filed a Notice of Appeal with the Environmental Board of Review (EBR). Over the course of nearly two years, the Attorney General's Office, Ohio EPA and Hancock negotiated to settle the appeal of the EBR case. Hancock settled their case in August 1990 by agreeing to comply with new Director's Final Findings and Orders which are identical in substance to the original June 1988 Findings and Orders.

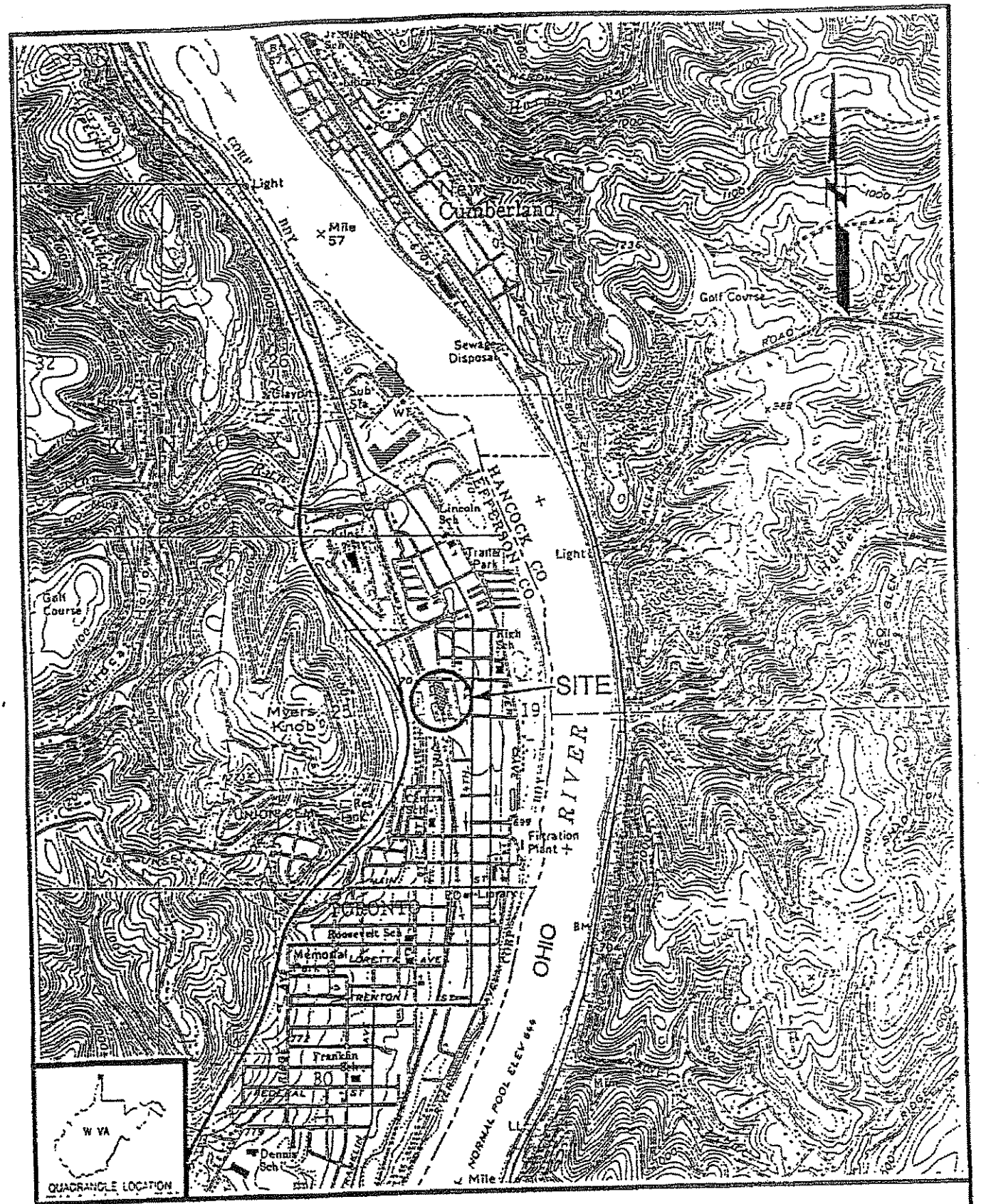

FIGURE 1-1

SITE LOCATION MAP

SCALE: 1"=2000'

HANCOCK MANUFACTURING COMPANY, INC.
TORONTO, OHIO

RMT, INC. 618.02
1292

FIGURE 1: Site Location Map

II. NATURE AND EXTENT OF CONTAMINATION

Soils

The extent of soil contamination at the site was initially determined by a series of soil gas surveys that were performed across the entire site. Subsequently, soil sampling was performed in the identified areas in which contamination was found. During , and prior to, the Remedial Investigation (RI), soil samples were collected from various locations and depths (approximately 25 shallow and 10 deep) and sent to an off-site laboratory for analysis *(Figures 2 and 3)*. Additionally, soil samples were also collected from borings during monitoring well installation to assist in determining the vertical extent of soil contamination. These investigations resulted in the identification of three **source areas** (areas which contain significantly higher amounts of contamination than the remaining portions of the site). These areas, which are represented on *Figure 4*, are:

1. **the batch degreaser/TCE storage tank area**
2. **the drainage ditch along the railroad tracks**
3. **the "B-2" area - a small area near the southwest corner of Hancock's building.**

The RI concluded that the soils in the batch degreaser area are more contaminated than soils in the other two source areas. The highest level of TCE found in the batch degreaser area was 4,600 mg/kg compared to the highest level found in the drainage ditch (171 mg/kg) or the "B-2" area (79 mg/kg).

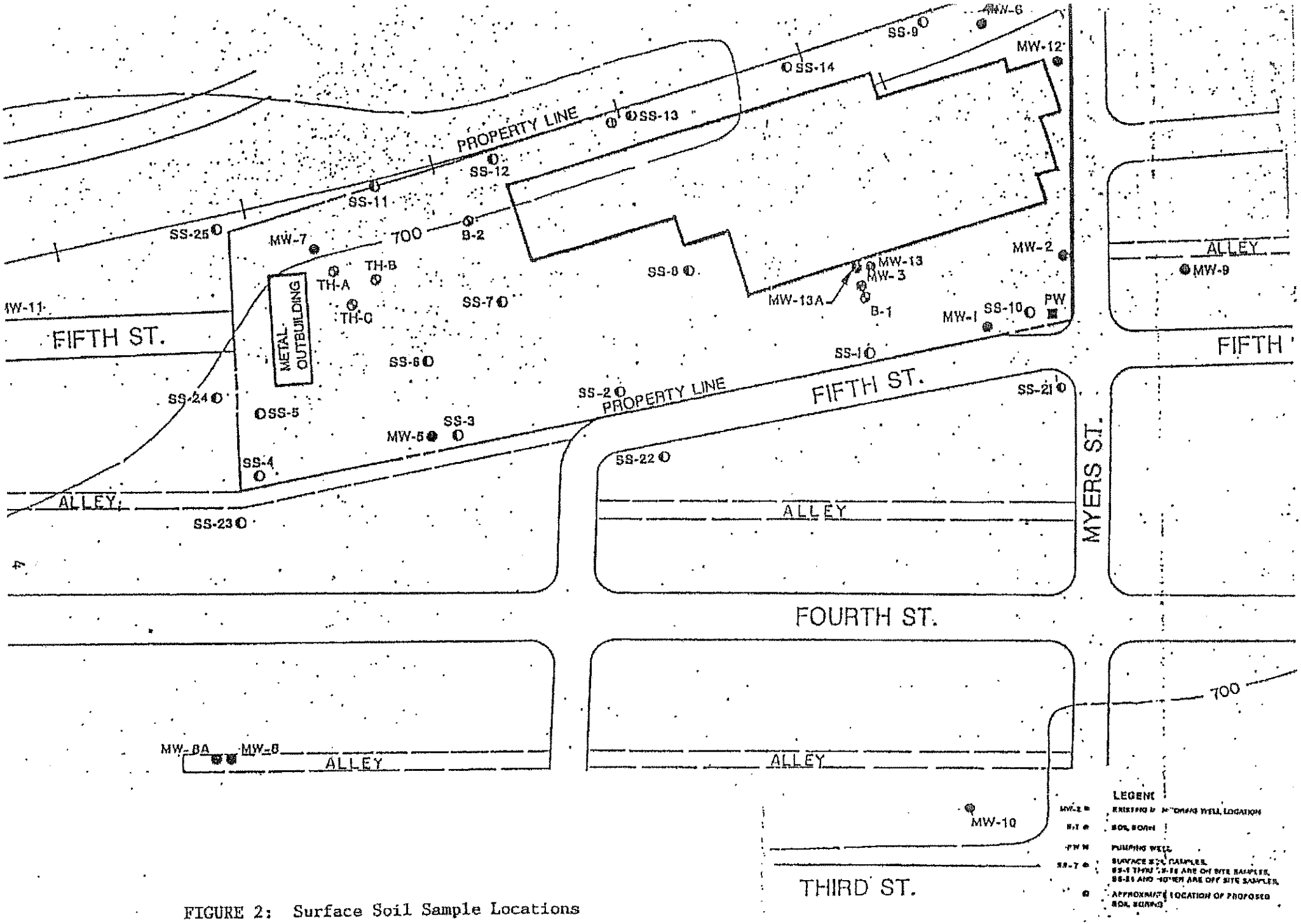

FIGURE 2: Surface Soil Sample Locations

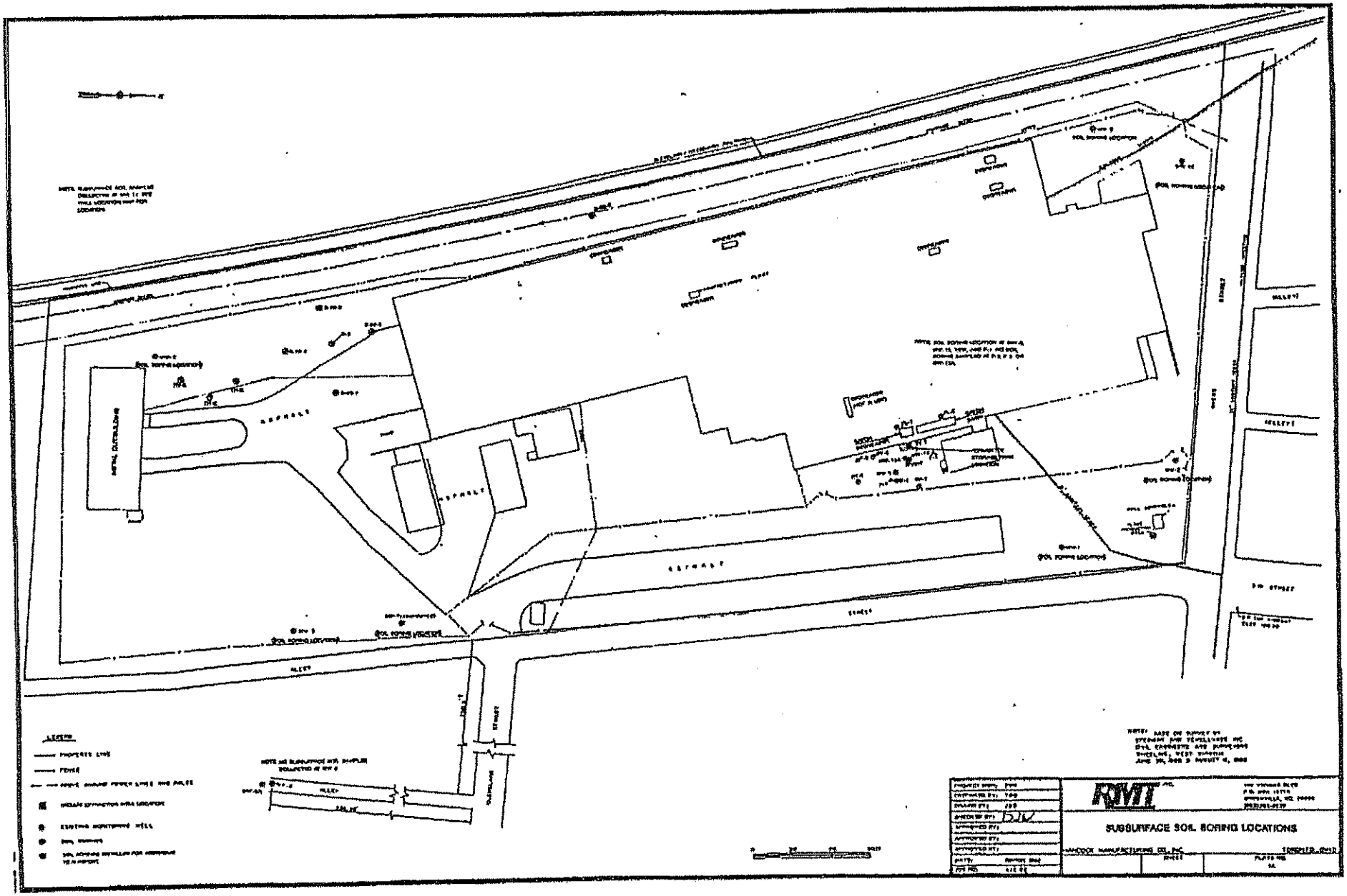

FIGURE 3: Subsurface Soil Boring Locations

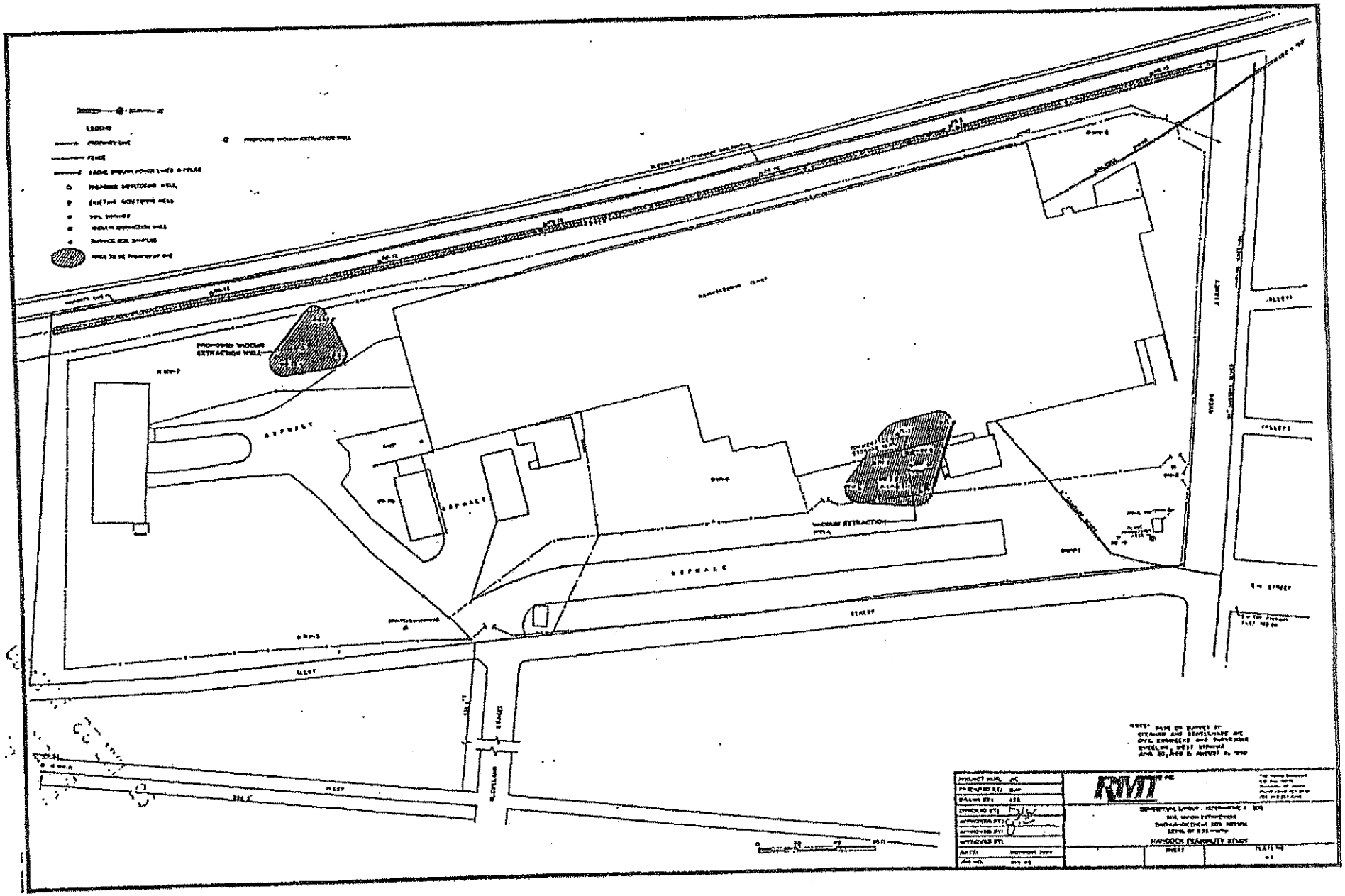

FIGURE 4: Source Areas

Groundwater

A hydrogeologic evaluation was conducted to characterize the aquifer beneath the Site and to determine the nature and extent of groundwater contamination at the Site. The aquifer underlying the Hancock Site is very productive and capable of providing continuous supplies of water to municipal, industrial and residential wells. Evidence of the aquifer's productivity includes Hancock's long term use of a production well at the Site, the hydrogeologic information obtained from the investigation and the information presented on the Ohio Department of Natural Resources Ground Water Resources Map of Jefferson County, which shows that a well, 80 feet deep, in Toronto, Ohio is capable of pumping 700 gallons per minute.

Initially, seven wells were constructed and sampled for volatile organic compounds (VOCs). The results indicated the presence of two chlorinated hydrocarbons, trichloroethylene (TCE) and a breakdown product of TCE, cis-1,2-Dichloroethylene (cis-1,2-DCE). In 1989, an off-site well pair, MW-8 and MW-8A, was installed to assist in determining the downgradient extent of the plume. In 1991, monitoring wells MW-9 through MW-11 were installed to determine the extent of contamination to the north, east and south of the Site. MW-12 replaced MW-6 which was damaged and MW-13 and MW-13A were installed to characterize contamination at the center of the batch degreaser/TCE storage tank source area. Vinyl chloride, also a breakdown product of TCE, has been detected in MW-13. Please refer to *Figure 5* for MW locations.

Since the beginning of the RI, groundwater sampling has been conducted quarterly for the aforementioned contaminants in the monitoring wells and the plant production well. Groundwater sample results indicate that a plume of contaminated ground water extends off-site, to the southeast, in the direction of the Ohio River.

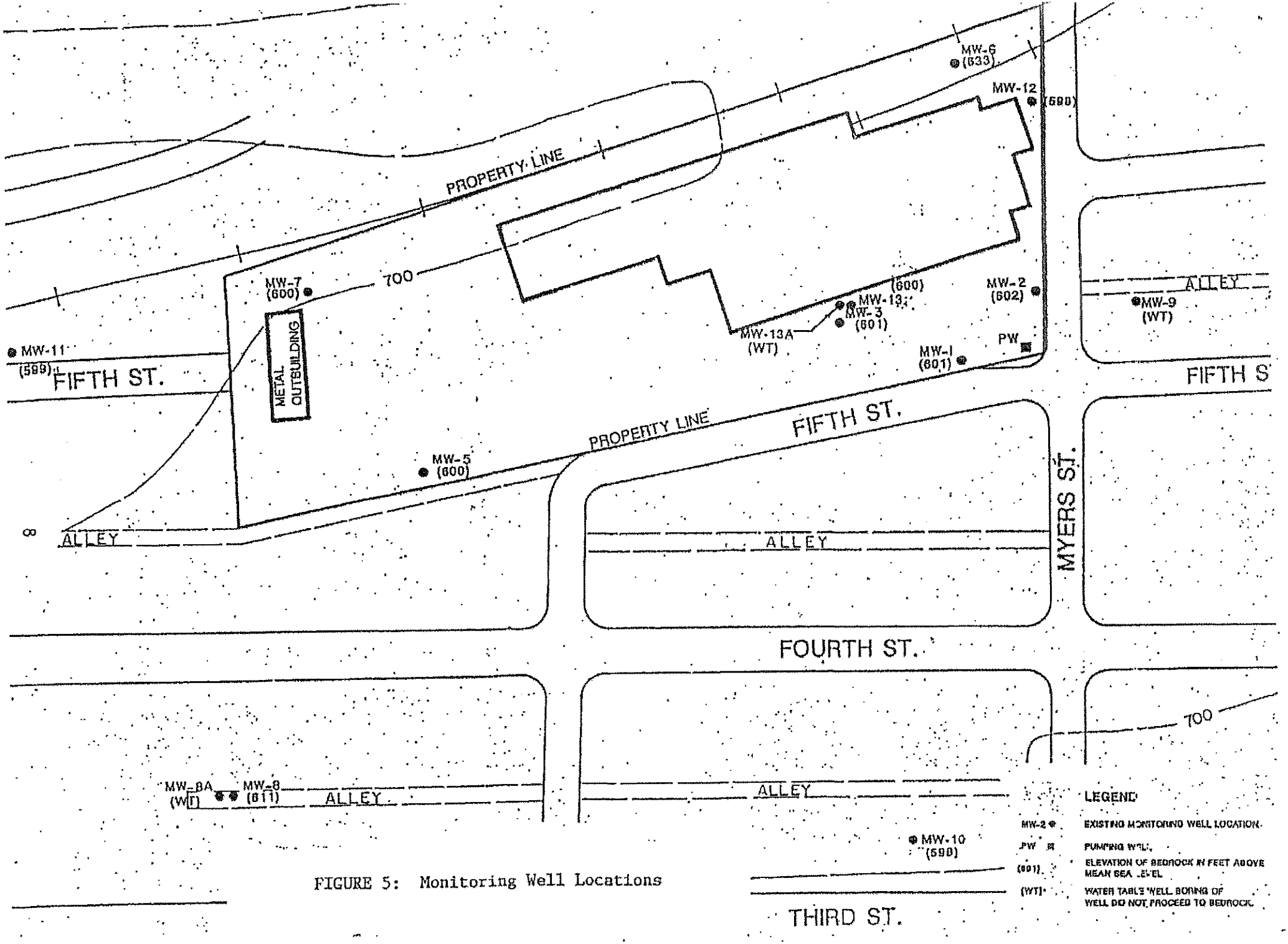

FIGURE 5: Monitoring Well Locations

III. SUMMARY OF SITE RISKS

The constituents of concern at this site identified in the Risk Assessment are TCE and cis-1,2 DCE. All pathways by which humans may be exposed to these constituents of concern were evaluated and quantified to estimate the risk to humans. Both current use and potential future-use exposure pathways were examined.

Estimates of non-carcinogenic and carcinogenic (cancer causing) risks from constituents of concern for different exposure pathways were calculated. The non-carcinogenic risk was determined by adding the hazard quotients for each constituent of concern. The hazard quotient is a quantitative estimate of the hazard associated with individual noncarcinogens. The sum of the hazard quotients is the hazard index for a particular exposure pathway. The exposure pathway hazard indexes are added together to calculate a site hazard index. A total site hazard index of less than 1.0 indicates that adverse effects are unlikely even with sensitive members of the population. A hazard index of greater than 1.0 indicates that there may be a potential hazard at the site associated with the constituents of concern.

Cancer risk is defined as the probability of an individual developing cancer over a lifetime as a result of exposure to a potential carcinogen in addition to the probability of cancer risks from all other causes. As a benchmark in developing clean-up goals at contaminated sites, an acceptable range of excess cancer risk from one in one million ($1x10^{-6}$) to one in ten thousand ($1x10^{-4}$) has been established. The point of departure for risk remaining after a site is cleaned up is $1x10^{-6}$ (i.e. a one in one million excess lifetime cancer risk, above and beyond risks from other unrelated causes).

The risk estimates for the scenarios assessed at the Hancock Site are summarized in the table below and are the estimated risks assuming no clean-up action is taken at the site. For current land use conditions, the non-carcinogenic and carcinogenic risks to off-site residents and on-site workers is within the acceptable range. However, the estimated carcinogenic risk to people exposed to groundwater from the Site is not within the acceptable range. The carcinogenic risk to persons potentially exposed to groundwater from the Site is based on a hypothetical exposure to groundwater. The City of Toronto has an ordinance in place that prohibits the use of drinking water wells within the city.

Risk based soil and groundwater exposure concentrations protective of human health were calculated for this site, and the information is presented in Section IV.

RISK ASSESSMENT SUMMARY

Current Land Use

Off-Site Residents

Exposure Scenario	Hazard Index	Carcinogenic Risk
Inhalation of Constituents in Basements	*	9.5×10^{-7}
Ingestion of Ditch Surface Soil and Sediments	2.8×10^{-4}	1.3×10^{-8}
Dermal Contact with Ditch Surface Soil and Sediments	2.1×10^{-3}	9.7×10^{-8}
Inhalation of Volatile Constituents from the Ditch	*	3.2×10^{-9}
TOTAL	2.4×10^{-3}	1.1×10^{-6}

On-Site Workers

Exposure Scenarios	Hazard Index	Carcinogenic Risk
Ingestion of Surface Soil	7.0×10^{-4}	5.1×10^{-7}
Dermal Contact with Surface Soil	5.8×10^{-3}	4.3×10^{-6}
Inhalation of Volatile Constituents in Ambient Air	*	7.5×10^{-9}
TOTAL:	6.5×10^{-3}	4.8×10^{-5}

Future Land Use

On-Site Adult Resident

Exposure Scenario	Hazard Index	Carcinogenic Risk
Ingestion of Surface Soil	1.6×10^{-3}	5.2×10^{-6}
Dermal Contact with Surface Soil	2.9×10^{-2}	9.4×10^{-5}
Inhalation of Volatile Constituents in Ambient Air	*	3.7×10^{-8}
Ingestion of Groundwater	6.5×10^{-1}	8.1×10^{-4}
Absorption of Constituents in Groundwater while Showering	1.0×10^{-2}	2.4×10^{-5}
Inhalation of Constituents in Groundwater while Showering	*	7.7×10^{-4}
TOTAL:	6.9×10^{-1}	1.7×10^{-3}

On-Site Child Resident

Exposure Scenario	Hazard Index	Carcinogenic Risk
Ingestion of Surface Soil	1.5×10^{-2}	9.6×10^{-6}
Dermal Contact with Soil	5.5×10^{-2}	3.6×10^{-6}
Inhalation of Volatile Constituents in Ambient Air	*	3.6×10^{-6}
Ingestion of Groundwater	3.0	7.6×10^{-4}
Absorption of Constituents in Groundwater while Showering	1.8×10^{-2}	9.1×10^{-6}
Inhalation of Constituents in Groundwater while Showering	*	7.1×10^{-4}
TOTAL:	3.1	1.5×10^{-3}

* A Hazard Index for inhalation was not estimated for the Site. Inhalation reference doses are not available for the two constituents of concern.

IV. SUMMARY OF CLEAN-UP VALUES

The contaminants of concern at the Hancock site identified during the RI are TCE and cis-1,2 DCE. Two additional contaminants of concern, trans-1,2 DCE, and vinyl chloride, were identified after the RI. TCE is listed by U.S.EPA as a probable human carcinogen while vinyl chloride has been listed as a carcinogen. TCE and cis-1,2 DCE have been detected in both soils and groundwater at the Hancock site while trans-1,2 DCE has been detected in only one soil sample and in groundwater. Vinyl chloride has been detected only in groundwater at this site.

Groundwater Clean-up Levels

Because all four contaminants have been detected in groundwater, groundwater clean-up levels have been established for each of these contaminants. TCE has frequently exceeded the maximum contaminant level (MCL) in several on-site and off-site wells. Vinyl chloride has exceeded MCLs in MW 13. MCLs are standards promulgated under the Safe Drinking Water Act establishing a maximum allowable level of a contaminant in water which is delivered to any user of a public water system. MCLs are used as clean-up levels for groundwater unless a particular contaminant does not have an established MCL or unless there are multiple contaminants in groundwater. If MCLs are not available or if the MCLs are not sufficiently protective because of the presence of multiple contaminants at a site or multiple pathways of exposure, then the 10^{-6} risk level shall be used as the point of departure for determining remediation goals [NCP, 40.CFR Part 300.430 (e)(2)(i)(A)(2)] In these instances, a risk based exposure concentration protective of human health is calculated, taking into consideration the combined effects of the contaminants.

MCLs will be used as clean-up levels for vinyl chloride (2 ug/l), cis-1,2 DCE (70 ug/l) and trans-1,2 DCE (100 ug/l). The MCL will be used as an initial clean-up level for TCE (5 ug/l). However, once TCE is reduced to 5 ug/l , the concentrations of the other three contaminants will be evaluated and if the carcinogenic risk exceeds 10^{-6} then the concentration of TCE will be reduced to 3 ug/l in order to meet the 10^{-6} risk goal.

Soil Clean-up Levels

TCE and cis-1,2 DCE have also been detected in on-site soils. In soil samples collected at the site where cis-1,2 DCE was detected, TCE was typically found at significantly higher concentrations. Some of these locations include FL-1, FL-2, B-1 and B-2 (Figures 4-1 and 4-2). Because of the similar chemical nature of these constituents, clean-up action levels for soil are based on TCE concentrations. In order to establish a soil clean-up value for TCE, risks from ingestion of TCE contaminated soils and dermal contact with TCE contaminated soils were evaluated as well as leaching of TCE from soils into groundwater.

A health-based clean-up level was calculated by considering exposure to TCE through incidental ingestion of soil and dermal contact with soil. According to this calculation, a TCE concentration of 7.6 mg/kg in soil would result in an excess carcinogenic risk to the potentially exposed population of 1×10^{-6}. U.S. EPA lists TCE as a probable human carcinogen (Class B2); no conclusive evidence exists that ingestion or exposure to soil that is affected with TCE causes cancer in humans (IRIS, U.S.EPA 1995).

In addition to the TCE health-based soil clean-up value, Hancock developed two TCE leach-based clean-up values in the FS. The leach-based clean-up levels take into account the release of TCE from the soils into the groundwater. Both clean-up values were calculated by using the Summers Model which is a model used to develop a soil clean-up level that is protective of groundwater. K_d is one of the variables in the Summers Model and it represents the partitioning of a contaminant between the liquid (water) and solid (soil) phase. The two different leach-based clean-up levels were developed using two different K_d values. One leach-based clean-up level was calculated using a K_d value based on the organic carbon partitioning coefficient (K_{oc}) for TCE and the percentage of organic carbon in the soils at the Hancock site. The K_{oc} for TCE is a theoretical value. The clean-up level using the K_{oc} based K_d value is 0.35 mg/kg. Hancock developed the other leach-based clean-up level by conducting experiments on soils from the Site to determine a site specific K_d value. The clean-up level using the site-specific K_d value is 10.1 mg/kg. The Ohio EPA is not confident that the results from the experiment conducted by Hancock are reproducible and adequately represent the actual conditions at the Site. Additionally, there is a lack of adequate consensus in the literature regarding the utilization of the results from experiments similar to Hancock's experiment. Therefore, Ohio EPA is hesitant to accept the 10.1 mg/kg clean-up value as one that will be protective of groundwater.

Ohio EPA will establish the health-based value of 7.6 mg/kg as an initial clean-up value. Exposure, through incidental ingestion and/or dermal contact, to soils with TCE at concentrations of 7.6 mg/kg or less will result in an acceptable excess cancer risk of 10^{-6} or below. Based on the results of their study, Hancock believes that this value will be protective of groundwater. However, because uncertainties exist, a groundwater monitoring program will be established to ensure that soils are cleaned-up to a protective level. If, at some point during or after soil remediation, it is determined that a soil clean-up level of 7.6 mg/kg is not protective of groundwater, then Ohio EPA and Hancock will work together to establish an appropriate leach based clean-up value, and remediation of soils will continue until this value has been acheived.

V. DESCRIPTION OF ALTERNATIVES

A description of the soil and groundwater remedial alternatives selected for detailed analysis is provided in this section. Cost estimates are also provided. Each of the soil remedial alternatives has cost estimates for both the 7.6 mg/kg and 0.35 mg/kg soil clean-up values. All costs presented in the Preferred Plan and in this Decision Document are based on 1992 costs. The Operation and Maintenance (O&M) cost presented for each alternative is the present worth for the O&M costs. Although the actual cost for each alternative may differ from the estimate at the time of implementation, the estimates are valid for comparative purposes.

Based on current data, it is uncertain whether or not treatment of soil in the area of Boring B-2 would be required with a soil clean-up level of 7.6 mg/kg for TCE. Therefore, additional sampling conducted prior to or during the design phase is necessary in order to determine if the TCE concentrations in soil exceed 7.6 mg/kg in this area. The alternatives for addressing soil remediation are summarized below:

No Action - Soils

The No Action alternative for soil is retained as the baseline case for comparison against other alternatives. The only active component of this alternative is the surface soil monitoring. This alternative would not effectively reduce migration of constituents to groundwater. Additionally, this alternative does not reduce the potential for exposure to constituents of concern by human or environmental receptors.

Cost Estimates

0.35 mg/kg Clean-up Value for Soils

Capital Costs	$ 26,000
Operation and Maintenance (O&M) Costs for 30 years	$ 511,000*
Total Present Worth	$ 537,000

*Cost includes annual monitoring at 14 soil locations.

7.6 mg/kg Clean-up Value for Soils

Capital Costs	$ 26,000
Operation and Maintenance (O&M) Costs for 30 years	$364,000**
Total Present Worth	$390,000

**Cost includes annual monitoring at 9 soil locations.

Institutional Controls and Long-Term Monitoring - Soils

This alternative includes (1) the installation of a fence around the source areas, (2) the development and implementation of a long-term monitoring program for surface soils and (3) the utilization of a land use deed restriction.

As proposed, the alternative would limit access to the site and thus access to the contaminated soil. The contaminated surface soils would be sampled on an annual basis. This alternative would not effectively reduce the migration of constituents to groundwater. Moreover, the implementability of the institutional controls is questionable if the current owners were to sell the property.

Cost Estimates

0.35 mg/kg Clean-up Value for Soils

Capital Costs	$ 85,000
O&M Costs for 30 years	$ 511,000*
Total Present Worth	$ 596,000

*Costs include annual monitoring at 14 soil locations.

7.6 mg/kg Clean-up Value for Soils

Capital Costs	$ 85,000
O&M Costs for 30 years	$ 364,000**
Total Present Worth	$ 449,000

**Costs include annual monitoring at 9 soil locations.

Soil Vapor Extraction (SVE) with Treatment of Air Emissions

This remedial alternative consists of (1) the soil vapor extraction (SVE) system which will remove the contaminants from the soil in the three source areas identified in the RI, and (2) an air emissions treatment system containing an adsorptive material such as activated carbon to treat emissions produced by the SVE system.

SVE is a method to remove VOCs from soil by moving air through the soil under forced vacuum conditions. The contaminants are transferred to the air as it moves through the soil and the VOC-laden air is collected and discharged or treated, depending on the amount and type of contaminants present. The effectiveness of SVE at the Hancock site has been proven through a full-scale pilot study in the Degreaser/Former Storage Tank Area. Data from this pilot study also indicate that high VOC concentrations were present in the exhaust gases. In order to minimize the transfer of contaminants from

soil to air, several different technologies to treat the air emissions were evaluated. The thermal incineration and catalytic incineration treatment technologies were not cost effective when compared to adsorbent material systems.

This alternative will reduce the toxicity, mobility and volume of the constituents in soil, and by installing equipment to treat air emissions, the concentration of contaminants being released to the air will be significantly reduced.

Cost Estimates

0.35 mg/kg Clean-up Value for Soils

Activated Carbon

Capital Costs	$ 911,000
O&M Costs for 3 years	$ 381,000
Total Present Worth	$ 1,292,000

Adsorption Bed

Capital Costs	$ 974,000
O&M Costs for 3 years	$ 560,000
Total Present Worth	$ 1,534,000

7.6 mg/kg Clean-up Value for Soils

Activated Carbon

Capital Costs	$ 828,000
O&M	$ 125,000
Total Present Worth	$ 953,000

Adsorption Bed

Capital Costs	$ 860,000
O&M	$ 171,000
Total Present Worth	$ 1,031,000

SVE for the Degreaser and B-2 Source Areas and Excavation of the Drainage Ditch Sediments

This remedial alternative consists of the same remedial measures as the SVE with treatment of air emissions alternative except for the drainage ditch area (one of the

three source areas identified in Section II of this Decision Document). In this area, contaminated material would be excavated and taken to an off-site facility for treatment and/or disposal. The treatment/disposal facility would be selected based on whether the material is a hazardous waste per Ohio Administrative Code (OAC) 3734-52-11. Cost estimates are included in this Decision Document for excavation, transport, and disposal of the material as a hazardous waste and as a nonhazardous waste.

This alternative would minimize the potential for future constituent exposure to human receptors by direct contact with the soil at the Site. Excavation of the soil and disposal

in a secure landfill will reduce mobility but not the volume and toxicity. The SVE component will reduce toxicity, mobility and volume through treatment of air emissions.

Cost Estimates

Disposal as Hazardous Waste

0.35 mg/kg Clean-up Value for Soils

Activated Carbon

Capital Costs	$ 3,455,000
O&M Costs for 3 years	$ 350,000
Total Present Worth	$ 3,805,000

Adsorption Bed

Capital Costs	$ 3,513,000
O&M	$ 529,000
Total Present Worth	$ 4,042,000

7.6 mg/kg Clean-up Value for Soils

Activated Carbon

Capital Costs	$ 3,348,000
O&M	$ 107,000
Total Present Worth	$ 3,455,000

Adsorption Bed

Capital Costs	$ 3,438,000
O&M	$ 154,000
Total Present Worth	$ 3,592,000

Disposal as Non-hazardous Waste

0.35 mg/kg Clean-up Value for Soils

Activated Carbon

Capital Costs	$1,019,000
O&M Costs for 3 years	$350,000
Total Present Worth	$1,369,000

Adsorption Bed

Capital Costs	$1,078,000
O&M	$529,000
Total Present Worth	$1,607,000

7.6 mg/kg Clean-up Value for Soils

Activated Carbon

Capital Costs	$912,000
O&M	$107,000
Total Present Worth	$1,019,000

Adsorption Bed

Capital Costs	$1,003,000
O&M	$154,000
Total Present Worth	$1,157,000

The alternatives to address groundwater remediation are summarized below:

No Action - Groundwater

The No Action alternative for groundwater provides a baseline for comparing the effects of other alternatives. Because there are no active components of this alternative other than environmental monitoring, long-term human health and environmental risks for the Hancock site would be the same as those identified in the Risk Assessment.

Cost Estimates

Capital Costs	$ 26,000
O&M Costs for 30 years	$ 981,000
Total Present Worth	$ 1,007,000

Institutional Controls and Long-Term Monitoring - Groundwater

This groundwater remedial alternative includes (1) the establishment of deed restrictions to be used in conjunction with the existing City of Toronto ordinance that prohibits the use of drinking water wells within the city and (2) long-term groundwater monitoring. This alternative does not include remedial actions to lower the contaminant concentrations in groundwater or to prevent further off-site migration, and therefore, contaminant concentrations in groundwater will continue to exceed MCLs. Moreover, the implementability of the institutional controls is questionable if the current owners were to sell the property.

Cost Estimates

Capital Costs	$ 52,000
O&M Costs for 30 years	$ 981,000
Total Present Worth	$ 1,033,000

Groundwater Pumping and Discharge to the POTW

This groundwater remedial alternative consists of (1) pumping the plant production well at an increased rate, in order to capture the contaminated groundwater plume, (2) using the recovered water as non-contact cooling water, which is necessary for the plant to operate, then 3) discharging this untreated water to the Toronto POTW, and (4) implementing a long-term groundwater monitoring program.

This alternative has been evaluated based on the assumption that recovery wells in addition to the plant well are not necessary at this site. The assumption is based on a groundwater capture model presented in Reassessment of Site Hydrology at Hancock

Manufacturing Co., Inc. (RMT, December 1989). It is possible that further evaluation during remedial design could show that multiple pumping wells are necessary to effectively remediate the groundwater at the Site.

The concentration of VOCs in the untreated water that reaches the Toronto POTW will probably be reduced by both volatilization and biological activity. Additionally, contaminant concentrations will be diluted before they reach the POTW.

Implementation of this alternative will reduce the constituent concentrations in groundwater at the Site and in the area immediately surrounding the Site. However, some of the contaminants will be released into the air at the POTW. Pumping the plant production well could potentially lower concentrations of the constituents in groundwater to below MCLs.

Cost Estimates

Capital Costs	$ 34,000
O&M Costs for 10 years	$ 895,000
Total Present Worth	$ 929,000

Pump, Treat, and Discharge Groundwater to Surface Water Body

This groundwater remedial alternative consists of (1) pumping the plant production well to capture the contaminated ground water plume, (2) treating the contaminated ground water (air stripping, carbon adsorption, chemical oxidation and ultraviolet oxidation were the four technologies evaluated), (3) using the treated water as non-contact cooling water, which is necessary for the plant to operate, and discharging any of the treated groundwater not used for plant processes through the combined sewer system to the Ohio River in accordance with an NPDES permit, and (4) developing a long-term groundwater monitoring program.

This alternative was evaluated based on the assumption that recovery wells in addition to the plant well are not necessary at the Site. The assumption is based on a groundwater capture model presented in Reassessment of Site Hydrology at Hancock Manufacturing Co., Inc. (RMT, December 1989). It is possible that further evaluation during remedial design could show that multiple pumping wells are necessary to effectively remediate the groundwater at the Site.

Implementation of this alternative will reduce constituent concentrations in groundwater at the Site and in the area immediately surrounding the Site. Pumping the plant production well could potentially lower concentrations of the constituents in groundwater to below MCLs.

Cost Estimates

Air Stripping

Capital Costs	$ 430,000
O&M Costs for 10 years	$ 1,396,000
Total Present Worth	$ 1,826,000

Carbon Adsorption

Capital Costs	$701,000
O&M Costs for 10 years	$1,737,000
Total Present Worth	$2,438,000

Chemical Oxidation

Capital Costs	$384,000
O&M Costs for 10 years	$1,598,000
Total Present Worth	$1,982,000

Ultraviolet Oxidation

Capital Costs	$376,000
O&M Costs for 10 years	$1,067,000
Total Present Worth	$1,443,000

In-Situ Air Sparging/ Soil Vapor Extraction

This groundwater remedial alternative consists of (1) an air sparging system to remove the contaminants from the ground water (by injecting air into the groundwater, the rate of volatilization is increased). The system would be designed so that these contaminants are then captured by the SVE system, and (2) a groundwater monitoring program.

Implementation of this alternative will reduce constituent concentrations in groundwater at the Site. However, impacted groundwater that has left the Site will not be satisfactorily treated by this alternative. Constituents of concern in the groundwater below the site could potentially be reduced to below MCLs.

Cost Estimates

Capital Costs	$ 234,000
O&M Costs for 10 years	$ 1,168,000
Total Present Worth	$ 1,402,000

VI. SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting the remedial alternative for the Hancock site, Ohio EPA considered the following eight criteria:

1. Overall protection of human health and the environment addresses whether or not a remedy provides adequate protection, and describes how risks are eliminated, reduced or controlled through treatment, engineering controls, and/or institutional controls.

2 Compliance with all State, Federal and Local laws and regulations addresses whether or not a remedy will meet all of the applicable State, Federal and Local environmental statutes.

3. Long-term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time once clean-up goals have been met.

4. Reduction of toxicity, mobility, or volume is the anticipated performance of the treatment technologies to yield a permanent solution. This includes the ability of the selected alternative to reduce the toxic characteristics of the chemicals of concern or remove the quantities of those chemicals to an acceptable risk concentration or regulatory limit and/or decrease the ability of the contaminants to migrate through the environment.

5. Short-term effectiveness involves the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until clean-up goals are achieved.

6. Implementability is the technical and administrative feasibility of a remedy, including the availability of goods and services needed to implement the chosen solution.

7. Cost includes capital and operation and maintenance costs.

8. Community acceptance will be assessed in the Decision Document following review of the public comments received on the RI Report, the Feasibility Study and the Preferred Plan.

The preferred soil alternative is cost effective when compared to the treatment alternative which included excavation of ditch soils/sediments. Additionally, the effectiveness of SVE at the Hancock site has been proven through a full-scale pilot study in the Degreaser/Former Storage Tank Area.

The preferred groundwater alternative is the most appropriate for this site because of the relatively large area of groundwater contamination. The air-sparging alternative would be most effective in small, confined areas of contamination.

Although the groundwater alternative involving pumping and discharging to the POTW costs less than the preferred alternative, it was not chosen because: 1) no significant reduction in toxicity, volume and mobility would be achieved, 2) the contaminants would be released untreated into the air, and 3) the volume of the proposed discharge would potentially reduce the POTW's operating capacity and treatment effectiveness.

UV oxidation was selected as the preferred method for treating groundwater because, based on information presented in the FS Report, this treatment option is more cost effective than chemical oxidation, carbon adsorption, and air stripping with carbon adsorption to control air emissions. Moreover, UV oxidation is a treatment option which destroys the contaminants rather than transferring the contaminants to other media.

VII. SELECTED REMEDY

The Ohio EPA's selected remedy for the Hancock site is a combination of SVE with treatment of air emissions and groundwater pump, treat, and discharge to a surface water body. The soil remedial alternative will consist of (1) a soil vapor extraction system (SVE) to remove the contaminants from soils in the two source areas and possibly in the third, potential, source area, depending on results of pre-design soil sampling in this area, (2) collection of SVE emissions with an absorptive material system with monitoring of any residual emissions and (3) a soil sampling program. These programs will monitor the effectiveness of the SVE system, ensure compliance with the SVE system's air permit and determine when the cleanup levels have been attained. The groundwater remedial alternative consists of (1) capturing the contaminated groundwater plume with a pumping well(s), (2) using ultraviolet (UV) oxidation to treat the contaminated groundwater (UV oxidation involves exposing the recovered water to UV light, which causes molecular bonds to break), (3) discharging treated ground water to the Ohio River in accordance with a National Pollution Discharge Elimination System (NPDES) permit, and (4) quarterly sampling, at a minimum, of a network of monitoring wells both on-site and off-site until clean-up levels have been achieved. The selection of UV oxidation as the preferred treatment option is contingent upon the demonstration, through pre-design studies, that this technology will be effective at this site. If the pre-design studies reveal that this technology would not

be effective, then air stripping, with carbon adsorption to reduce air emissions and water pollutant discharge, would be implemented at this site.

Utilization of these two alternatives will comply with all state, federal and local regulations. The remedy will reduce toxicity, volume and mobility of the constituents by removing them from the soil and groundwater. This remedy is implementable using currently available technology, will be effective in the long-term since the removal of the contaminants will be permanent, and will be effective in the short-term since the contaminants will begin being removed from the soils and groundwater immediately when the remedies are implemented.

APPENDIX A

RESPONSIVENESS SUMMARY

SUMMARY OF COMMENTS RECEIVED DURING PUBLIC COMMENT PERIOD

This Responsiveness Summary has been prepared to address each of the comments submitted in written or oral presentations on the preferred plan for a remedial action.

Comments from Hancock Manufacturing

1. Table of Contents, page 1, Section 4.2, Ground Water. " Groundwater" is presented as one word throughout the document.

Ohio EPA Response: Acknowledged.

2. Page 4, second paragraph. Please add "in accordance with Ohio EPA regulations" to the last sentence.

Ohio EPA Response: This has been incorporated into the Site Description and History section of the Decision Document.

3. Page 9, last paragraph. Please add the following text to the discussion of carcinogenic risk to persons potentially exposed to ground water from the Site is based on a hypothetical exposure to ground water. The City of Toronto has an ordinance in place that prohibits the use of drinking water wells within the city. Therefore, there are currently no residences within the City of Toronto that used private wells for their primary water supply. Additionally, the carcinogenic risk associated with ground water use is attributed primarily to the presence of trichloroethene (TCE). U.S. EPA lists TCE as a probable human carcinogen (Class B2); no conclusive evidence exists that ingestion or exposure to water that is affected with TCE causes cancer in humans (IRIS, U.S. EPA 1995)."

Ohio EPA Response: Ohio EPA cannot state with certainty that no residences within the City of Toronto use private wells for their primary water supply. However, we have included a statement in the Summary of Risks section of the Decision Document explaining that no residential wells, currently used as primary water supplies, were found near the site during the RI/FS.

4. Page 12, second paragraph. The cleanup level for TCE in ground water is listed as 3 ug/l, which is below the MCL for TCE. The cleanup levels for the other constituents coincide with their respective MCLs. MCLs are health-based concentrations that protect consumers of drinking water, and should be used for all constituents. There is no technical basis to require one of four constituents to be remediated below the MCL. Additionally, requiring a cleanup level of 3 ug/l instead of the MCL of 5 ug/l could cause remediation activities to be needlessly extended for years if the time versus concentration curve has become asymptotic at a concentration of 5 ug/l.

Ohio EPA Response: Per the NCP [40 CFR Part 300.430(e)(2)(i)(A)(2)], if MCLs are not sufficiently protective because of the presence of multiple contaminants at a site, then, the 10^{-6} risk level shall be used as the point of departure for determining remediation goals. TCE, vinyl chloride, cis-1,2 DCE and trans-1,2 DCE have all been detected in groundwater at the Hancock site. At this site, a concentration of 3ug/l TCE meets the acceptable 10^{-6} risk level . Since the MCL for TCE is 5 ug/l, the 3 ug/l value was selected as the clean-up level in the Preferred Plan.

Regarding Hancock's concern that a cleanup level of 3 ug/l instead of 5 ug/l could cause remediation activities to be needlessly extended for years, Ohio EPA will agree to use the MCL (5 ug/l) as the clean-up value if the concentrations of other contaminants (vinyl chloride, cis-1,2 DCE and trans-1,2 DCE) in addition to TCE at 5 ug/l do not exceed a 10^{-6} risk. Once TCE is reduced to 5 ug/l, the concentrations of the other contaminants will be evaluated and as long as the total risk does not exceed 10^{-6} then the 5 ug/l level will remain the clean-up value for TCE.

5. Page 12, last paragraph. Please include the following text in the discussion of the health-based cleanup level for TCE in soil: "U.S. EPA lists TCE as a probable human carcinogen (Class B2); no conclusive evidence exists that ingestion or exposure to soil that is affected with TCE causes cancer in humans (IRIS, U.S. EPA 1995)."

Ohio EPA Response: This has been incorporated into the Decision Document in the Summary of Clean-up Values section.

6. Page 13, first paragraph. Please state that the organic carbon partitioning coefficient (K_{oc}) for TCE used to calculate a TCE cleanup level of 0.35 mg/kg in soil is a theoretical value.

Ohio EPA Response: This has been incorporated into the Decision Document in the Summary of Clean-up Values section.

7. Page 13, second paragraph, second sentence. Please replace the second sentence with the following sentence: "Exposure, through incidental ingestion and/or dermal contact, to soils with TCE at concentrations of 7.6 mg/kg or less will result in an acceptable excess cancer risk of 10^{-6} or below."

Ohio EPA Response: This sentence has been re-worded in the Decision Document.

8. Page 13, second paragraph, last sentence. Two changes are needed. First, once soil is remediated to 7.6 mg/kg and the ground water cleanup level for TCE is achieved, as shown by monitoring data, the 7.6 mg/kg should be regarded as

being protective of ground water, and additional long term ground water monitoring should not be required. Second, if 7.6 mg/kg proves to be insufficient to achieve the ground water cleanup level of 5 ug/l for TCE, a lower soil cleanup level need not necessarily be 0.35 mg/kg. That new soil cleanup level, if needed, should be arrived at through discussions between Hancock Manufacturing and Ohio EPA. Hancock Manufacturing reserves its right to contest a lower level that in its view, is more stringent than needed to protect ground water at 5 ug/l, the MCL for TCE in ground water.

Ohio EPA Response: Once both soil and groundwater levels have been achieved long term groundwater monitoring will not be required. However, groundwater monitoring will be required for three years after the groundwater clean-up levels have been achieved. Ohio EPA and Hancock will work together to determine frequency (minimum of semi-annually) of monitoring and an appropriate monitoring well network. If clean-up values are exceeded during this three year period, the Agency will work with Hancock to determine if additional monitoring will be required.

Regarding the leach-based clean-up levels, if it is determined that the 7.6 mg/kg soil clean-up value is not protective of groundwater, then Ohio EPA will work with Hancock to identify an appropriate leach based clean-up value.

9. Page 13, Section 5.2 Description of Alternatives. It should be noted that all costs presented in the Preferred Plan are based on 1992 dollars. Although the actual cost for each alternative may differ from the estimate at the time of implementation, the estimates are valid for comparative purposes. Also, please state that the Operation and Maintenance (O&M) cost presented for each alternative is the present worth for the O&M costs.

Ohio EPA Response: This has been incorporated into the Decision Document in the Description of Alternatives section.

10. Page 18, Section titled "Institutional Controls and Long-Term Monitoring - Groundwater". Please state that the concentrations of constituents in ground water would eventually be lowered due to degradation and natural attenuation.

Ohio EPA Response: Degredation and natural attenuation vary greatly depending on site specific conditions, such as oxygen levels and the concentration and type of microorganisms in the groundwater. Time-frames can be from months to many years. Moreover, the breakdown products in some instances can be as toxic or even more toxic than the original compound (eg. vinyl chloride is a break down product of TCE). We do not have the information on this site to predict how long it would take for concentrations to be lowered and by how much they would be lowered. Therefore, it may be misleading to state that the concentrations of constituents would eventually be lowered due to degredation and natural attenuation.

11. Page 18, last paragraph. In the description of this alternative, please state that the recovered water is used as non-contact cooling water, which is necessary for the plant to operate.

Ohio EPA Response: We have incorporated this information into the Decision Document in the discussions of two of the groundwater alternatives (Pump and Discharge to POTW and Pump, Treat and Discharge to Surface Water Body).

12. Page 19, first paragraph, first line, and next to last paragraph, first line. Please state that the assumption that recovery wells in addition to the plant well are not necessary at this site is based on a ground water capture model presented in Reassessment of Site Hydrology at Hancock Manufacturing Co., Inc. (RMT, December 1989).

Ohio EPA Response: We have incorporated this information into the Decision Document in the discussions of two of the groundwater alternatives (Pump and Discharge to POTW and Pump, Treat and Discharge to Surface Water Body).

13. Page 19, second paragraph, second sentence. Please replace the word "some" with the words "the concentrations".

Ohio EPA Response: This sentence has been reworded in the Decision Document for clarification.

14. Page 20, cost estimate to Pump, Treat, and Discharge Groundwater to Surface Water Body using Air Stripping. The Capital Costs are $430,000, and the Total Present Worth is $1,826,000.

Ohio EPA Response: These cost estimates have been revised in the Decision Document.

15. Page 21, last paragraph, fourth line. Only two soil source areas will require remediation using SVE with a soil cleanup level of 7.6 mg/kg for TCE.

Ohio EPA Response: The following language has been added to the beginning of the Description of Alternatives section of the Decision Document: Based on current data, it is uncertain whether or not treatment of soil in the area of Boring B-2 would be required with a soil clean-up level of 7.6 mg/kg for TCE. Therefore, additional sampling conducted prior to or during the design phase is necessary in order to determine if the TCE concentrations in soil exceed 7.6 mg/kg in this area.

16. Page 21, last paragraph, next to last line. Please insert the word "a" prior to "pumping",and replace the word "wells" with "well(s)".

Ohio EPA Response: These changes have been incorporated in the Decision Document.

17. Page 21, last paragraph, next to last line. Treatment of contaminated water is unnecessary in either a plan that includes discharge to the Toronto POTW or direct discharge to surface water. In both circumstances, the concentration of TCE, when the water reaches the POTW or surface water, will be very low (probably below detection) due to natural volatilization and dilution. Thus, treatment after pumping water from the aquifer serves no useful purpose.

Ohio EPA Response: If the groundwater is not treated, the contaminants will be released to another medium (air) or the concentrations will be diluted in route to the treatment plant or the surface water body. Pumping groundwater without treatment will not result in reduction of toxicity, mobility or volume of the contaminants.

18. Page 22, first paragraph, last line. Please replace this sentence with the following text: "If the pre-design studies reveal that this technology would not be effective, then the cost effective treatment system at the time remediation is initiated would be implemented at the site."

Ohio EPA Response: Because a number of options were evaluated in the FS Report and Air Stripping was an option selected for detailed analysis, we feel that choosing Air Stripping as the alternative treatment option is reasonable. The effectiveness of Air Stripping has been demonstrated at many sites and it is relatively cost effective. If a new technology is introduced during the pre-design stage, then we will review any information Hancock submits and weigh the technology against all the technologies presented in the FS Report.

EXPLANATION OF SIGNIFICANT DIFFERENCES

for the

HANCOCK MANUFACTURING SITE

June 2000

INTRODUCTION

The Hancock Manufacturing Site is located at Cleveland and Fifth Streets in Toronto, Ohio in Jefferson County. Since 1945, the plant site has operated as a metal stamping and drawing plant that manufactures oil filter casings and refrigeration compressor housings. Hancock Manufacturing Company (HMC), a separate corporation from the Hancock Manufacturing Company (Hancock) currently leasing the plant site, occupied the plant site from 1945 until 1979. During this time period, unregulated use and disposal of a solvent, trichloroethylene (TCE), resulted in contamination of soil and groundwater.

Hancock Manufacturing notified the Ohio EPA in 1986 when TCE was detected in the facility's production well. As a result of this contamination, Hancock signed an administrative consent order with Ohio EPA in August 1990 whereby Hancock would perform a remedial investigation (RI) and feasibility study (FS). Ohio EPA approved the RI Report on April 30, 1992 and the FS Report on December 12, 1994. The Decision Document was finalized in July 1996. In September 1998, Ohio EPA offered Hancock the opportunity to implement a remedial action under the Voluntary Action Program (VAP). Hancock was given this opportunity because the invitation to negotiate RI/FS orders was issued prior to promulgation of the VAP statute (September 28, 1994). In May 1999, Hancock was invited to negotiate a remedial design (RD)/ remedial action (RA) consent order, and in June 1999, Hancock submitted evidence demonstrating its involvement in the VAP. On March 10, 2000, Ohio EPA determined that Hancock is eligible to participate in the VAP.

Recent groundwater data and the issuance of an Indirect Discharge Permit indicate that a change in the groundwater treatment system selected by Ohio EPA, in the 1996 Decision Document, is warranted. Therefore, in order to make information available to the public and to maintain consistency with the National Contingency Plan (NCP), 40 CFR Part 300, Section 300.435(c)(2)(i), Ohio EPA is publishing this Explanation of Significant Differences (ESD). This ESD will become part of the Hancock Manufacturing Site Administrative Record which is available for review at the Public Library of Steubenville and Jefferson County - Toronto Branch located in Toronto, Ohio and at the Ohio EPA Southeast District Office in Logan, Ohio.

SITE HISTORY, CONTAMINATION, AND SELECTED REMEDY

Since 1945, the seven acre plant site has operated as a metal stamping and drawing plant that manufactures oil filter casings and refrigeration compressor housings. TCE has been used at the plant site since the early 1950's to remove drawing oils from the stampings during the final stages of production. No plant records exist which describe the procedures used by the former company in the disposal of waste TCE sludge. Information from employees indicate that until the early 1960's, waste TCE sludge was disposed of in the southwest corner of the plant property. Additionally, TCE may have spilled around the batch degreaser in the eastern portion of the plant building and around the TCE storage tank formerly located at the east side of the plant building.

Soil sampling during the RI identified three source areas: 1) the batch degreaser/TCE storage tank area; 2) the drainage ditch along the railroad tracks; and 3) the "B-2" area - a small area near the southwest corner of Hancock's building. Trichloroethylene (TCE) and cis 1,2 -dichloroethethylene (cis DCE) are the contaminants present in the soils. The RI concluded that the soils in the batch degreaser area are more contaminated than soils in the other two source areas. Groundwater samples collected during the RI and FS identified TCE and cis DCE as the main contaminants in groundwater. The highest concentrations are present in the production well and in the monitoring wells located nearest the batch degreaser/TCE storage tank area. Groundwater sample results indicate that a plume of contaminated groundwater extends off-site, to the southeast, in the direction of the Ohio River.

Different alternatives to address the site contamination were evaluated in the FS and, after analysis of the alternatives, a Preferred Plan was issued. After taking into consideration all public comments, the Decision Document was finalized on July 31, 1996. The selected remedial action addresses contaminated soils and groundwater. Components of the selected remedy include the following:

- A soil vapor extraction (SVE) system will be installed to remove contaminants from soils in two of the source areas and possibly in the third source area depending on the results from the pre-design soil sampling in this area.
- SVE emissions will be collected with an absorptive material system and any residual emissions will be monitored.
- A soil sampling program and an air monitoring program will be established to evaluate the effectiveness of the SVE system, to ensure compliance with the SVE system's air permit and to determine when the cleanup levels have been attained.
- Contaminated groundwater will be captured with one or more pumping wells.
- Ultraviolet (UV) oxidation will be used to treat the contaminated groundwater.
- Treated groundwater will be discharged to the Ohio River in accordance with a National Pollution Discharge Elimination System (NPDES) permit.
- Quarterly sampling of a network of monitoring wells both on-site and off-site will be conducted until clean-up levels have been achieved.
- If pre-design studies reveal that UV oxidation would not be effective at this site, air stripping with carbon adsorption to reduce air emissions will be implemented at this site.

DESCRIPTION OF SIGNIFICANT DIFFERENCES AND THE BASIS FOR THOSE DIFFERENCES

Since the release of the Decision Document in July 1996, Ohio EPA has re-evaluated the two groundwater alternatives that involve pumping and treating groundwater. The alternative selected in the Decision Document includes pumping groundwater, treating on-site by UV oxidation and discharging treated water to the Ohio River. The other alternative involves pumping groundwater and discharging the untreated groundwater to the City of Toronto sewer for off-site treatment at the Publically Owned Treatment Works (POTW).

In the Decision Document, the groundwater alternative involving pumping and discharging water to the POTW was not selected, although it costs less than the selected remedy, because: 1) no significant reduction in toxicity, volume and mobility of contaminants would be achieved; 2) the volume of the proposed discharge would potentially reduce the POTW's operating capacity and treatment effectiveness; and 3) the contaminants would be released untreated into the air at the treatment plant.

Potential impacts that large volumes of contaminated groundwater would have on the operating capacity and treatment effectiveness of the POTW was one reason the off-site treatment alternative was not selected in the Decision Document. Although Hancock has been discharging their wastewater to the POTW since well before the Decision Document was finalized, Ohio EPA was concerned that a larger volume of wastewater would be generated once treatment and containment of the plume was initiated. Since 1993, Hancock has discharged wastewater to the POTW under Indirect Discharge Permits issued by Ohio EPA. The first permit was issued on August 2, 1993 and expired on August 31, 1998 and the current permit was issued on September 14, 1998 and expires on September 27, 2003.

Groundwater data collected by Hancock after the Decision Document was finalized in July 1996 demonstrates that concentrations of contaminants have significantly decreased in recent years (see figure 1). As a result, the volume of groundwater that must be pumped to contain the plume may not be as great since concentrations of contaminants have decreased substantially. Due to this expected reduction in pumping to contain the plume, compliance with the permit is expected.

Potential release of contaminants into the air at the POTW was another reason the off-site treatment alternative was not selected in the Decision Document. With the significant decrease in concentrations of contaminants, any releases of contaminants into the air at the POTW would also be significantly reduced. Furthermore, data collected by the POTW in 1993 demonstrates that concentrations of TCE in the POTW's final effluent were below the detection limit with the volume of contaminated groundwater that Hancock was releasing to the City of Toronto sewer at that time. Considering the recent concentrations of contaminants in the Hancock production well and the expected reduction in pumping to contain the plume, Ohio EPA has determined

that it is unlikely that contaminants from the groundwater would be released to the air at levels that pose an unacceptable human health risk at the POTW.

Cost estimates for the two pump and treat groundwater alternatives were provided in the Feasibility Study Report and are as follows:

- $ 929,000 for pumping groundwater and discharging to the POTW;
- $ 1,443,000 for pumping groundwater, treating with UV oxidation and discharging treated groundwater to the Ohio River.

Based on these estimates, discharging groundwater to the POTW will cost approximately $ 500,000 less than treating groundwater on -site and discharging to the Ohio River.

The recent groundwater data and the issuance of an Indirect Discharge Permit support the decision to change the remedy from "pump, treat on-site, with discharge of treated groundwater to the Ohio River" to "pump and discharge to the City of Toronto POTW in compliance with the Indirect Discharge Permit". If the POTW is unable to handle the volume of water pumped to contain the plume, Hancock will have to discharge the excess volume to the Ohio River in accordance with a National Pollution Discharge Elimination System (NPDES) permit. This modification of the remedy is a significant change, but it does not fundamentally alter the remedy. Pumping contaminated groundwater remains an essential component of the remedy, but rather than treating the groundwater on-site, it will be released to the City of Toronto POTW where it will be treated.

AFFIRMATION OF THE STATUTORY DETERMINATIONS

Based on recent groundwater data and the issuance of an Indirect Discharge Permit, changes have been made to the remedy selected in the Decision Document. Ohio EPA believes that the remedy abates the pollution or contamination and protects public health or safety and complies with federal and state requirements that are applicable or relevant and appropriate to this remedial action. The revised remedy uses permanent solutions to the maximum extent practicable for the Hancock Manufacturing Site and is cost effective.

Hancock Manufacturing Company, Inc.
DCE, TCE and Vinyl Chloride Concentrations
Plant Well

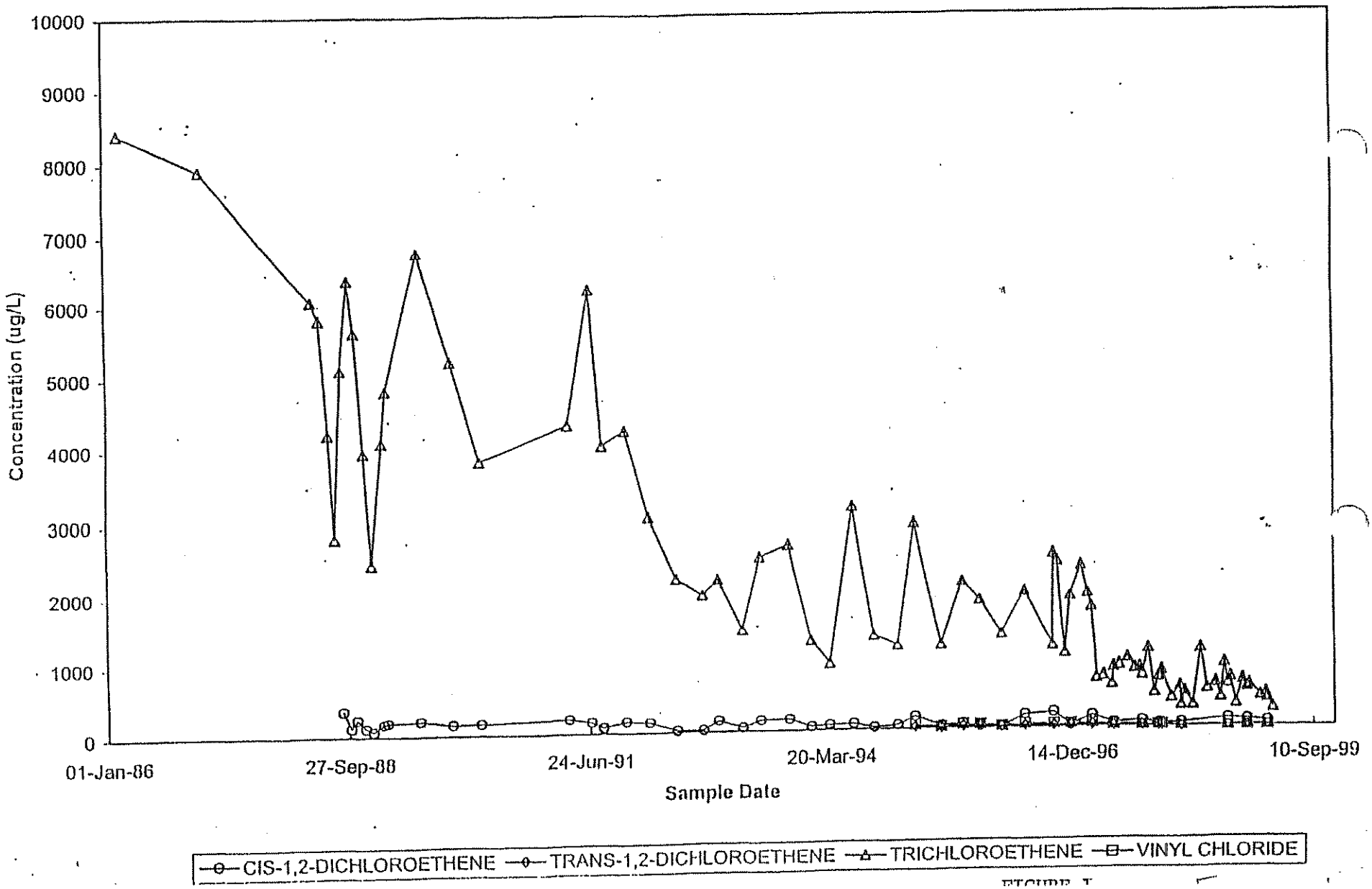

FIGURE 1

ATTACHMENT B

STATE OF OHIO
MODEL STATEMENT OF WORK FOR
THE REMEDIAL DESIGN AND REMEDIAL ACTION
AT

Former Hancock Manufacturing Corporation Site
Toronto, Jefferson County, Ohio

1.0 PURPOSE

The purpose of this Remedial Design/Remedial Action Statement of Work (RD/RA SOW) is to define the procedures the Respondent(s) shall follow in designing and implementing the selected remedy for the former Hancock Manufacturing Corporation Site as described in this SOW and the Director's Final Findings and Orders (Orders) to which it is attached. The Division of Emergency and Remedial Response (DERR) documented the selection of a remedy for the site in a Decision Document dated July 1996 and amended in June 2000. The intent of the remedy is to protect the public health and/or the environment from the actual or potential adverse effects of the contaminants discovered at and related to the site. Further guidance for performing the RD/RA work tasks may be found in the U.S. EPA Superfund Remedial Design and Remedial Action Guidance document (OSWER Directive 9355.0-4A). All applicable regulatory requirements pertaining to the selected remedy and RD/RA activities shall be followed.

The Ohio EPA shall provide oversight of the Respondent's activities throughout the RD/RA. The Respondent's shall support the Ohio EPA's initiatives and conduct of activities related to the implementation of oversight activities.

2.0 DESCRIPTION OF THE REMEDIAL ACTION/ PERFORMANCE STANDARDS

Performance standards and specifications of the major components of the remedial action to be designed and implemented by the Respondent(s) are described below. Performance standards shall include cleanup standards, standards of control, quality criteria, and other requirements, criteria or limitations as established in the Decision Document, this SOW and the Orders to which it is attached.

See Attachment A, Decision Document, of the Orders for description of the remedial action components and associated performance standards.

3.0 SCOPE OF THE REMEDIAL DESIGN AND REMEDIAL ACTION

The Remedial Design/Remedial Action (RD/RA) shall consist of seven principal tasks described below. Each task shall be completed and required documentation shall be submitted in accordance with the schedules established in the Orders and in the RD/RA Work Plan approved by Ohio EPA. All work related to this SOW shall be performed by the Respondent(s) in a manner consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) as amended, 42 USC 9601, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300 (1990), and other applicable federal and state rules and regulations.

Task Summary

3.1 Task I: RD/RA Work Plan
- 3.1.1 Site Access
- 3.1.2 Pre-Design Studies Plan
- 3.1.3 Regulatory Compliance Plan
- 3.1.4 Natural Resource Damage Assessment

3.2 Task II: Pre-Design Studies

3.3 Task III: Remedial Design
- 3.3.1 General Requirements for Plans and Specifications
- 3.3.2 Design Phases
- 3.3.3 Estimated Cost for Remedial Action
- 3.3.4 Remedial Action Implementation Plan
- 3.3.5 Community Relations Support

3.4 Task IV: Remedial Action Construction
- 3.4.1 Preconstruction Inspection and Conference
- 3.4.2 Design Changes During Construction
- 3.4.3 Remedial Action Construction Completion and Acceptance

3.1 TASK I: RD/RA WORK PLAN

The Respondent(s) shall submit a work plan for the Remedial Design and Remedial Action (RD/RA) to the Ohio EPA for review and approval, which presents the overall strategy for performing the design, construction, operation, maintenance and monitoring of the Remedial Action (RA). The work plan shall provide a detailed discussion of the specific tasks necessary to implement the selected remedy, including a description of the technical approach, personnel requirements, plans, specifications, permit requirements and other reports described in this SOW.

The work plan shall document the responsibilities and authority of all organizations and key personnel involved with the development and implementation of the RD/RA. The qualifications of key personnel directing the RD/RA tasks, including contractor personnel, shall be described.

The work plan shall include schedules fixed in real time for the development of the (RD) and implementation of the RA, including milestones for the submittal of the document packages for Ohio EPA review and meetings for discussion of the submittals. The RD/RA Work Plan must be reviewed and approved by the Ohio EPA prior to initiation of field activities or proceeding with the RD.

Specific requirements to be addressed by the RD/RA Work Plan are described in the following sections.

3.1.1 Site Access

All site access agreements necessary to implement the RD and RA shall be obtained by the Respondent(s) prior to the initiation of any activities to be conducted under the Work Plan. Site access agreements shall extend for the duration of all remedial activities and shall include allowances for all operation and maintenance considerations and State oversight activities. The work plan shall describe the activities necessary to satisfy these requirements.

3.1.2 Pre-Design Studies Plan

The Respondent(s) shall develop a plan to complete the following pre-design studies, which are required to design and fully implement the remedial action.

[Describe any pre-design studies required to support the RD/RA.]

The Pre-Design Studies Plan (PDSP), as a component of the RD/RA Work Plan, will identify and describe, in detail, activities necessary to conduct the pre-design studies identified above. The plan shall include sufficient sampling, testing, and analyses to develop quantitative performance, cost and design data for the selected remedy.

At the discretion of the Site Coordinator for the Ohio EPA, the PDSP may be submitted for review and comment under separate cover from the work plan in accordance with the schedule established in the Orders. The PDSP must be approved by the Ohio EPA prior to initiation of associated field activities or treatability studies.

The Pre-Design Studies Plan shall include, as necessary, a Field Sampling Plan (FSP), a Quality Assurance Project Plan (QAPP) and a Health and Safety Plan (HSP). Section 4.0 of this SOW describes the required content of supporting plans such as the Field Sampling Plans, Quality Assurance Project Plans and Health and Safety Plans.

Prior to development of the Pre-Design Studies Plan, there shall be a meeting of the Site Coordinator for the Ohio EPA and the Project Manager representing the Respondent(s) to discuss scope, objectives, quality assurance and quality control issues, resources, reporting, communication channels, schedule, and roles of personnel involved. Other personnel representing the Respondent(s) and Ohio EPA, who may be needed to fully discuss the issues involved, should also participate in this meeting. Guidance documents to be consulted in developing the Pre-Design Studies Plan include U.S. EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies (EPA/540/G-89/004, October 1988) and Guide for Conducting Treatability Studies Under CERCLA (EPA/540/2-89/058, December 1989), as well as others listed in Appendix A, attached to this SOW.

The pre-design studies will be conducted as described under Task II.

3.1.3 Regulatory Compliance Plan

It shall be the responsibility of the Respondent(s) to ensure compliance with all applicable regulatory state and federal requirements for the RD/RA activities to be conducted at the site. The Respondent(s) shall develop a plan to identify and to satisfy all applicable state and federal laws and regulations for the RD/RA. he plan will include the following information:

1) Permitting authorities
2) Permits required to conduct RD/RA activities
3) Time required by the permitting agency(s) to process permit applications
4) Identification of all necessary forms
5) Schedule for submittal of applications
6) All monitoring and/or compliance testing requirements

The Respondent(s) shall identify in the plan any inconsistencies between any regulatory requirements or permits that may affect any of the work required. The plan shall also include an analysis of the possible effects such inconsistencies may have on the remedial action, recommendations, and supporting rationale for the recommendations. The Regulatory Compliance Plan shall be submitted to the Ohio EPA as part of the RD/RA Work Plan.

3.1.4 Natural Resource Damage Assessment

If natural resources are or may be injured as a result of a release, the Respondent(s) shall ensure that the trustees of the effected natural resources are notified. The trustees will initiate appropriate actions and provide input into the RD/RA in order to minimize or mitigate natural resource damages in accordance with the NCP and 43 CFR part 11. Trustees define "injury" as "a measurable adverse change, either long- or short-term, in the chemical or physical quality of a natural resource resulting either directly or indirectly from exposure to a discharge of oil or release of a hazardous substance. The Respondent(s) shall make available to the trustees all necessary information and documentation needed to assess actual or potential natural resource injuries.

3.2 TASK II: PRE-DESIGN STUDIES

The Respondent(s) shall schedule and detail the work necessary to accomplish the pre-design studies described in the Pre-Design Studies Plan submitted with the RD/RA Work Plan. The requirements of this section shall apply to studies undertaken to refine the understanding of the nature and extent of contamination at the site, as well as to bench and pilot scale treatability studies.

For any such studies required, the Respondent(s) shall furnish all services, including necessary field work, materials, supplies, labor, equipment, supervision, and data

interpretation. Sufficient sampling, testing, and analyses shall be performed to provide the technical data necessary to support the remedial design effort with the goal of optimizing the required treatment and/or disposal operations and systems.
The Respondent(s) shall submit a draft Pre-Design Studies report for Ohio EPA's review and comment when the investigation and/or testing required by the Pre-Design Studies Plan is complete. The draft report shall present investigation/testing data and results along with an analysis of the implications those results have on the RD/RA, including a cost analysis, when appropriate. The draft report shall be submitted prior to the preliminary design submittal in accordance with the schedule specified in the Orders and approved RD/RA Work Plan. After making any required corrections or modifications based on Ohio EPA comments, the Respondent(s) shall submit the final report with the Preliminary Design Report, unless otherwise specified in the approved RD/RA Work Plan.

3.2.1. Reporting Requirements for Groundwater data.

The Respondent(s) shall submit all groundwater data and monitoring well construction data. The Respondent(s) shall implement a groundwater monitoring program as identified in the RD workplan or as required by Ohio EPA. Respondent(s) shall submit all groundwater data and monitoring well construction data on a 3.5 inch diskette using the most current version of the U.S. EPA developed Ground Water Information Tracking System (GRITS) database software. GRITS is free software, and can be obtained by calling EPA office of Research and Development (ORD), at 513-569-7562, ask for Document # EPA/625/11-91/002. Respondent(s) shall submit one copy of each round of sampling data on printed paper in addition to the diskette format. The printed copy will be the official copy of the data.

3.3 TASK III: REMEDIAL DESIGN

The Respondent(s) shall prepare and submit to the Ohio EPA, in accordance with the schedule set forth in the compliance schedule of the Orders, construction plans, specifications and supporting plans to implement the remedial action at the Site as defined in the Purpose and Description of the Remedial Action sections of this SOW, the Decision Document, and/or the Orders.

3.3.1 General Requirements for Plans and Specifications

The construction plans and specifications shall comply with the standards and requirements outlined below. All design documents shall be clear, comprehensive and organized. Supporting data and documentation sufficient to define the functional aspects of the remedial action shall be provided. Taken as a whole, the design documents shall demonstrate that the remedial action will be capable of meeting all objectives of the Decision Document, including any performance standards.

The plans and specifications shall include the following:

1) Discussion of the design strategy and design basis including:
   a. Compliance with requirements of the Decision Document and the Orders and all applicable regulatory requirements;
   b. Minimization of environmental and public health impacts;

2) Discussion of the technical factors of importance including:
   a. Use of currently accepted environmental control measures and technologies;
   b. The constructability of the design;
   c. Use of currently accepted construction practices and techniques;

3) Description of the assumptions made and detailed justification for those assumptions;

4) Discussion of possible sources of error and possible operation and maintenance problems;

5) Detailed drawings of the proposed design including, as appropriate:
   a. Qualitative flow sheets;
   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 clearly explained for significant or unique calculations);
   b. Derivation of equations essential to understanding the report;
   c. Results of laboratory tests, field tests and any additional studies.

3.3.2 Design Phases

The Respondent(s) shall meet when necessary with Ohio EPA representatives to discuss design issues. The design shall be developed and submitted in the phases outlined below to facilitate progression toward an acceptable and functional design.

Submittals shall be made in accordance with the compliance schedule in the Orders, and the schedule in the approved RD/RA Work Plan.

3.3.2.1 Preliminary Design

A Preliminary Design, which reflects the design effort at approximately 30% completion, shall be submitted to the Ohio EPA for review and comment. At this stage of the design process, the Respondent(s) shall have verified existing conditions at the site that may influence the design and implementation of the selected RA. The Preliminary Design shall demonstrate that the basic technical requirements of the remedial action and any permits required have been addressed. The Preliminary Design shall be reviewed to determine if the final design will provide an operable and usable RA that will be in compliance with all permitting requirements and response objectives. The Preliminary Design submittal shall include the following elements, at a minimum:

- Preliminary plans, drawings and sketches, including design calculations;
- Results of treatability studies and additional field sampling;
- Design assumptions and parameters, including design restrictions, process performance criteria, appropriate unit processes for treatment systems, and expected removal or treatment efficiencies for both the process and waste (concentration and volume);
- Proposed cleanup verification methods, including compliance with applicable laws and regulations;
- Outline of design specifications;
- Proposed sitting/locations of processes/construction activity;
- Expected long-term operation and monitoring requirements;
- Real estate and easement requirements;
- Preliminary construction schedule, including contracting strategy.

The supporting data and documentation necessary to define the functional aspects of the RA shall be submitted with the Preliminary Design. The technical specifications shall be outlined in a manner that anticipates the scope of the final specifications. The Respondent(s) shall include design calculations with the Preliminary Design completed to the same degree as the design they support.

If the Pre-Design Studies Report required under Task II have not been submitted prior to submission of the Preliminary Design, it shall be submitted with the Preliminary Design. Any revisions or amendments to the Preliminary Design required by the Ohio EPA shall be incorporated into the subsequent design phase.

3.3.2.2 Intermediate Design

Complex project designs necessitate preparation and Ohio EPA review of design documents between the preliminary and prefinal design phases. The Respondent(s) shall submit intermediate design plans and specifications to the Ohio EPA for review and comment when the design is approximately 60% complete in accordance with the schedule in the approved RD/RA Work Plan. All plans, specifications, design analyses and design calculations submitted to the Ohio EPA shall reflect the same degree of completion. The Respondent(s) shall ensure that any required revisions or amendments resulting from the Ohio EPA's review of the Preliminary Design are incorporated into the Intermediate Design.

The Intermediate Design submittal shall include the following components:

- Design Plans and Specifications;
- Draft Construction Quality Assurance Plan;
- Draft Performance Standard Verification Plan;
- Draft Operation and Maintenance Plan;
- Health and Safety Plan.

The design shall include a Construction Quality Assurance Plan, a Performance Standard Verification Plan, an Operation and Maintenance Plan, and a Health and Safety Plan. The Performance Verification Plan shall include a Field Sampling Plan and a Quality Assurance Project Plan, as necessary. Section 4.0 of this SOW describes the required content of the supporting plans. The final Pre-Design Studies Report shall also be included, if it has not already been submitted. Revisions or amendments to the Intermediate Design required by Ohio EPA shall be incorporated into the Prefinal Design.

3.3.2.3 Prefinal Design

The Respondent(s) shall submit a Prefinal Design for Ohio EPA review in accordance with the schedule in the approved RD/RA Work Plan when the design effort is at least 90% complete. The Respondent(s) shall ensure that any modifications required by the Ohio EPA's prior review of related Pre-design Studies Reports, technical memoranda, the Preliminary and Intermediate Designs, and the QAPP and HSP are incorporated into the Prefinal Design submittal. The Prefinal Design submittal shall consist of the following components, at a minimum:

- Design Plans and Specifications;
- Construction Quality Assurance Plan;
- Performance Standard Verification Plan;
- Operation and Maintenance Plan;
- Remedial Action Implementation Plan;
- Cost Estimate;
- Health and Safety Plan.

General correlation between drawings and technical specifications is a basic requirement of any set of working construction plans and specifications. Before submitting the remedial design specifications with the Prefinal Design, the Respondent(s) shall: (1) Coordinate and cross-check the specifications and drawings; (2) Complete the proofing of the edited specifications and required cross-checking of all drawings and specifications.

The Respondent(s) shall prepare and include in the technical specifications governing any treatment systems; contractor requirements for providing appropriate service visits by qualified personnel to supervise the installation, adjustment, startup and operation of the treatment systems; and appropriate training on operational procedures once startup has been successfully accomplished.

The Ohio EPA will provide written comments to the Respondent(s) indicating any required revisions to the Prefinal Design. Comments may be provided as a narrative report and/or markings on design plan sheets. Revisions to the plans and specifications required by Ohio EPA shall be incorporated into the Final Design. At the discretion of the Site Coordinator, the Respondent(s) shall also return to Ohio EPA all marked-up prints as evidence that the plans have been completely checked. The Prefinal Design submittal may serve as the Final Design, if Ohio EPA has no further comments and notifies the Respondent(s) that the Prefinal Design has been approved as the Final Design.

3.3.2.4 Final Design

Following incorporation of any required modifications resulting from the Ohio EPA's review of the Prefinal Design submittal, the Respondent(s) shall submit to the Ohio EPA the Final Design which is 100% complete in accordance with the approved schedule described in the RD/RA Workplan. The Final Design submittal shall include all the components of the Prefinal Design and each of those components shall be complete. At the discretion

of the Site Coordinator, any marked-up prints or drawings, which the Ohio EPA may have provided by way of comments on previous design submittals shall be returned to the Ohio EPA, if they have not already been returned.

The Respondent(s) shall make corrections or changes based on Ohio EPA comments on the Final Design submittals. The revised Final Design shall then be submitted in their entirety to the Ohio EPA for approval as the completed Final Design. Upon approval of the Site Coordinator, final corrections may be made by submitting corrected pages to the Final Design design documents. The quality of the Final Design submittal should be such that the Respondent(s) would be able to include them in a bid package and invite contractors to submit bids for the construction project.

3.3.3 Estimated Cost of the Remedial Action

The Respondent(s) shall refine the cost estimate developed in the Feasibility Study to reflect the detailed plans and specifications being developed for the RA. The cost estimate shall include both capital and operation and maintenance costs for the entire project. To the degree possible, cost estimates for operation and maintenance of any treatment system shall be based on the entire anticipated duration of the system's operation. The final estimate shall be based on the final approved plans and specifications. It shall include any changes required by the Ohio EPA during Final Design review, and reflect current prices for labor, material and equipment.

The refined cost estimate shall be submitted by the Respondent(s) with the Prefinal Design and the final cost estimate shall be included with the Final Design submittal.

3.3.4 Remedial Action Implementation Plan

The Respondent(s) shall develop a Remedial Action Implementation Plan (RAIP) to help coordinate implementation of the various components of the RA. It shall include a schedule for the RA that identifies timing for initiation and completion of all critical path tasks. The Respondent(s) shall specifically identify dates for completion of the project and major interim milestones in conformance with the approved RD/RA Workplan schedule. The Remedial Action Implementation Plan is a management tool which should address the following topics:

1) Activities necessary to fully implement each of the components of the RA;
2) How these activities will be coordinated to facilitate construction/ implementation in accordance with the approved schedule;
3) Potential major scheduling problems or delays, which may impact overall schedule;
4) Lines of communication for discussing and resolving problems, should they arise;

5) Common and/or anticipated remedies to overcome potential problems and delays.

The Remedial Action Implementation Plan shall be submitted with the Prefinal Design for review and comment by the Ohio EPA. The final plan and RA project schedule shall be submitted with the Final Design for review and approval.

3.3.5 Community Relations Support

A community relations program will be implemented by the Ohio EPA. The Respondent(s) shall cooperate with the Ohio EPA in community relations efforts. Cooperation may include participation in preparation of all appropriate information disseminated to the public, and in public meetings that may be held or sponsored by the Ohio EPA concerning the Site.

3.4 TASK IV: REMEDIAL ACTION CONSTRUCTION

Following approval of the Final Design submittal by the Ohio EPA, the Respondent(s) shall implement the designed remedial action(s) at the Site in accordance with the plans, specifications, Construction Quality Assurance Plan, Performance Standard Verification Plan, Health and Safety Plan, Remedial Action Implementation Plan, Quality Assurance Project Plan, and Field Sampling Plan approved with the final design. Implementation shall include the activities described in the following sections.

3.4.1 Preconstruction Inspection and Conference

The Respondent(s) shall participate in a preconstruction inspection and conference with the Ohio EPA to accomplish the following:

- Review methods for documenting and reporting inspection data;
- Review methods for distributing and storing documents and reports;
- Review work area security and safety protocol;
- Discuss any appropriate modifications to the Construction Quality Assurance Plan to ensure that site specific considerations are addressed. The final CQAP shall be submitted to the Ohio EPA at this time, if it has not already been submitted;
- Introduce key construction contractor, engineering and project management personnel and review roles during construction activities;
- Conduct a site walk-around to verify that the design criteria, plans, and specifications are understood and to review material and equipment storage locations.

The Respondent(s) shall schedule the preconstruction inspection and conference to be held within 10 days of the award of the construction contract. The preconstruction inspection and conference shall be documented by a designated person and minutes shall be transmitted to all parties by the Respondent(s) to all parties in attendance.

3.4.2 Design Changes During Construction

During construction, unforeseen site conditions, changes in estimated quantities of required construction materials and other problems associated with the project are likely to develop. Such changing conditions may require either major or minor changes to the approved final design. Certain design changes will require approval of the Ohio EPA prior to implementation to ensure that the intent and scope of the remedial action is maintained. Changes, which could alter the intent or scope of the RA, may require a revision to the Decision Document and a public comment period. Changes to the remedial design which require Ohio EPA written approval prior to implementation include:

- Those that involve the deletion or addition of a major component of the approved remedy (e.g. changing one treatment system for another; deleting any designed layer of a multi-layer cap);

- Those that result in a less effective treatment for wastes associated with the site;

- Any changes that may result in an increase of the exposure to chemicals of concern and/or risk to human health or the environment as compared to the goals for the completed remedial action as stated in the Orders and this SOW;

- Those that result in a significant delay in the completion of the RA;

- Any other changes that alter or are outside of the scope or intent of the approved remedial design.

Ohio EPA shall be notified of other changes made during construction through daily inspection reports and monthly progress reports.

3.4.3 Remedial Action Construction Completion and Acceptance

As the construction of the remedial action nears completion, the following activities and reporting shall be completed by the Respondent(s) to ensure proper project completion, approval, closeout and transition to the operation and maintenance/ monitoring phase.

3.4.3.1 Prefinal Construction Conference

Within seven days of making a preliminary determination that construction is complete, the Respondent(s) shall provide written notification to the Ohio EPA and a prefinal construction conference shall be held with the construction contractor(s) to discuss procedures and requirements for project completion and closeout. The Respondent(s) shall have responsibility for making arrangements for the conference. Participants should include the Project Manager for the Respondent(s), the Site Coordinator for the Ohio EPA, all contractors involved with construction of the remedial action(s) and the remedial design agent (person(s) designed the remedy), if requested.

A list of suggested items to be covered at the conference includes, but is not limited to the following:

- Final Operation and Maintenance (O&M) Plan submission, if it has not been submitted already;
- Cleanup responsibilities;
- Demobilization activities;
- Security requirements for project transfer;
- Prefinal inspection schedule;
- Operator training.

The prefinal conference shall be documented by a designated person and minutes shall be transmitted to all parties in attendance by the Respondent(s).

3.4.3.2 Prefinal Inspection

Following the prefinal construction conference, a prefinal inspection of the project will be conducted. The prefinal inspection will be led by the Ohio EPA with assistance from the party with primary responsibility for construction inspection, if requested.

The prefinal inspection will consist of a walk-through inspection of the entire site. The completed site work will be inspected to determine whether the project is complete and consistent with the contract documents and the approved RD/RA Work Plan. Any outstanding deficient or incomplete construction items should be identified and noted during the inspection.

When the RA includes construction of a treatment system, the facility start-up and "shakedown" shall have been completed as part of the RA. "Shakedown" is considered to be the initial operational period following start-up during which adjustments are made to ensure that the performance standards for the system are reliably being achieved. The contractor shall

have certified that the equipment has performed to meet the purpose and intent of the contract specifications. Retesting shall have been successfully completed where deficiencies were revealed. Such shakedown may take several months. Determination of remedy effectiveness for other types of remedial actions will be based on the Performance Standard Verification Plan (PSVP).

If construction of major components of a remedial action is performed in distinct phases or under separate contracts due to the complex scope of the site remedy, it may be appropriate to conduct the prefinal inspections of those components separately. The approved RAIP should identify those projects and components, which should be handled in that manner.

Upon completion of the prefinal inspection, an inspection report shall be prepared by the Respondent(s) and submitted to Ohio EPA with the minutes from the prefinal conference. A copy of the report will be provided to all parties in attendance at the inspection. The report will outline the outstanding construction items, actions required to resolve those items, completion date for those items and a date for the final inspection. Ohio EPA will review the inspection report and notify the Respondent(s) of any disagreements with it.

3.4.3.3 Final Inspection

Within seven days following completion of any outstanding construction items, the Respondent(s) shall provide written notification to the Ohio EPA and schedule a final inspection. A final inspection will be conducted by the Ohio EPA with assistance from the party having primary responsibility for construction inspection, if requested.

The final inspection will consist of a walk-through inspection of the project site focusing on the outstanding construction items identified during the prefinal inspection. The Prefinal Inspection Report shall be used as a checklist. The contractor's demobilization activities shall have been completed, except for equipment and materials required to complete the outstanding construction items. If any items remain deficient or incomplete, the inspection shall be considered a prefinal inspection requiring another prefinal inspection report and final inspection.

As with the prefinal inspection, it may be appropriate to conduct final inspections of major components of a remedial action separately. Such projects and components should be identified in the approved Remedial Action Implementation Plan.

3.4.3.4 Construction Completion Report and Certification

Upon satisfactory completion of the final inspection, a Construction Completion Report shall be prepared by the Respondent(s) and submitted to the Ohio EPA within 30 days after the final inspection. The report shall include the following elements:

1) A brief description of the outstanding construction items from the prefinal inspection and an indication that the items were satisfactorily resolved;

2) A synopsis of the work defined in the approved RD/RA Work Plan and the Final Design and certification that this work was performed;

3) An explanation of any changes to the work defined in the approved RD/RA Work Plan and Final Design, including as-built drawings of the constructed RA facilities, and why the changes were necessary or beneficial for the project;

4) Certification that the constructed RA or component of the RA is operational and functional.

The construction completion report will be reviewed by the Ohio EPA. If Ohio EPA's review indicates that corrections or amendments to the report are necessary, comments will be provided to the Respondent(s). The Respondent(s) shall submit a revised construction completion report based on Ohio EPA comments to the Ohio EPA within 30 days of receipt of those comments. Upon determination by the Ohio EPA that the report is acceptable, written notice of Ohio EPA's approval of the construction completion report will be provided to the Respondent(s).

3.4.4 Community Relations Support

The Respondent(s) shall provide support for Ohio EPA's community relations program during remedial action implementation as described in Section 3.3.5.

3.5 TASK V: FIVE-YEAR REVIEWS

At sites where contaminants will remain at levels that will not permit unrestricted use of the site, a review will be conducted no less frequently than once every five years to ensure that the remedy continues to be protective of human health and the environment. This is known as the "five-year review". The Respondent(s) shall complete Five-Year Review Reports no less often than every five years after the initiation of the remedial action or until contaminant levels allow for unrestricted use of the site. Further guidance for performing five-year review work tasks may be found in the U.S. EPA OSWER Directive 9355.7-02,

Structure and Components of Five-Year Reviews.

The more specific purpose of the reviews is two-fold: (1) to confirm that the remedial action as specified in the Decision Document and as implemented continues to be effective in protecting human health and the environment (e.g., the remedy is operating and functioning as designed, institutional controls are in place and are protective); and (2) to evaluate whether original cleanup levels remain protective of human health and the environment. A further objective is to evaluate the scope of operation and maintenance, the frequency of repairs, changes in monitoring indicators, costs at the site, and how each of these relates to protectiveness.

Fifteen months prior to the due date for completion of a five-year review, the Respondent(s) shall meet with Ohio EPA to discuss the requirements of the five-year review. The review must be completed within five years following the initiation of the remedial action. The scope and level of review will depend on conditions at the site. The scoping effort should include a determination by the Site Coordinator and Respondent(s) as to whether available monitoring data and other documentation will be sufficient to perform the five-year review or whether a field sampling effort will be a necessary component of the review. Within three months of the meeting, the Respondent(s) shall develop and submit a workplan to Ohio EPA that shall describe, at a minimum, the following activities and documentation:

1. Document Review
    a. Background Information
        1. Decision Document
        2. Decision Document Summary
        3. Administrative or Judicial Order for RD/RA
        4. Completion of Remedial Action Report
    b. Design Review
    c. Maintenance and Monitoring
        1. O&M Manual
        2. O&M Reports
        3. Groundwater Monitoring Plan
        4. Monitoring Data and Information
2. Standards Review
    a. Specific performance standards required by Decision Document
    b. Changing Standards
        1. Laws and Regulations applicable to conditions and activities at the site
    c. Risk Assessment
        1. As summarized in the Decision Document
        2. Review for changes in exposure pathways not previously evaluated

3. Interviews
   a. Background Information
      1. Previous Staff Management
      2. Nearest Neighbors, Respondent(s)
   b. Local Considerations
      1. State Contacts
      2. Local Government Contacts
   c. Operational Problems
      1. Plant Superintendent
      2. O&M Contractors

4. Site Inspection/Technology Review
   a. Performance and Compliance
      1. Visual Inspection
   b. Offsite Considerations
   c. Recommendations

5. Report
   a. Background
      1. Introduction
      2. Remedial Objectives
      3. Review of Applicable Laws and Regulations
   b. Site Conditions
      1. Summary of Site Visit
      2. Areas of Noncompliance
   c. Risk Assessment
   d. Recommendations
      1. Technology Recommendations
      2. Statement on Protectiveness
      3. Timing and Scope of Next Review
      4. Implementation Requirements

If sampling and analysis of environmental samples is required under the five-year review, the Respondent(s) are required to prepare and submit with the workplan other supporting plans. Supporting plans may include a Quality Assurance Project Plan, Field Sampling Plan and Health and Safety Plan. The purpose and content of these supporting plans are discussed in Section 4 of this SOW. The Five-Year Review Workplan must be reviewed and approved by the Ohio EPA prior to initiation of field activities or proceeding with the five-year review.

The Five-Year Review Report will be reviewed by the Ohio EPA. If Ohio EPA's review indicates that corrections or amendments to the report are necessary, comments will be provided to the Respondent(s). The Respondent(s) shall submit a revised Five-Year Review Report based on Ohio EPA comments to the Ohio EPA within 30 days of receipt of those comments.

3.6 TASK VI: OPERATION AND MAINTENANCE/PERFORMANCE MONITORING

The Respondent(s) shall implement performance monitoring and operation and maintenance procedures as required by the approved Performance Standard Verification Plan and approved Operation and Monitoring (O&M) Plan for the RA once it is demonstrated that the RA components are operational and functional.

3.6.1 Reporting During Operation and Maintenance

3.6.1.1 Operation and Maintenance Sampling and Analysis Data

Unless otherwise specified in the approved O&M Plan, sampling, analysis, and system performance data for any treatment system or other engineering systems required to be monitored during the O&M Phase shall be submitted by the Respondent(s) to the Ohio EPA on a monthly basis. These monthly submittals will form the basis for the annual progress report described below in Section 3.6.1.2

3.6.1.2 Progress Reports During Operation and Maintenance

The Respondent(s) shall prepare and submit annual progress reports during the operation and maintenance/performance monitoring phase of the RA. When appropriate, the RD/RA Work Plan shall specify progress reports during O&M to be submitted more frequently.

The O&M progress reports shall contain the same information as required for the monthly progress reports for the RD and RA construction phases, as specified in Section 3.6.1 of this SOW. It shall also include an evaluation of the effectiveness of any treatment and engineering systems in meeting the cleanup standards, performance standards and other goals of the RA as defined in the Orders, this SOW, the RD/RA Work Plan and the approved Final Design.

3.6.2 Completion of Remedial Action Report

At the completion of the remedial action, the Respondent(s) shall submit a Completion of Remedial Action Report to the Ohio EPA. The RA shall be considered complete when the all of the goals, performance standards and cleanup standards for the RA as stated in the Decision Document, this SOW, and the approved Final Design (including changes approved during construction) have been met. The report shall document that the project is consistent with the design specifications, and that the RA was performed to meet or exceed all required goals, cleanup standards and performance standards. The report shall include, but not be limited to the following elements:

1) Synopsis of the remedial action and certification of the design and construction;
2) Listing of the cleanup and performance standards as established in the Decision Document and the Orders, any amendments to those standards with an explanation for adopting the amendments;
3) Summary and explanation of any changes to the approved plans and specifications. An explanation of why the changes were necessary should be included and, where necessary, Ohio EPA approval of the changes should be documented;
4) Summary of operation of treatment systems including monitoring data, indicating that the remedial action met or exceeded the performance standards or cleanup criteria;
5) Explanation of any monitoring and maintenance activities to be undertaken at the site in the future as outlined in Section 3.0 of this RD/RA SOW.

3.7 TASK VII: REPORTING REQUIREMENTS

The Respondent(s) shall prepare and submit work plans, design plans, specifications, and reports as set forth in Tasks I through V of this SOW to document the design, construction, operation, maintenance, and performance monitoring of the remedial action. Monthly progress reports shall be prepared, as described below, to enable the Ohio EPA to track project progress.

3.7.1 Monthly Progress Reports during RD and RA Construction

The Respondent(s) shall at a minimum provide the Ohio EPA with monthly progress reports during the design and construction phases of the remedial action containing the information listed below. When appropriate, the RD/RA Work Plan shall specify progress reports to be submitted more frequently.

1) A description of the work performed during the reporting period and estimate of the percentage of the RD/RA completed
2) Summaries of all findings and sampling during the reporting period
3) Summaries of all changes made in the RD/RA during the reporting period, indicating consultation with Ohio EPA and approval by the Ohio EPA of those changes, when necessary
4) Summaries of all contacts with representatives of the local community, public interest groups or government agencies during the reporting period
5) Summaries of all problems or potential problems encountered during the reporting period, including those which delay or threaten to delay completion of project milestones with respect to the approved work plan schedule or RAIP schedule
6) Summaries of actions taken and being taken to rectify problems
7) Summaries of actions taken to achieve and maintain cleanup standards and performance standards

8) Changes in personnel during the reporting period
9) Projected work for the next reporting period
10) Copies of daily reports, inspection reports, sampling data, laboratory/ monitoring data, etc.

3.7.2 Summary of Reports and Submittals

A summary of the information reporting requirements contained in this RD/RA SOW is presented below:

- **Draft RD/RA Work Plan**
  Health and Safety Plan (HSP)
  Regulatory Compliance Plan
- **Final RD/RA Work Plan**
  HSP
  Regulatory Compliance Plan
- **Draft Pre-Design Studies Plan**
  Quality Assurance Project Plan (QAPP)
  Field Sampling Plan (FSP)
- **Final Pre-Design Studies Plan**
  QAPP
  FSP
- **Pre-Design Studies Reports** - Draft
- **Preliminary Design Documents**
- **Pre-Design Studies Reports** - Final
- **Intermediate Design Documents**
  Draft Construction Quality Assurance Plan (CQAP)
  Draft Performance Standard Verification Plan (PSVP)
  Draft O & M Plan
  Health and Safety Plan
- **Prefinal Design Documents**
  CQAP
  PSVP
  O & M Plan
  Draft Remedial Action Implementation Plan (RAIP)
  Health and Safety Plan
- **Final Design Documents**
  CQAP
  PSVP
  O & M Plan
  Draft RAIP
  Health and Safety Plan
- **Preconstruction Inspection and Conference Report**
- **Monthly Progress Reports During RD/RA**
- **Notification of Preliminary Completion of Construction**

- **Final O & M Plan**
- **Prefinal Inspection Report**
- **Notification for Final Inspection**
- **Construction Completion Report**
- **O & M Sampling Data**
- **Progress Reports during O&M/Performance Monitoring period**
- **Completion of Remedial Action Report**
- **Five-Year Review Workplan**
- **Five-Year Review Report**

4.0 CONTENT OF SUPPORTING PLANS

The documents listed in this section shall be prepared and submitted as outlined in Section 3.0 of this SOW to support the activities necessary to design and fully implement the RA. These supporting documents include a Quality Assurance Project Plan (QAPP), a Field Sampling Plan (FSP), a Health and Safety Plan (HSP), a Construction Quality Assurance Plan (CQAP) and a Performance Standard Verification Plan (PSVP). The following sections describe the required contents of each of these supporting documents.

4.1 QUALITY ASSURANCE PROJECT PLAN

The Respondent(s) shall prepare a site-specific Quality Assurance Project Plan (QAPP) to cover sample analysis and data handling based on guidance provided by the Ohio EPA. Refer to the list of Ohio EPA and U.S. EPA guidance documents in Appendix B attached to the Orders.

A QAPP shall be developed for any sampling and analysis activities to be conducted as predesign studies and submitted with the Pre-Design Studies Plan for Ohio EPA review and approval.

During the remedial design phase the Respondent(s) shall review all remedial design information and modify or amend the QAPP developed for the Pre-Design Studies Plan, as necessary, to address the sampling and analysis activities to be conducted during implementation of the Remedial Action, including activities covered by the PSVP and O&M Plan. An amended QAPP shall be submitted with the Intermediate Design documents for review and comment by Ohio EPA. A final Quality Assurance Project Plan, which incorporates comments made by the Ohio EPA, shall be submitted for approval with the Final Design documents. Upon agreement of the Site Coordinator, the Respondent(s) may submit only the amended portions of the QAPP developed for the PDSP with the Intermediate, Pre-Final and Final Design documents.
The Respondent(s) shall schedule and attend a pre-QAPP meeting with representatives of Ohio EPA to discuss the scope and format of the QAPP. For sites where the Site Coordinator and Project Manager agree that a pre-QAPP meeting is not needed, this meeting may be omitted. The QAPP shall, at a minimum, include:

1. Data Collection Strategy - The strategy section of the QAPP shall include but not be limited to the following:
    a. Description of the types and intended uses for the data, relevance to remediation or restoration goals, and the necessary level of precision, accuracy, and statistical validity for these intended uses;
    b. Description of methods and procedures to be used to assess the precision, accuracy and completeness of the measurement data;
    c. Description of the rationale used to assure that the data accurately and precisely represent a characteristic of a population, variation of physical or chemical parameters throughout the Site, a process condition or an environmental condition. Factors which shall be considered and discussed include, but are not limited to:
        i) Environmental conditions at the time of sampling;
        ii) Sampling design (including number, location and distribution);
        iii) Representativeness of selected media, exposure pathways, or receptors; and
        iv) Representativeness of selected analytical parameters.
        v) Representativeness of testing procedures and conditions; and
        vi) Independence of background or baseline from site influences.
    d. Description of the measures to be taken to assure that the following data sets can be compared quantitatively or qualitatively to each other:
        i) RD/RA data collected by the Respondent over some time period;
        ii) RD/RA data generated by an outside laboratory or consultant employed by the Respondent versus data collected by the Respondent, and;
        iii) Data generated by separate consultants or laboratories over some time period not necessarily related to the RD/RA effort.
        iv) Data generated by Ohio EPA or by an outside laboratory or consultant employed by Ohio EPA;
    e. Details relating to the schedule and information to be provided in quality assurance reports. These reports should include but not be limited to:
        i) Periodic assessment of measurement data accuracy, precision and completeness;
        ii) Results of performance audits;
        iii) Results of system audits;
        iv) Significant quality assurance problems and recommended solutions; and
        v) Resolutions of previously stated problems.

2. Sample Analysis - The Sample Analysis section of the Quality Assurance Project Plan shall specify the following:
    a. Chain-of-custody procedures, including:

i) Identification of a responsible party to act as sample custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment and verify the data entered onto the sample custody records;
ii) Provision for a laboratory sample custody log consisting of serially numbered lab-tracking report sheets; and
iii) Specification of laboratory sample custody procedures for sample handling, storage and dispersement for analysis.

b. Sample storage procedures and storage times;
c. Sample preparation methods;
d. Analytical procedures, including:
i) Scope and application of the procedure;
ii) Sample matrix;
iii) Potential interferences;
iv) Precision and accuracy of the methodology;
v) Method detection limits;
vi) Special analytical services required to ensure contract required detection limits do not exceed known toxicity criteria; and
vii) Verification and reporting of tentatively identified compounds.
e. Calibration procedures and frequency;
f. Data reduction, validation and reporting;
g. Internal quality control checks, laboratory performance and systems audits and frequency, including:
i) Method blank(s);
ii) Laboratory control sample(s);
iii) Calibration check sample(s);
iv) Replicate sample(s);
v) Matrix-spiked sample(s);
vi) "Blind" quality control sample(s);
vii) Control charts;
viii) Surrogate samples;
ix) Zero and span gases; and
x) Reagent quality control checks.
h. Preventative maintenance procedures and schedules;
i. Corrective action (for laboratory problems); and
j. Turnaround time.

3. Modeling - The Modeling section of the Quality Assurance Project Plan shall apply to all models used to predict or describe fate, transport or transformation of contaminants in the environment and shall discuss:
a. Model assumptions and operating conditions;
b. Input parameters; and
c. Verification and calibration procedures.
4. In Situ or Laboratory Toxicity Tests - The Toxicity Test section of the Quality Assurance Project Plan shall apply to all tests or bioassays used to predict or

describe impacts of contaminants on a population, community, or ecosystem level.

5. Data Record - The QAPP shall also provide the format to be used to present the raw data and the conclusions of the investigation, as described in a, b, and c below:

a. The data record shall include the following:
   i) Unique sample or field measurement code;
   ii) Sampling or field measurement location and sample or measurement type;
   iii) Sampling or field measurement raw data;
   iv) Laboratory analysis ID number;
   v) Property or component measured; and
   vi) Result of analysis (e.g., concentration).

b. Tabular Displays - The following data shall be presented in tabular displays:
   i) Unsorted (raw) data;
   ii) Results for each medium, organism, or for each constituent measured;
   iii) Data reduction for statistical analysis;
   iv) Sorting of data by potential stratification factors (e.g., location, soil layer, topography, vegetation form);
   v) Summary data (i.e., mean, standard deviation, min/max values, and sample number); and
   vi) Comparisons with background or reference data.

c. Graphical Displays - The following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):
   i) Display sampling locations and sampling grid;
   ii) Indicate boundaries of sampling area, and areas where more data are required;
   iii) Display levels of contamination at each sampling location or location from which organism was taken;
   iv) Display geographical extent of contamination;
   v) Display contamination levels, averages and maxima;
   vi) Illustrate changes in concentration in relation to distance from the source, time, depth or other parameters;
   vii) Indicate features affecting intramedia transport and show potential receptors;
   viii) Compare nature and extent of contamination with results of ecological or biological sampling or measurements; and
   ix) Display comparisons with background or reference analyses or measurements.

4.2 FIELD SAMPLING PLAN

1. Sampling - The Sampling section of the Field Sampling Plan shall discuss:
   a. Sufficient preliminary sampling to ensure the proper planning of items b. through o. below;
   b. Selecting appropriate sampling locations, depths, vegetation strata, organism age, etc. and documenting relevance of sample for intended biological toxicity tests or analyses;
   c. Providing a sufficient number of samples to meet statistical or other data useability objectives;
   d. Measuring all necessary ancillary data such as ambient conditions, baseline monitoring, etc.;
   e. Determining environmental conditions under which sampling should be conducted;
   f. Determining which media, pathways, or receptors are to be sampled (e.g., ground water, air, soil, sediment, biota, etc.);
   g. Determining which parameters are to be measured and where;
   h. Selecting the frequency and length of sampling period;
   i. Selecting the sample design (e.g., composites, grabs, random, repeated, etc.);
   j. Selecting the number, location, media or organisms for determining background conditions or reference conditions (refer to Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual (Part A), Interim Final, EPA/540/1-89/002, December 1989);
   k. Measures to be taken to prevent contamination of the sampling equipment and cross contamination between sampling points;
   l. Documenting field sampling operations and procedures, including;
      i) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters and adsorbing reagents);
      ii) Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;
      iii) Documentation of specific sample preservation method;
      iv) Calibration of field devices;
      v) Collection of replicate and field duplicate samples;
      vi) Submission of field-biased and equipment blanks, where appropriate;
      vii) Potential interferences present at the site or facility;
      viii) Construction materials and techniques associated with monitoring wells and piezometers;
      ix) Field equipment listing and sample containers;
      x) Sampling order; and
      xi) Decontamination procedures.
   m. Selecting appropriate sample containers;

n. Sample preservation; and
o. Chain-of-custody, including:
    i) Standardized field tracking reporting forms to establish sample custody in the field prior to and during shipment;
    ii) Sample sealing, storing and shipping procedures to protect the integrity of the sample; and,
    iii) Pre-prepared sample labels containing all information necessary for effective sample tracking.

2. Field Measurements - The Field Measurements section of the Field Sampling Plan shall discuss:
    a. Selecting appropriate field measurement locations, depths, organism age etc.;
    b. Providing a sufficient number of field measurements that meet statistical or data useability objectives;
    c. Measuring all necessary ancillary data such as ambient or baseline environmental conditions;
    d. Determining conditions under which field measurement should be conducted;
    e. Determining which media, pathways, or receptors are to be addressed by appropriate field measurements (e.g., ground water, air, soil, sediment, biota, etc.);
    f. Determining which physical, chemical, or biological parameters are to be measured and where;
    g. Selecting the frequency and duration of field measurement; and
    h. Documenting field measurement operations and procedures, including:
        i) Procedures and forms for recording raw data and the exact location, time and Site specific considerations associated with the data acquisition;
        ii) Calibration of field devices;
        iii) Collection of replicate measurements;
        iv) Submission of field-biased blanks, where appropriate;
        v) Potential interferences present at the Site;
        vi) Construction materials and techniques associated with monitoring wells and piezometers used to collect field data;
        vii) Field equipment listing;
        viii) Order in which field measurements were made; and
        ix) Decontamination procedures; and
        i) Selecting the number, location, media, and organisms for determining background or reference conditions.

4.3 SITE HEALTH AND SAFETY PLAN

The Respondent(s) shall submit a Health and Safety Plan (HSP) to the Ohio EPA with the RD/RA Work Plan for any on-site activities taking place during the design phase. The Respondent(s) shall review the remedial design information and modify the HSP developed for the RD/RA Work Plan, as necessary, to address the activities to be conducted on the site during implementation of the Remedial Action. It shall be designed to protect on-site personnel and area residents from physical, chemical and other hazards posed by the construction, operation and maintenance activities of the Remedial Action.

The Respondent(s) shall prepare a site HSP which is designed to protect on-site personnel and area residents from physical, chemical and all other hazards posed by RD/RA activities. The HSP shall address the following topics:

1. Major elements of the Health and Safety Plan shall include:
   a. Facility or site description including availability of resources such as roads, water supply, electricity and telephone service;
   b. Description of the known hazards and an evaluation of the risks associated with the incident and with each activity conducted;
   c. Listing of key personnel (including the site safety and health officer) and alternates responsible for site safety, response operations, and for protection of public health;
   d. Delineation of work area, including a map;
   e. Description of levels of protection to be worn by personnel in the work area;
   f. Description of the medical monitoring program for on-site responders;
   g. Description of standard operating procedures established to assure the proper use and maintenance of personal protective equipment;
   h. The establishment of procedures to control site access;
   i. Description of decontamination procedures for personnel and equipment;
   j. Establishment of site emergency procedures;
   k. Availability of emergency medical care for injuries and toxicological problems;
   l. Description of requirements for an environmental monitoring program. (This should include a description of the frequency and type of air and personnel monitoring, environmental sampling techniques and a description of the calibration and maintenance of the instrumentation used.);
   m. Specification of any routine and special training required for responders; and
   n. Establishment of procedures for protecting workers from weather related problems.

2. The Health and Safety Plan shall be consistent with:
   a. NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985);
   b. CERCLA Sections 104(f) and 111(c)(6)
   c. EPA Order 1440.3 -- Respiratory Protection;
   d. EPA Order 1440.2 -- Health and Safety Requirements for Employees Engaged in Field Activities;
   e. EPA Occupational Health and Safety Manual;
   f. EPA Interim Standard Operating Safety Procedures and other EPA guidance as developed by EPA;
   g. OSHA regulations particularly in 29 CFR 1910 and 1926;
   h. State and local regulations; and
   i. Site or facility conditions.

4.4 CONSTRUCTION QUALITY ASSURANCE PLAN

The Respondent(s) shall develop a Construction Quality Assurance Plan (CQAP) based on the plans and specifications and performance standards for the RA. The CQAP is a site specific document that shall specify procedures to ensure that the completed remedial action work meets or exceeds all design criteria and specifications. A draft CQAP shall be submitted with the Intermediate Design submittal for review and comment by the Ohio EPA. Subsequent drafts shall be submitted with the Prefinal and Final Design submittals that incorporate comments made by the Ohio EPA. Certain aspects of the CQAP, for example personnel names and qualifications, may not be known at the time of design approval. A complete and final CQAP shall be submitted to Ohio EPA for approval prior to the start of construction. At a minimum, the CQAP shall address the elements listed below.

4.4.1 Responsibility and Authority

The responsibility and authority of all organizations (i.e. technical consultants, construction firms, etc.) and key personnel involved in the construction of the remedial action(s) shall be described fully in the CQAP. The Respondent(s) shall provide a copy of the approved CQAP to each organization with responsibility and authority for implementing the CQAP. The Respondent(s) shall also identify a CQA officer and the necessary supporting inspection staff.

4.4.2 Construction Quality Assurance Personnel Qualifications

The qualifications of the Construction Quality Assurance officer and supporting inspection personnel shall be presented in the CQAP to demonstrate that they possess the training and experience necessary to fulfill their identified responsibilities.

4.4.3 Inspection Activities

The observations and tests that will be used to monitor the construction and/or installation of the components of the remedial action shall be described in the CQAP. The plan shall include scope and frequency of each type of inspection. Inspections shall verify compliance with the design, applicable requirements of state and federal law and performance standards. Inspections shall also ensure compliance with all health and safety standards and procedures. The CQAP shall include provisions for conducting the preconstruction, prefinal and final inspections and associated meetings as described in Section 5.4 of this SOW.

4.4.4 Sampling Requirements

The sampling activities necessary to ensure that the design specifications and performance standards are achieved shall be presented in the CQAP. The description of these activities shall include sample sizes, sample locations, frequency of sampling, testing to be performed, acceptance and rejection criteria, and plans for correcting problems as addressed in the design specifications.

4.4.5 Documentation

Reporting requirements for CQA activities shall be described in detail in the CQAP. This shall include such items as daily summary reports, meeting reports, inspection data sheets, problem identification and corrective measures reports, design acceptance reports and final documentation. Provisions for the storage of all records shall be presented in the CQAP.

4.5 PERFORMANCE STANDARD VERIFICATION PLAN

A Performance Standard Verification Plan (PSVP) shall be prepared to consolidate information for required testing, sampling and analyses to ensure that both short-term and longterm performance standards for the RA are met. Performance standards may include clean-up standards for contaminated environmental media as well as the measurement of the effectiveness of engineering controls or other controls used to control migration of or exposure to contaminants. For example, the containment of a plume of contaminated ground water by pumping wells would be a performance standard requiring verification. The PSVP should describe the measurements to be taken, such as water levels in monitoring wells and piezometers, along with any analyses to be conducted on the data obtained, such as ground water modeling, to verify that the plume is contained. The PSVP shall include a FSP and a QAPP for any sampling and analyses to be conducted.

The Draft PSVP shall be submitted with the Intermediate Design for review and comment by the Ohio EPA. The final PSVP, which fully addresses comments made by the Ohio EPA must be submitted with and approved as part of the Final Design.

4.6 OPERATION AND MAINTENANCE PLAN

The Respondent(s) shall prepare an Operation and Maintenance Plan (O&M Plan) to cover long term operation and maintenance of the RA. Operation and maintenance for all components of the remedial action, shall begin after it is demonstrated that those components are operational and functional. The plan, at a minimum, shall be composed of the elements listed below.

1. Normal Operation and Maintenance
   a. Description of tasks for operation
   b. Description of tasks for maintenance
   c. Description of prescribed treatment or operating conditions
   d. Schedules showing the frequency of each O&M task

2. Potential Operating Problems
   a. Description and analysis of potential operating problems
   b. Sources of information regarding potential operating problems
   c. Description of means of detecting problems in the operating systems
   d. Common remedies for operating problems

3. Routine Monitoring and Laboratory Testing
   a. Description of monitoring tasks
   b. Description of required laboratory tests and interpretation of test results
   c. Required QA/QC procedures to be followed
   d. Schedule of monitoring frequency and provisions to discontinue, if appropriate

   Note: Information on monitoring and testing that is presented in the PSVP should be referenced, as appropriate, but should not be duplicated in the O&M Plan.

4. Alternative O&M
   a. Description of alternate procedures to prevent undue hazard, should systems fail
   b. Analysis of the vulnerability and additional resources requirements should a failure occur

5. Safety Plan
   a. Description of safety procedures, necessary equipment, etc. for site personnel
   b. Description of safety tasks required in the event of systems failure (may be linked to the Site Safety Plan developed for the RD/RA)

6. Equipment
   a. Description of equipment necessary to the O&M Plan
   b. Description of installation of monitoring components
   c. Description of maintenance of site equipment
   d. Replacement schedule for equipment and installed components

7. Annual O&M Budget
   a. Costs for personnel
   b. Costs for preventative and corrective maintenance
   c. Costs of equipment and supplies, etc.
   d. Costs of any contractual obligations (e.g., lab expenses)
   e. Costs of operation (e.g., energy, other utilities, etc.)

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
   f. Monthly/semi-annual reports to Ohio EPA

The Respondent(s) shall submit a draft O&M Plan to the Ohio EPA for review and comment with the Intermediate Design submittal. Subsequent drafts of the O&M Plan shall be submitted with the Prefinal and Final Design submittals, which reflect the refined plans and specifications of those submittals and any comments made by the Ohio EPA. The final O&M Plan shall be submitted by the Respondent(s) prior to or at the completion of construction of the remedial action and shall incorporate any modifications or corrections required by the Ohio EPA.

ATTACHMENT C

LIST OF GUIDANCE DOCUMENTS AND REFERENCES FOR USE WITH OHIO EPA DERR REMEDIAL RESPONSE PROGRAM REMEDIAL DESIGN/REMEDIAL ACTION STATEMENT OF WORK AND ORDERS

Statement of Purpose and Use of This Guidance Document List:

The purpose of this list of Ohio EPA and U.S. EPA policies, directives and guidance documents is to provide a reference of the primary documents which provide direction and guidance for designing and implementing selected remedial actions at Remedial Response sites. *The listed documents incorporate by reference any documents listed therein.* Certain sites may have contaminants or conditions which are not fully addressed by the documents in this list. There is an evolving body of policy directives, guidance and research documentation which should be used, as needed, to address circumstances not encompassed by the documents in this list. For sites where activities are conducted in response to an administrative or judicial order, this list will be an attachment to the order and will govern the work conducted. When entering into or issuing an order for any site, Ohio EPA reserves the right to modify this list to fully address the site conditions.

Analytical Methods

Compendium of Methods for Determination of Toxic Organic Compounds in Ambient Air, second edition, Compendium Method TO-14, EPA/625/R-96/010b, U.S. EPA, January 1999.

SW 846, Test Methods for Evaluating Solid Waste, 3rd Edition and updates (online), originally dated November 1986.

Standard Methods for the Examination of Water and Waste Water, American Public Health Association, 18th Edition 1992, and recent editions (online).

U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, U.S. EPA, EPA-540/R-94-013, February 1994.

U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, U.S. EPA, EPA-540/R-94-012, February 1994.

ARARs

Applicable or Relevant and Appropriate Requirements (ARARS), U.S. EPA (online).

ARARs Table, Ohio EPA DERR, Remedial Response Program.

CERCLA Compliance with Other Laws Manual - Part I and Part 2, OSWER Directive 9234.1-01, EPA/540/G-89/006, August 1988, interim final.

Ohio EPA Rules (online).

Use of Applicable or Relevant and Appropriate Requirements (ARARs) in the Ohio EPA Remedial Response Program, Ohio EPA DERR, September 2003.

Attainment of Cleanup Goals

Methods for Evaluating the Attainment of Cleanup Standards, Volume 1: Soils and Solid Media, U.S. EPA, February 1989. EPA 230/02-89-042.

Methods for Evaluating the Attainment of Cleanup Standards, Volume 2: Ground Water, U.S. EPA, July 1992. EPA 230-R-92-014.

Methods for Evaluating the Attainment of Cleanup Standards, Volume 3: Reference-Based Standards for Soils and Solid Media, U.S. EPA, December 1992. EPA 230-R-94-004.

Background Guidance

Background Calculation Methodology, Ohio EPA DERR Remedial Response Program, June 2004.

Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites, U.S. EPA, EPA 540-R-01-003 OSWER 9285.7-41, September 2002.

Methodology for Evaluating Site-specific Background Concentrations of Chemicals Ohio EPA DERR, Remedial Response Program, April 2004.

Role of Background in the CERCLA Cleanup Program, OSWER 9285.6-07P, April 2002.

Data Quality Objectives

Data Quality Evaluation Statistical Toolbox (DataQUEST) Users Guide, U.S. EPA ORD, EPA/600/R-96/085 (EPA QA/G-9D), December 1997.

Data Quality Objectives Decision Error Feasibility Trials Software (DEFT) – Users Guide, U.S. EPA, EPA QA/G-4D, EPA/240/B-01/007, September 2001.

Data Quality Objectives Process for Hazardous Waste Site Investigations, U.S. EPA, EPA/600/R-00/007 (EPA QA/G-4HW), January 2000.

Data Quality Objectives Process for Superfund, Interim Final Guidance, OSWER Directive 9355.9-01, EPA540-R-93-071, September 1993.

Data Quality Objectives Process Summary, DERR-00-DI-32 Ohio EPA DERR Remedial Response Program, January 2002.

Guidance for Data Quality Assessment: Practical Methods for Data Analysis, U.S. EPA ORD, EPA/600/R-96/084 (EPA QA/G-9), January 1998.

Guidance on Systematic Planning Using the Data Quality Objectives Process, U.S. EPA, EPA QA/G-4, February 2006. EPA/240/B-06/001.

Health and Safety Plan

American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices, ISBN: 1-882417-46-1, 2002.

NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, October 1985, DHHS (NIOSH) Publication No. 85-115.

NIOSH Pocket Guide to Chemical Hazards (DHHS-NIOSH Publication No. 2005-149, November 2005)

OSHA Regulations particularly in 29 CFR 1910 and 1926

OSHA Regulation 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response;

OSHA Regulation 29 CFR 1910.134, Respiratory Protection Standard;

U.S. EPA Standard Operating Safety Guides (Publication 9285.1-03, PB92-963414, June 1992 (chapters 1-3, 4-7, 8-11)

Section 111(c)(6) of CERCLA

Landfills

Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites, OSWER Directive 9355.3-11, EPA/540/P-91/001, February 1991.

Presumptive Remedy for CERCLA Municipal Landfill Sites, U.S. EPA, EPA 540-F-93-035, September 1993.

Presumptive Remedies: CERCLA Landfill Caps RI/FS Data Collection Guide, U.S. EPA, EPA/540/F-95/009, August 1995.

Seminar Publication - Requirements for Hazardous Waste Landfill Design, Construction, and Closure, U.S. EPA, EPA/625/4-89/022, August 1989 (# 625489022).

Technical Guidance Document: Final Covers on Hazardous Waste Landfills and Surface Impoundments, U.S. EPA, EPA/530-SW-89-047, July 1989 (# 530SW89047).

Superfund Accelerated Cleanup Bulletins: Presumptive Remedies for Municipal Landfill Sites, U.S. EPA Publication 9203.1-02I:
1.) April 1992, Vol. 1, No. 1; 2.) February 1993, Vol. 2, No. 1; and, 3.) August 1992, Vol. 1, No. 3

Land Use and Reuse

Land Use in the CERCLA Remedy Selection Process, U.S. EPA, OSWER 9355.7-04, May 25, 1995.

Reuse Assessments: A Tool To Implement The Superfund Land Use Directive, U.S. EPA, OSWER 9355.7-06P, June 4, 2001.

Lead

Integrated Exposure Uptake Biokinetic Model for Lead in Children, Windows® version (IEUBKwin v1.0 build 263) (December, 2005).

Superfund Lead-Contaminated Residential Sites Handbook, U.S. EPA, OSWER 9285.7-50, August 2003.

Monitored Natural Attenuation

Calculation and Use of First-Order Rate Constants for Monitored Natural Attenuation Studies, U.S. EPA, EPA/540/S-02/500, November 2002

Natural Attenuation for Groundwater Remediation, Committee on Intrinsic Remediation, National Academy of Sciences, 2000.

Performance Monitoring of MNA Remedies for VOCs in Ground Water, U.S. EPA, EPA/600/R-04/027, April 2004.

Remediation Using Monitored Natural Attenuation, Ohio EPA DERR Remedial Response Program, January 2001.

Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents In Ground Water, U.S. EPA, EPA/600/R-98/128, September 1998.

Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites, U.S. EPA, OSWER Directive 9200.4-17P, April 1999

Oversight

Interim Guidance on implementing the Superfund Administration Reform on PRP Oversight, U.S. EPA, OSWER Directive 9200.0-32P, May 2000.

Using RCRA's Results-Based Approaches and Tailored Oversight Guidance" when Performing Superfund PRP Oversight, U.S. EPA December 2006, OSWER, EPA 530-R-03-012, September 2003.

Presumptive Remedies

Presumptive Remedies: Site Characterization and Technology Selection for CERCLA Sites with Volatile Organic Compounds in Soil, U.S. EPA, OSWER 9355.4-048FS, September 1993.

Presumptive Remedy: Supplemental Bulletin Multi- Phase Extraction (MPE) Technology for VOCs in Soil and Groundwater, U.S. EPA, OSWER 9355.0-68F8, April 1997.

Presumptive Response Strategy and Ex-Situ Treatment Technologies for Contaminated Ground Water at CERCLA Sites, U.S. EPA, EPA 540/R-96/023, OSWER 9283.1-12, October, 1996, final guidance.

User's Guide to the VOCs in Soils Presumptive Remedy, U.S. EPA, OSWER 9355.0-63FS; EPA 540/F-96/008; PB 96-963308, July, 1996.

Quality Assurance

Data Quality Assessment: A Reviewer's Guide, (QA/G-9R), U.S. EPA, EPA/240/B-06/002, February, 2006.

Guidance for Preparing Standard Operating Procedures, U.S. EPA, EPA QA/G-6, EPA/240/B-01/004, March 2001.

Guidance for Quality Assurance Plans for Modeling, U.S. EPA, EPA QA/G-5M, EPA/240-R02/007, December, 2002.

Guidance for Quality Assurance Project Plans, U.S. EPA, QA-G-5, EPA/240/R-02-009, December 2002.

Guidance on Environmental Data Verification and Data Validation, U.S. EPA, EPA/240/R-02/004, November 2002.

Guidelines and Specifications for Preparing Quality Assurance Project Plans, Ohio EPA, DERR-00-RR-008, September 1998.

Laboratory and Field Data Screening for Preparing Quality Assurance Project Plans, Ohio EPA DERR. DI-00-034, August 2005.

Preparation Aids for the Development of Category 1 Quality Assurance Project Plans, U.S. EPA, EPA/600-8-91-003, February 1991 (#600891003).

Quality Assurance/Quality Control Guidance for Removal Activities: Sampling QA/QC Plan and Data Validation Procedures, Interim Final, U.S. EPA, EPA/540/G-90/004, April 1990 (# 540G90004).

Technical Guidance Document: Construction Quality Assurance and Quality Control for Waste Containment Facilities, U.S. EPA, EPA/600/R-93/182, September 1993 (# 600R93182).

RD/RA – General Guidance

A Compendium of Technologies Used in the Treatment of Hazardous Wastes, U.S. EPA, EPA/625/8-87/014, September 1987 (# 625887014).

Assessment of Technologies for the Remediation of Radioactively Contaminated Superfund Sites, U.S. EPA, EPA/540/2-90/001, January 1990 (# 540290001).

Closure Criteria Focus Group Report, ITRC Work Group In Situ Bioremediation - Technologies Task Team, March 1998.

Contaminated Sediment Remediation Guidance for Hazardous Waste Sites, OSWER, EPA-540-R-05-012, December 2005.

Cost & Performance Reporting for In-Situ Bioremediation Technologies, ITRC In Situ Bioremediation Technical Task Team, Final, December 1997.

Design Guidance for Application of Permeable Barriers to Remediate Dissolved Chlorinated Solvents, ITRC Permeable Reactive Barriers Work Group, Second Edition, December 1999.

General Protocol for Demonstration of In Situ Bioremediation Technologies, ITRC Workgroup – In Situ Bioremediation Work Team, September 1998.

Guidance on Remedial Actions for Superfund Sites with PCB Contamination, OSWER Directive 9355.4-01, EPA/540/G-90/007, August 1990.

Guide for Decontaminating Buildings, Structures, and Equipment at Superfund Sites, U.S. EPA, EPA/600/2-85/028, March 1985 (Author: M.P. Esposito et al., hard copy/microfish available through NTIS/PB85-201234)

Guidance for Evaluating the Technical Impracticability of Ground Water Restoration, OSWER Directive 9234.2-25.

Guidance for Remedial Actions for Contaminated Ground Water at Superfund Sites, OSWER Directive 9283.1-2, EPA/540/G-88/003, December 1988.

Handbook - Dust Control at Hazardous Waste Sites, U.S. EPA, EPA/540/2-85/003, November 1985 (# 540285003).

Handbook for Stabilization/Solidification of Hazardous Wastes, U.S. EPA, EPA/540/2-86/001, June 1986 (# 540286001.

Handbook - Guidance on Setting Permit Conditions and Reporting Trial Burn Results - Volume II of the Hazardous Waste Incineration Guidance Series, U.S. EPA, EPA/625/6-89/019, January 1989 (# 625689019).

Handbook - Hazardous Waste Incineration Measurement Guidance Manual - Volume III of the Hazardous Waste Incineration Guidance Series, U.S. EPA, EPA/625/6-89/021, June 1989 (# 625689021).

Handbook on In Situ Treatment of Hazardous Waste-Contaminated Soils, U.S. EPA, EPA/540/2-90/002, January 1990, (hard copy/microfish available through NTIS PB90-155607/XAB).

Handbook - Quality Assurance/Quality Control (QA/QC) Procedures for Hazardous Waste Incineration, U.S. EPA, EPA/625/6-89/023, January 1990 (# 625689023).

Institutional Controls Bibliography, U.S. EPA OSWER 9355.0-110, December 2005.

Procedures for Evaluation of Response Action Alternatives and Remedy Selection for Remedial Response Program Sites, Ohio EPA Policy No. DERR-00-RR-019, Final, October 23, 1992 (September 14, 1999, Revised).

Pump-and-Treat Ground-Water Remediation: A Guide for Decision Makers and Practitioners, U.S. EPA ORD, EPA/625/R-95/005, July, 1996.

Regulatory Guidance for Permeable Barriers Designed to Remediate Chlorinated Solvents, Interstate Technology Regulatory Council (ITRC) Permeable Reactive Barriers Work Group, December 1999 (second edition).

Regulatory Guidance for Permeable Barriers to Remediate Inorganics and radionuclides, Interstate Technology Regulatory Council (ITRC) Permeable Reactive Barriers Work Group, September 1999.

Remedial Design/Remedial Action Handbook, OSWER 9355.0-04B, EPA 540/R-95/059, June 1995.

Remedial Design/Remedial Action Statement of Work, Ohio EPA DERR, August 30, 2004.

Stabilization/Solidification of CERCLA and RCRA Wastes - Physical Tests, Chemical Testing Procedures, Technology Screening and Field Activities, U.S. EPA, EPA/625/6-89/022, May 1989 (# 625689022).

Technical and Regulatory Guidelines for Soil Washing, Interstate Technology Regulatory Council (ITRC) Metals in Soils Work Team – Soil Washing Project, Final, December 1997.

Technical Requirements for On-site Low Temperature Thermal Treatment of Non-Hazardous Soils Contaminated with Petroleum/Coal Tar/ Gas

Plant Wastes, Interstate Technology Regulatory Council (ITRC) Low Temperature Thermal Desorption Work Team, Final, May 1996.

Technical Requirements for On-Site Thermal Desorption of Solid Media Contaminated with Hazardous Chlorinated Solvents Interstate Technology Regulatory Council (ITRC) Low Temperature Thermal Desorption Work Team, Final, September 1997.

Technical Requirements for On-Site Thermal Desorption of Solid Media Contaminated and Low Level Mixed Waste Contaminated with Mercury and/or Hazardous Chlorinated Organics, Interstate Technology Regulatory Council (ITRC) Low Temperature Thermal Desorption Work Team, Final, September 1998.

Wastewater Discharges Resulting from Clean-Up of Response Action Sites Contaminated with Volatile Organic Compounds, Ohio EPA Policy No. DSW-DERR 0100.027, Final, September 22, 1994.

Sampling and Analysis

A Rationale for the Assessment of Errors in the Sampling of Soils, U.S. EPA – Environmental Monitoring Systems Laboratory, EPA/600/4-90/013, July 1990.

Compendium of ERT Soil Sampling and Surface Geophysics Procedures, U.S. EPA, OSWER 9360.4-02, January 1991.

Groundwater Sampling and Monitoring with Direct Push Technologies, U.S. EPA OSWER, EPA 540/R-04/005, August 2005.

Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers, U.S. EPA, EPA 542-S-02-001, May 2002.

Multi-State Evaluation of Expedited Site Characterization Technology, Site Characterization and Analysis Penetrometer System-Induced Fluorescence (SCAPS-LIF), Interstate Technology Regulatory Council (ITRC) Cone Penetrometer Task Group Report, Final, May 1996.

Multi-State Evaluation of Expedited Site Characterization Technology, Site Characterization and Analysis Penetrometer System-Volatile Organic Compounds (SCAPS-VOC) Sensing Technologies, Interstate Technology Regulatory Council (ITRC) Accelerated Site Characterization Work Team, Final, December 1997.

ProUCL Version 3.0 Users Guide, U.S. EPA, EPA 600-R04-079, April 2004.

Requirements for the Preparation of Sampling and Analysis Plans, U.S. ACE, EM 200-1-3, February, 2001.

Superfund Ground Water Issue: Ground Water Sampling for Metals, U.S. EPA, EPA/540/4-89/001, March 1989 (# 540489001).

Treatability Studies

Guide for Conducting Treatability Studies Under CERCLA, U.S. EPA OSWER/ORD, EPA/540/R-92/071a, Final, October 1992.

Guide for Conducting Treatability Studies Under CERCLA: Soil Vapor Extraction, U.S. EPA – Office of Emergency and Remedial Response, EPA/540/2-91/019A, (#540291019A), Interim, September 1991.

Guide for Conducting Treatability Studies Under CERCLA: Aerobic Biodegradation Remedy Screening, U.S. EPA Office of Research and Development, EPA/540/2-91/013A, Interim, July 1991.

Guidance on Specific Types of Treatability Studies, U.S. EPA (online).

Vapor Intrusion

Methodology for Vapor Intrusion Assessment, Technical Decision Compendium, Ohio EPA DERR Remedial Response Program, April 2005.

Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance), U.S. EPA, EPA530-F-02-052, November 2002.

Vapor Intrusion Pathway: A Practical Guideline, Technical and Regulatory Guidance, Interstate Technology Regulatory Council (ITRC) – Vapor Intrusion Team, January 2007.

Vapor Intrusion Pathway: Investigative Approaches for Typical Scenarios, Technical and Regulatory Guidance Supplement, Interstate Technology Regulatory Council (ITRC) – Vapor Intrusion Team, January 2007.

Wetland (and Stream) Delineation and Restoration

Addendum to Biological Criteria for the Protection of Aquatic Life: Volume II. Users Manual for Biological Field Assessment of Ohio Surface Waters. Ohio EPA, Division of Surface Water, 1989.

Amphibian Index of Biotic Integrity (AmphIBI) for Ohio Wetlands, Ohio EPA, Wetland Ecology Group, Division of Surface Water, Final, Volume 7, 2004.

Biological Criteria for the Protection of Aquatic Life: Volume I. The Role of Biological Data in Water Quality Assessment. Ohio EPA, Division of Surface Water, 1987.

Biological Criteria for the Protection of Aquatic Life: Volume II. Users Manual for Biological Field Assessment of Ohio Surface Waters. Ohio EPA, Division of Surface Water, 1987.

Biological Criteria for the Protection of Aquatic Life: Volume III. Standardized Biological Field Assessment of Ohio Surface Waters. Ohio EPA, Division of Surface Water, 1989.

Integrated Wetland Assessment Program. Part 5: Biogeochemical and Hydrological Investigations of Natural and Mitigation Wetlands. Ohio EPA Technical Report WET/2004-5. Ohio Environmental Protection Agency, Wetland Ecology Group, Division of Surface Water, Fennessy, M. Siobhan, John J. Mack, Abby Rokosch, Martin Knapp, and Mick Micacchion. 2004. Columbus, Ohio.

Integrated Wetland Assessment Program. Part 7: Amphibian Index of Biotic Integrity (AmphIBI) for Ohio Wetlands. Ohio EPA Technical Report WET/2004-7. Ohio Environmental Protection Agency, Wetland Ecology Group, Division of Surface Water, Micacchion, Mick. 2004. Columbus, Ohio.

Integrated Wetland Assessment Program. Part 4: Vegetation Index of Biotic Integrity (VIBI) and Tiered Aquatic Life Uses (TALUs) for Ohio Wetlands. Ohio EPA Technical Report WET/2004-4. Ohio Environmental Protection Agency, Wetland Ecology Group, Division of Surface Water, Mack, John J. 2004. Columbus, Ohio.

Natural Attenuation of Chlorinated Solvent Ground-Water Plumes Discharging into Wetlands, U.S. Department of Interior (U.S. Geological Survey), Scientific Inventory Report 2004-5220, 2004.

Standardized Monitoring Protocols, Data Analysis and Reporting Requirements for Mitigation Wetlands in Ohio, v. 1.0. Ohio EPA Technical Report WET/2004-6. Ohio Environmental Protection Agency, Division of Surface Water, Wetland Ecology Group, Mack, John J, M. Siobhan Fennessy, Mick Micacchion and Deni Porej. 2004. Columbus, Ohio.

Integrated Wetland Assessment Program. Part 9: Field Manual for the Vegetation Index of Biotic Integrity for Wetlands. Ohio EPA Technical Report W ET/2004-9. Ohio Environmental Protection Agency, Wetland Ecology Group, Division of Surface Water, Mack, John J. 2004. Columbus, Ohio.

National Guidance Water Quality Standards for Wetlands, U.S. EPA, July 1990.

The Qualitative Habitat Evaluation Index (QHEI): Rationale, Methods, and Application. Ohio EPA, Division of Surface Water, Rankin, E.T., 1990.

Treatment Wetlands, Robert H. Kadlec and Robert L. Knight, Lewis Publishers, 1996.

U.S. EPA Guiding Principles for Constructed Treatment Wetlands: Providing for Water Quality and Wildlife Habitat, U.S. EPA, EPA 843-B-00-003, October 2000.

U.S. EPA Constructed Wetlands for Wastewater Treatment and Wildlife Habitat, U.S. EPA, EPA 832-R-93-005, September 1993.

Wetlands Delineation Manual, U.S. Army Corps of Engineers, 1987.

Wetland Restoration, Fact Sheet (4502T) , U.S. EPA, EPA/843-F-01-022e, U.S. EPA, September 2001.

Disclaimer: Please note that web links are not maintained.

April 24, 2007 edition

ATTACHMENT D

ENVIRONMENTAL COVENANT

This Environmental Covenant is entered into by Dallas Properties, Inc. ("Owner"), having offices at 3560 West Market St., Suite 300, Akron, Ohio; and the Ohio Environmental Protection Agency ("Ohio EPA") pursuant to Ohio Revised Code ("ORC") §§ 5301.80 to 5301.92 for the purpose of subjecting the Property (as defined below) to the activity and use limitations set forth herein.

WHEREAS, Owner currently owns the Property (as defined in Section 2 below) and leases it to Hancock Manufacturing Company, Inc. ("Hancock") who historically conducted business operations thereon;

WHEREAS, Dallas and Hancock are signatories to Director's Final Findings and Orders For Remedial Design and Remedial Action, entered in the Director's journal on _____ ("Orders") with respect to the Property; and

WHEREAS, the implementation of appropriate limitations that restrict land use on the Property is necessary and proper to protect human health and the environment;

NOW THEREFORE, Owner and Ohio EPA agree to the following:

1. Environmental Covenant. This instrument is an environmental covenant developed and executed pursuant to ORC §§ 5301.80 to 5301.92.

2. Property. This Environmental Covenant concerns an industrial facility located at 709 North 5th Street, Toronto, Jefferson County, Ohio consisting of approximately 6.3 acres as more particularly described in Exhibit A (the "Property").

3. Owner. Owner is the fee simple owner of the Property.

4. Activity and Use Limitations. To facilitate completion of the Work required by the Orders and to protect human health and the environment:

A. The Property shall not be used for Residential Activities, but may be used for any other activities that are not "Residential Activities" including Industrial Activities. The term "Residential Activities" shall include, but not be limited to, the following:

i. Single and multi-family dwelling and rental units;
ii. Day care centers and preschools;
iii. Hotels and motels;
iv. Educational (except as a part of industrial activities within the Property) and religious facilities;
v. Restaurants and other food and beverage services (except as a part of industrial activities within the Property);
vi. Entertainment and recreational facilities;

vii. Hospitals and other extended care medical facilities; and
viii. Transient or other residential facilities.

The term "Industrial Activities" shall include manufacturing, formulating, repackaging or refining operations, processing operations, and office and warehouse use, including but not limited to production, storage, and sales of durable goods and other non-food products, and parking/driveway use.

B. No person shall extract or use the groundwater located at or underlying the Property or any portion thereof for any purpose, potable or otherwise, except for groundwater investigation or remediation.

C. If any activity by the holder of an encumbrance constitutes a violation of these use and activity restrictions, Owner or Transferee (as hereinafter defined) shall notify Ohio EPA within thirty (30) days of becoming aware of the event, and shall remedy the breach of the covenant within sixty (60) days of becoming aware of the event, or such other time frame as may be agreed to by the Owner or Transferee and Ohio EPA.

5. Running with the Land. This Environmental Covenant shall be binding upon the Owner and all assigns and successors in interest, including any Transferee (as defined below), and shall run with the land, pursuant to ORC § 5301.85, subject to amendment or termination as set forth herein. The term "Transferee," as used in this Environmental Covenant, shall mean any future owner of any interest in the Property or any portion thereof, including, but not limited to, owners of an interest in fee simple, mortgagees, easement holders, and/or lessees.

6. Compliance Enforcement. Compliance with this Environmental Covenant may be enforced pursuant to ORC § 5301.91 or other applicable law. Failure to timely enforce compliance with this Environmental Covenant or the activity and use limitations herein by any party shall not bar subsequent enforcement by such party and shall not be deemed a waiver of the party's right to take any action to enforce non-compliance. Nothing in this Environmental Covenant shall restrict the Director of Ohio EPA from exercising any authority under applicable law.

7. Rights of Access. Owner hereby grants to Ohio EPA, its agents, contractors, and employees the right of access to the Property for implementation or enforcement of this Environmental Covenant.

8. Compliance Reporting. Owner or any Transferee shall submit to Ohio EPA on an annual basis written documentation verifying that the activity and use limitations remain in place and are being complied with.

9. Recordation of Environmental Covenant. Within thirty (30) days after the date of the final required signature upon this covenant, Owner shall record, in the office of the Jefferson County Recorder, this Environmental Covenant in the same manner as a deed to the property,

pursuant to ORC § 5301.88. Owner shall certify to Ohio EPA that the Environmental Covenant has been filed for recording, and include with the certification a file and date-stamped copy of the Environmental Covenant.

10. Notice upon Conveyance. Each instrument hereafter conveying any interest in the Property or any portion of the Property shall contain a notice of the activity and use limitations set forth in this Environmental Covenant, and provide the recorded location of this Environmental Covenant. The notice shall be substantially in the following form:

> THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL COVENANT, DATED _____, 20__, RECORDED IN THE DEED OR OFFICIAL RECORDS OF THE JEFERSON COUNTY RECORDER ON _____ 20___, IN [DOCUMENT ____, or BOOK ____, PAGE ____,]. THE ENVIRONMENTAL COVENANT CONTAINS THE FOLLOWING ACTIVITY AND USE LIMITATIONS:
>
> A. THE PROPERTY SHALL NOT BE USED FOR RESIDENTIAL ACTIVITIES, BUT MAY BE USED FOR ANY OTHER ACTIVITIES THAT ARE NOT "RESIDENTIAL ACTIVITIES" EXPRESSLY INCLUDING INDUSTRIAL ACTIVITIES. THE TERM "RESIDENTIAL ACTIVITIES" SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:
>
> I. SINGLE AND MULTI-FAMILY DWELLING AND RENTAL UNITS;
> II. DAY CARE CENTERS AND PRESCHOOLS;
> III. HOTELS AND MOTELS;
> IV. EDUCATIONAL (EXCEPT AS A PART OF INDUSTRIAL ACTIVITIES WITHIN THE PROPERTY) AND RELIGIOUS FACILITIES;
> V. RESTAURANTS AND OTHER FOOD AND BEVERAGE SERVICES (EXCEPT AS A PART OF INDUSTRIAL ACTIVITIES WITHIN THE PROPERTY);
> VI. ENTERTAINMENT AND RECREATIONAL FACILITIES;
> VII. HOSPITALS AND OTHER EXTENDED CARE MEDICAL FACILITIES; AND
> VIII. TRANSIENT OR OTHER RESIDENTIAL FACILITIES.
>
> THE TERM "INDUSTRIAL ACTIVITIES" SHALL INCLUDE MANUFACTURING, FORMULATING, REPACKAGING OR REFINING OPERATIONS, PROCESSING OPERATIONS, AND OFFICE AND WAREHOUSE USE, INCLUDING BUT NOT LIMITED TO PRODUCTION, STORAGE, AND SALES OF DURABLE GOODS AND OTHER NON-FOOD PRODUCTS, AND PARKING/DRIVEWAY USE.
>
> B. NO PERSON SHALL EXTRACT OR USE THE GROUNDWATER LOCATED AT

OR UNDERLYING THE PROPERTY OR ANY PORTION THEREOF FOR ANY PURPOSE, POTABLE OR OTHERWISE, EXCEPT FOR GROUNDWATER INVESTIGATION OR REMEDIATION.

C. IF ANY ACTIVITY BY THE HOLDER OF AN ENCUMBRANCE CONSTITUTES A VIOLATION OF THESE USE AND ACTIVITY RESTRICTIONS, OWNER OR TRANSFEREE SHALL NOTIFY OHIO EPA WITHIN THIRTY (30) DAYS OF BECOMING AWARE OF THE EVENT, AND SHALL REMEDY THE BREACH OF THE COVENANT WITHIN SIXTY (60) DAYS OF BECOMING AWARE OF THE EVENT, OR SUCH OTHER TIME FRAME AS MAY BE AGREED TO BY THE OWNER OR TRANSFEREE AND OHIO EPA.

Owner or Transferee shall notify Ohio EPA within ten (10) days after each conveyance of an interest in any portion of the Property. Owner's notice shall include the name, address, and telephone number of the Transferee, a copy of the deed or other documentation evidencing the conveyance, a legal description of the Property being transferred, a survey map of the Property being transferred; and the closing date of the transfer of ownership of the Property.

11. Representations and Warranties. Owner hereby represents and warrants to the other signatories hereto:

A. that the Owner is the sole owner of the Property;

B. that the Owner holds fee simple title to the Property which is subject to the encumbrances listed and described in Exhibit B hereto;

C. that the Owner has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided and to carry out all obligations hereunder;

D. that the Owner has identified all other parties, identified in Exhibit C, that hold any interest in the Property and has notified such parties of the Owner's intention to enter into this Environmental Covenant; and

E. that this Environmental Covenant will not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which Owner is a party of by which Owner may be bound or affected.

12. Amendment or Termination. This Environmental Covenant may be amended or terminated only by consent of all entities that hold any recorded ownership interest in the Property and Ohio EPA, pursuant to ORC § 5301.90 and other applicable law. Amendment means any changes to the Environmental Covenant, including the activity and use limitations set forth herein, or the elimination of one or more activity and use limitations when there is at least one limitation remaining. Termination means the

elimination of all activity and use limitations set forth herein and all other obligations under this Environmental Covenant.

This Environmental Covenant may be amended or terminated only by a written instrument duly executed by the Director of Ohio EPA and all entities that hold any recorded ownership interest in the Property or portion thereof, as applicable. Within thirty (30) days of signature by all requisite parties on any amendment or termination of this Environmental Covenant, Owner or Transferee shall file such instrument for recording with the Jefferson County Recorder's Office, and shall provide a true copy of the recorded instrument to Ohio EPA.

13. Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

14. Governing Law. This Environmental Covenant shall be governed by and interpreted in accordance with the laws of the State of Ohio.

15. Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded as a deed record for the Property with the Jefferson County Recorder.

16. Distribution of Environmental Covenant. The Owner shall distribute copies of the recorded Environmental Covenant to: Ohio EPA, any lessee, each person who signed the Environmental Covenant, each person holding a recorded ownership interest in the Property, each unit of local government in which the real property is located, and any other person designated by Ohio EPA.

17. Notice. Any document or communication required by this Environmental Covenant to be submitted to Ohio EPA shall be submitted to:

Ohio Environmental Protection Agency
Southeast District Office
2195 Front Street
Logan, OH 43138
Attn: Michael Sherron or his successor

And any notice to Owner shall be sent to:

Allen A. Kacenjar, Esq.
Squire, Sanders & Dempsey L.L.P.
4900 Key Tower
Cleveland, OH 44114

The undersigned representatives of Owner certify that they are authorized to execute this Environmental Covenant.

IT IS SO AGREED:

Dallas Properties, Inc.

_____
Signature of Owner and Holder

_____ _____
Printed Name and Title Date

State of _____)
) ss:
County of _____)

Before me, a notary public, in and for said county and state, personally appeared _____, a duly authorized representative of _____, who acknowledged to me that [*he/she*] did execute the foregoing instrument on behalf of _____.

IN TESTIMONY WHEREOF, I have subscribed my name and affixed my official seal this ____ day of _____, 200__.

_____
Notary Public

OHIO ENVIRONMENTAL PROTECTION AGENCY

_____
Chris Korleski, Director

State of Ohio)
) ss:
County of Franklin)

Before me, a notary public, in and for said county and state, personally appeared _____, the Director of Ohio EPA, who acknowledged to me that he did execute the foregoing instrument on behalf of Ohio EPA.

IN TESTIMONY WHEREOF, I have subscribed my name and affixed my official seal this

____ day of _____, 200__.

_____
Notary Public

This instrument prepared by:

Allen A. Kacenjar, Esq.
Squire, Sanders and Dempsey L.L.P.
127 Public Square, Suite 4900
Cleveland, OH 44114

ATTACHMENT E

ESCROW AGREEMENT TEMPLATE

This Escrow Agreement template provides the wording for sites that are the subject of an administrative order or consent order under Ohio EPA's Remedial Response Program. The orders call for Respondent to provide financial assurance for the cost of performing the long-term operation and maintenance and monitoring of the site's remedy.

The following brackets are to be replaced with the relevant information, the brackets deleted, and the empty blank lines filled in. Drafting notes appear as italicized print; directions for insertion appear in italicized, bold print within bold brackets; and word choices appear as regular, bold print within bold brackets.

OHIO ENVIRONMENTAL PROTECTION AGENCY

ESCROW AGREEMENT

This Escrow Agreement (hereinafter, the "Escrow Agreement") is entered into as of **[*insert date*]**, by and between **[*Respondent name*] [*if appropriate, insert: ("acronym for Respondent")*]**, a **[*state of incorporation, if applicable*]** Corporation (hereinafter, the "Grantor"); **[*name of escrow agent*]** (hereinafter, the "Escrow Agent"); and the Director of Ohio Environmental Protection Agency, or his designee, ("Ohio EPA" or "Agency") (the "Beneficiary"). This Escrow Agreement is being entered to provide financial assurance in accordance with **[*cite the legal agreement*** (hereinafter, the **["Orders"]**) dated **[*insert date*]**, and specifically for costs associated with **[*long-term operation and maintenance and monitoring costs OR other, as applicable]*** associated with the **[*name of the Site*]** (Site).

Whereas, the Beneficiary, as a component of the necessary financial assurance required by the **[Orders]** entered by and between **[*Respondent*]**, and Ohio EPA on **[*date*]**, requires that **[Respondent]** provide, through a financial mechanism acceptable to Ohio EPA, funding to assure the effectiveness and integrity of the **[*long-term operation and maintenance and monitoring costs OR other, as applicable*]**; and

Whereas, the Grantor has elected to establish an escrow fund ("Escrow" or "Fund") to provide financial assurance for the **[*long-term operation and maintenance and monitoring costs OR other, as applicable*]**; and

Whereas, the Grantor, acting through its duly authorized officers, has proposed an escrow agent under this Escrow Agreement; and

Whereas, Ohio EPA approves the escrow agent as proposed by the Grantor; and

(A) **[*ESCROW AGENT NAME*]**
ATTN: **[*insert contact name*]**
[*ADDRESS*]
[*CITY, STATE ZIP CODE*]
Telephone No.: **[*TELEPHONE NO.*]**
FAX No.: **[*FAX NO.*]**

(B) For Ohio EPA, sent to:

(1) For escrow review and/or financial issues:

Attn: Staff Economist
Fiscal Section - Economic Analysis Unit
Division of Emergency and Remedial Response
Ohio Environmental Protection Agency
Lazarus Government Center
P.O. Box 1049
122 South Front Street
Columbus, Ohio 43216-1049

(C) **[Respondent]**
ATTN: **[*insert contact*]**
[*ADDRESS*]
[*CITY, STATE ZIP CODE*]
Telephone No.: **[*TELEPHONE NO.*]**
Fax No.: **[*FAX NO.*]**

The Site name and a reference to the **[*Orders*]** shall be included on the notice.

IV. ESTABLISHMENT OF FUND

The Grantor and the Escrow Agent hereby establish the Fund for the use and benefit of the Ohio EPA with the intent to assure the effectiveness and integrity of the **[*long-term operation and maintenance and monitoring costs OR other, as applicable*]** as described in the **[*Orders*]**. The Fund is established initially as consisting of the cash and securities (hereinafter referred to as "Escrow Assets"), as described in attached Exhibit A, all of which are acceptable to the Escrow Agent. Such Escrow Assets or any other assets subsequently transferred to the Escrow Agent are collectively referred to as the "Fund," together with all earnings and profits thereon, less any payments or distributions made by the Escrow Agent pursuant to this Escrow Agreement. The Fund will be held by the Escrow Agent, as hereinafter provided. The Escrow Agent undertakes no responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments required to be made by the Grantor to the

(A) Securities or other obligations of the Grantor or any other owner or operator of the Facility, or any of their affiliates as defined in the Investment Companies and Advisors Act of 1940, as amended, 15 U.S.C. Section 80a-2(a), shall not be acquired or held on behalf of the Fund unless they are securities or other obligations of the United States of America or the State of Ohio;

(B) The Escrow Agent is authorized to invest the Fund in time or demand deposits of the Escrow Agent or any other financial institution to the extent such Escrow Assets are insured by an agency of the United States Government and to the extent such time and demand deposits shall mature not later than one (1) year from the date of the investment;

(C) The Escrow Agent is authorized to hold cash while awaiting investment or distribution uninvestment for a reasonable time and without liability for the payment of interest thereon.

VIII. COMMINGLING AND INVESTMENTS

The Escrow Agent is expressly authorized in **[its *OR* his *OR* her]** discretion and in accordance with the investment policies and guidelines transmitted to the Escrow Agent pursuant to this Escrow Agreement to transfer from time to time any or all of the assets of the Fund to any common, commingled or collective fund created by the Escrow Agent in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other escrows participating therein so long as such management does not conflict with the requirements of this Fund. To the extent of the equitable share of the Fund in any such commingled fund, such commingled funds will be part of the Fund.

IX. EXPRESS POWERS OF ESCROW AGENT

Without in any way limiting the powers and discretions conferred upon the Escrow Agent by the other provisions of this Escrow Agreement by law, the Escrow Agent is expressly authorized and empowered:

(A) To make, execute, acknowledge and deliver any and all documents of transfers and conveyances and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(B) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentally thereof, with a Federal Reserve Bank, but

XII. ADVICE OF COUNSEL

The Escrow Agent may from time to time consult with counsel, who may be counsel to the Beneficiary, with respect to any question arising as to the construction of this Escrow Agreement or any action to be taken hereunder. The Escrow Agent shall be fully protected, to the extent permitted by law, in acting upon the advice of **[its *OR* his *OR* her]** own counsel.

XIII. ESCROW AGENT COMPENSATION

The Escrow Agent will be entitled to reasonable compensation for **[its *OR* his *OR* her]** services as agreed upon in writing from time to time with the Grantor. Payment shall be made directly by the Grantor and not from the Fund.

XIV. SUCCESSOR ESCROW AGENT

Upon ninety (90) days written notice to the Escrow Agent from the Beneficiary or the Grantor, the Escrow Agent may be replaced. The Escrow Agent may resign after the giving of ninety (90) days written notice to the Grantor and the Beneficiary. In either event, upon written concurrence of the Beneficiary, the Grantor will appoint a successor Escrow Agent who will have the same powers and duties as those conferred upon the Escrow Agent hereunder. Upon acceptance of the appointment by the successor Escrow Agent by Ohio EPA, the successor Escrow Agent and the Grantor will sign a new Escrow Agreement with identical terms to this Escrow Agreement and forward it to Ohio EPA for signature. Upon Ohio EPA signature, the Escrow Agent will assign, transfer and pay over to the successor Escrow Agent, the funds then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Escrow Agent, the Escrow Agent may apply to a court of competent jurisdiction for the appointment of a successor Escrow Agent or for instructions. The successor Escrow Agent shall specify the date on which it assumes administration of the Fund in writing sent to the Beneficiary, the Grantor, and the present Escrow Agent by certified mail ten (10) days before such change becomes effective. Any expenses incurred by the Escrow Agent as a result of any of the acts contemplated by this Section will be paid as provided in Section X (Taxes and Expenses).

XV. INSTRUCTIONS TO THE ESCROW AGENT

All orders, requests, and instructions by Beneficiary to the Escrow Agent will be in writing, signed by the Beneficiary's authorized representative (in accordance with Ohio EPA delegation authority). The Escrow Agent shall act and, in so acting, will be fully protected if acting in accordance with such orders, requests, and instructions. The Escrow Agent will have no duty to act in the absence of such orders, requests, and instructions from the Beneficiary, except as provided for herein.

this Escrow Agreement will not affect the interpretation or the legal efficacy of this Escrow Agreement.

FOR [*insert the name of the Escrow Agent*], THE ESCROW AGENT

_____. _____

Signature of Escrow Agent Date

_____.

Name of Escrow Agent

_____.

Title of Escrow Agent

Certificate of Acknowledgement by Escrow Agent

State of)

ss:

County of)

Before me on this date, being duly sworn, appeared the [above-named individual] who acknowledged that they signed the foregoing instrument and that the signing was their free act. In testimony whereof, I have subscribed by name and affixed my seal this ____day of _____, 200____.

_____. *[Seal]*

Signature of notary public

Notary Public, State of _____.

.

My commission expires on_____.

.

EXHIBIT A

Escrow Assets

The Escrow Fund is established initially as consisting of the following:

[Describe the nature and amount(s) of the Escrow Assets.]

By their signatures below, the parties agree that this Exhibit A is incorporated into and made a part of the Escrow Agreement dated ***[insert date]***.

FOR [*insert name of Grantor*], THE GRANTOR

By: _____ _____
Signature Date

Name: _____
Print or Type

Title: _____
Print or Type

FOR [*insert name of Escrow Agent*], THE ESCROW AGENT

By: _____ _____
Signature Date

Name: _____
Print or Type

Title: _____
Print or Type

FOR OHIO ENVIRONMENTAL PROTECTION AGENCY, THE BENEFICIARY

By: _____ _____
Signature Date

Name: _____
Print or Type