

PUBLIC NOTICE

Columbiana County

OHIO EPA ISSUES DRAFT HAZARDOUS WASTE PERMIT MODIFICATION

On February 8, 2011, Ohio EPA issued a draft hazardous waste facility installation and operation permit (Permit) modification to Heritage-WTI, Inc. for its facility at 1250 Saint George Street, East Liverpool, Ohio 43920. The EPA Identification Number for this facility is OHD980613541.

Why is Ohio EPA Initiating a Modification to Heritage-WTI, Inc.'s Permit?

Heritage-WTI, Inc., is permitted to operate a hazardous waste incinerator and other related hazardous waste management units at its facility. Ohio EPA is initiating this draft modification to authorize Heritage to perform specific corrective measures as a part of its site-wide corrective action activities. A Statement of Basis is also being issued which identifies Ohio EPA's preferred remedies, explains the reasons for the selection of the remedies, solicits public review and comments and provides information on how the public can be involved in the remedy selection process. The draft permit modification contains the conditions under which the facility must operate if the Permit receives final approval. Details about this draft action are available on Ohio EPA's website under the Stakeholder Input header: <http://www.epa.ohio.gov/dhwm>

How can I tell Ohio EPA what I think about this draft Modification?

You can submit written comments anytime between **February 9 and March 26, 2011**. Send your comments to Ohio EPA, Central Office, Division of Hazardous Waste Management, Regulatory and Information Services Section, P.O. Box 1049, Columbus, Ohio 43216-1049, e-mail address: dhwmcomments@epa.state.oh.us.

When and where will Ohio EPA hold a public meeting?

You may request Ohio EPA to hold a public meeting for the Statement of Basis. You should send your request to: Ohio EPA, Division of Hazardous Waste Management, Attn: Regulatory and Information Services Section, P.O. Box 1049, Columbus, Ohio 43216-1049, telephone number (614) 644-2917, fax number (614) 728-1245, e-mail: dhwmcomments@epa.state.oh.us. If the request is granted, Ohio EPA will announce the time and location of the public meeting.

Where can I review the Permit Modification and Statement of Basis material?

You can review these documents at one of the following locations:

Carnegie Public Library, 219 East Fourth Street, East Liverpool, Ohio 43920, (330) 385-2048;

Ohio EPA - Northeast District Office, 2110 East Aurora Road, Twinsburg, Ohio 44087, (330) 425-9171; and,

Ohio EPA, Division of Hazardous Waste Management, 50 West Town Street, Suite 700, Columbus, Ohio 43215, (614) 644-2917.

What will Ohio EPA do with the comments?

After considering public comments, Ohio EPA will reconsider the draft Permit modification and Statement of Basis, making any necessary changes, and issue a final decision. Ohio EPA will issue a "response to public comments," specifying any changes made to the draft Permit. If you commented on the draft Permit, Ohio EPA will send you copies of the "response to public comments" and the final permit decision.

February 2011

Draft Hazardous Waste Permit Modification

**Public Participation
Procedures and
Comment Period
Ohio Administrative
Code (OAC) Rule
3745-50-22
(B)(5)(a)&(b)**

All persons, including the applicant, may submit written comments relating to this draft action. Written comments or requests for a public meeting may be submitted before the end of the comment period to the address in the box on the right.

The comment period begins on February 9, 2011, and ends on March 26, 2011. A copy of the draft permit is available for review by the public at the following locations:

Carnegie Public Library
219 E. Fourth Street
East Liverpool, Ohio 43920
(330) 385-2048

Ohio EPA
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087
(330) 963-1200

Ohio EPA, Central Office
Division of Hazardous Waste
Management
Lazarus Government Center
50 West Town St., Suite 700
Columbus, Ohio 43215
(614) 644-2917

Facility Name:	Heritage-WTI, Inc.
U.S. EPA I.D.:	OHD 980 613 541
Location:	1250 Saint George Street East Liverpool, OH 43920
Facility Owner:	Heritage-WTI, Inc. 1250 Saint George Street East Liverpool, OH 43920
Facility Operator:	Heritage-WTI, Inc. 1250 Saint George Street East Liverpool, OH 43920
Activity:	This permit modification, initiated by the director of Ohio EPA, will authorize the Permittee to perform specific corrective measures as a part of its site-wide corrective action activities.
Comment Period:	February 9, 2011 – March 26, 2011
Submit Comments to:	Ohio EPA Division of Hazardous Waste Management Regulatory and Information Services Section P.O. Box 1049 Columbus, Ohio 43216-1049 (614) 644-2917 dhwmcomments@epa.state.oh.us

The draft permit is available for review by the public online at:

<http://www.epa.ohio.gov/dhwm>

After the close of the public comment period, Ohio EPA will, without prior hearing, issue a modified permit in accordance with Chapter 3734 of the Revised Code. Ohio

EPA will take into account public comments and a modified permit will be issued with terms and conditions as are necessary to ensure compliance with hazardous waste rules.



Description of Facility OAC Rule 3745-50-22 (B)(1)

Heritage-WTI operates a commercial hazardous waste incinerator with associated waste management activities. The Permittee is authorized to store hazardous waste in containers and tanks, and to treat hazardous waste in containers, tanks, miscellaneous units and by incineration in accordance with their permit, all applicable hazardous waste rules, and the approved Hazardous Waste Facility Installation and Operation permit application.

Description of Requested Permit Modification OAC Rule 3745-50-22 (B)(2)

The first step in the Corrective Action process is a site investigation to define the waste management units (WMUs) and Areas of Concern (AOCs) and then the nature and extent of contamination at the facility; this information provides the foundation for selection and implementation of a site-wide remedy consisting of one or more corrective measures, if applicable. Typically, upon completion of the investigation, the facility provides Ohio EPA with its proposed corrective measure(s). Ohio EPA then has the option, through the permitting process, to approve

a proposed corrective measure, or select a different corrective measure.

Ohio EPA reviewed the environmental data collected during the facility investigations and evaluated the corrective measure alternatives. Ohio EPA concludes that the corrective measures summarized in the attached Statement of Basis will protect human health and the environment as required by OAC Rule 3745-54-101.

Therefore, Ohio EPA is initiating this modification to administer the implementation of site-wide corrective measures. The draft modification recommends that Heritage-WTI enter into an Environmental Covenant with Ohio EPA to restrict future use of the facility and ground water. In addition, this modification recommends that Heritage-WTI, Inc.:

- operate, monitor and maintain the skimmer remediation system; develop and implement an Operations and Maintenance plan for the remediation system, and
- develop and implement an Integrated Ground Water Monitoring Program;
- develop and implement a Soil Management Plan;
- develop and implement an Operations and Maintenance Plan for the current surface cover;

- develop and implement an Alternate Remedy Plan, if needed, and
- develop and implement an Indoor Air Monitoring Program, if needed.

Regulatory Basis to Support the Decision to Modify the Permit Application OAC Rule 3745-50-22 (B)(3)

The director may initiate a permit modification by issuing a draft modified permit in accordance with OAC Rule 3745-50-51(J). The director is using the authority in this rule to incorporate RCRA Corrective Action requirements into the permit.

Accordingly, Ohio EPA is issuing a draft action indicating the director's intention with respect to the issuance of a modified permit to the Heritage-WTI Facility.

Contact Person OAC Rule 3745-50-22 (B)(6)

For additional information, please contact Shannon Ryan at (330) 963-1141.

SR/JN:jms



OHIO ENVIRONMENTAL PROTECTION AGENCY

**MODIFIED OHIO HAZARDOUS WASTE FACILITY
INSTALLATION AND OPERATION PERMIT**

Date of Issuance:

Effective Date:

U.S. EPA ID No.: OHD 980 613 541

Ohio Permit No.: 02-15-0589

Name of Permittee: Heritage-WTI, Inc.

Mailing Address: Heritage-WTI, Inc.
1250 Saint George Street
East Liverpool, Ohio 43920

Facility Location: Heritage-WTI, Inc.
1250 Saint George Street
East Liverpool, Ohio 43920

Person to Contact: John Peterka

This Modified Ohio Hazardous Waste Facility Installation and Operation Permit is issued pursuant and subject to Section 3734.05(I) of the Ohio Revised Code and Rule 3745-50-51(J) of the Ohio Administrative Code.

The Ohio Hazardous Waste Facility Installation and Operation Permit with the above-referenced permit number as issued by the Ohio Environmental Protection Agency and journalized on March 23, 2005, is hereby incorporated by reference in its entirety, except as it may be modified herein.

This modification of the permit shall remain in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, modified, withdrawn, suspended or revoked.

The modified Terms and Conditions of this permit are attached hereto and are incorporated herein by reference. The modified Terms and Conditions supersede and replace the corresponding pages found in the March 23, 2005 renewal permit.

Scott J. Nally
Director

- (ii) The Permittee shall use its best efforts to encourage transporters to schedule arrival at the facility during periods when roads in the East Liverpool area are not in peak traffic use (e.g., early morning and late evening rush hour).
- (c) If the Ohio EPA determines the need for action based upon observations of the existing traffic plan and routes, the Permittee shall use its best efforts to work with the appropriate local authorities to so alter the traffic plan and routes to the facility so as to increase the safety of the public and decrease the risk of transportation accidents.
- (d) If the Ohio EPA determines that transport trucks en route to VRA do not comply with applicable hazardous waste/material transportation rules, including but not limited to manifest requirements, placarding, labeling, leakage, and registration, or transport trucks are not using preferred routes, or not obeying traffic regulations, the Ohio EPA shall notify the Permittee in writing of such occurrence.

Should such transporter noncompliance continue, the Ohio EPA may take such measure as may be necessary to protect public health, safety and the environment, including but not limited to ordering the Permittee to refuse to accept hazardous waste from any such truck transportation company.

B.42. Groundwater Monitoring and Reporting.

The Permittee shall conduct groundwater monitoring in accordance with the requirements set forth in ~~the approved groundwater monitoring plan and all subsequent revisions and modifications to the plan and the approved Part B permit application~~ **Module Z**. Groundwater monitoring, including sampling and analysis, will be conducted ~~on a semi-annual basis~~ **as specified in Module Z** and submitted to the Ohio EPA, Division of Hazardous Waste Management, for review. Ground water monitoring results shall be maintained as part of the facility's operating record. ~~The approved groundwater monitoring plan is attached to the permit terms and conditions as Attachment 6.~~

B.43. Solid or Semi-Solid Treatment Residue Generated by Von Roll America, Inc.

All solid or semi-solid treatment residue generated by VRA shall be considered hazardous until specifically delisted. All waste generated by the facility will be managed in accordance with the approved Part B permit application. Treatment residues generated by the Permittee shall be sampled and analyzed in accordance with Section C of the approved Part B permit application.

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E. CORRECTIVE ACTION REQUIREMENTS

Corrective Action Summary

The River Services Company owned and operated a bulk storage terminal for distributing petroleum products from 1955 to 1981 at the site of the current ~~VRA~~ facility. Between 1980 and 1981 the Charter International Oil Company (Charter Oil) leased the petrochemical terminal from the River Services Company. During operations, the Charter Oil facility received solvents including acetone, toluene, xylene, and “mineral spirits” which were transferred from river transport ships to storage tanks and then to tanker trucks for distribution. The petrochemical terminal consisted of ten (10) above ground storage tanks surrounded by an earthen dike. A known spill history at the Charter Oil facility included:

- (1) a release of approximately 19,000 gallons of xylene in 1983;
- (2) release of approximately 33,000 gallons of mineral spirits in 1984;
- (3) an alleged release of approximately 200,000 gallons of an unidentified substance investigated by Ohio EPA in 1984.

On September 2, 1981, the Port Authority for Columbiana County (CCPA), Ohio acquired the Charter Oil facility through eminent domain. Charter Oil continued to lease the property from the Columbiana County Port Authority until May 31, 1984.

Analytical results collected at the facility in March of 1990 indicated the presence of toluene, ethylbenzene, xylene in the ground water and soil and also found benzene, acetone, and trimethylbenzenes in the ground water.

The CCPA negotiated an Administrative Consent Agreement with Ohio EPA to address ground water contamination at the facility. The work required by this consent agreement was designed to contain, abate and mitigate contamination through an interim measure. This consent agreement was journalized on November 22, 1991.

~~VRA~~-**The Permittee** purchased the facility property from the CCPA in December of 1992. With the purchase of the property from the CCPA, ~~VRA~~-**the Permittee** assumed responsibility for the cleanup of the Charter Oil Facility Release Area.

PRC Environmental Management, Inc., under contract by U.S. EPA, performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from solid waste management units (SWMU) and

other areas of concern (AOC) at the VRA facility in East Liverpool, Columbiana County, Ohio. The PA was completed on August 8, 1993 and the VSI was conducted on August 25 and 26, 1993. The PA/VSI identified eighteen SWMUs and one AOC at the VRA facility. Since the PA/VSI activities conducted in 1993, four additional waste management units have been identified at the the facility. One SWMU, the Decontamination Building, has not yet been constructed. Descriptions of the SWMUs and AOC given in the PA/VSI and updated by Ohio EPA are provided in Attachment 4 to this permit. The AOC is the Former Charter Oil Facility Release Area which is under an Administrative Consent Agreement with Ohio EPA. Except for the AOC, no other releases were documented in the PA/VSI. No further action is needed at the other WMUs at this time.

Transition of corrective action authority from U. S. EPA to Ohio EPA ~~occurred~~ will occur on March 23, 2005, the date of the state permit renewal issuance. Subsequent to the transition of corrective action authority, the Permittee performed a focused RCRA Facility Investigation (RFI) in 2007 and 2008 to investigate the releases from the AOC, also known as the Charter Oil Facility Release Area (COFRA). During the RFI, the Permittee sampled and analyzed soil and ground water samples at the facility. The results of the investigation were documented through the submittal of a RFI Report, which was approved by Ohio EPA on April 20, 2009. Based on the findings in the RFI Report, it was determined that Corrective Measures would be necessary at the facility in order to protect human health and the environment.

Ohio EPA required the Permittee to submit either a Corrective Measures Study to evaluate potential remedies or submit a Presumptive Remedy proposing a specific remedy for the facility. Since the Permittee had already been conducting an Interim Measure to recover contamination from the subsurface in the COFRA area, the Permittee submitted a Final Remedy Workplan on July 17, 2009. The Final Remedy Workplan included a Presumptive Remedy, which built upon the proposed continuation of their current interim measure. Ohio EPA evaluated the proposed remedy and believes that continuation of the interim measure, along with additional conditions and restrictions would be protective of human health and the environment.

In brief, Ohio EPA proposes the following measures:

- The Permittee and Ohio EPA enter into an Environmental Covenant for the facility restricting future use of the facility and also restricting the use of ground water.

- The Permittee will operate, monitor and maintain the skimmer Light Non-Aqueous Phase Liquid (LNAPL) remediation system. The Permittee will develop and implement an Operations and Maintenance Plan for the operation, maintenance, monitoring and removal of the remaining free product floating on the water table (i.e., LNAPL) in the Charter Oil Facility Release Area (COFRA).
- Development and implementation of a facility-wide Integrated Ground Water Monitoring Program.
- Development and implementation of a Soil Management Plan to assure worker health and safety protection and proper soil management for onsite soil excavation activities.
- Development and implementation of an Operations and Maintenance Plan for the maintenance of the current surface cover in the restricted area.
- Development and implementation of an Alternate Remedy Plan should the skimmer LNAPL remediation system fail to achieve the remedial goals within an acceptable timeframe.
- Development and implementation of an Indoor Air Monitoring Program for newly enclosed structures located within the restricted area to ensure continued worker health and safety.

E.1. Corrective Action at the Facility
OAC Rules 3745-50-10 & 3745-54-101

In accordance with OAC Rule 3745-50-10, “waste management unit” means any discernible unit at which wastes have been placed at any time, irrespective of whether the unit was intended for the management of waste or hazardous waste. Such units include any area at a facility where wastes have been routinely and systematically released. As used in this permit, the term “waste management unit” shall be consistent with, and equivalent to, the term “solid waste management unit” as defined in Section 3004(u) of RCRA. For the purpose of corrective action, facility is defined as all contiguous property under the control of the owner or operator seeking a permit under Subtitle C of RCRA. The terms Interim Measure (IM), RCRA Facility Investigation (RFI), Corrective Measures Study (CMS) and Corrective Measure Implementation (CMI) are defined in Attachment 5, U.S. EPA’s Corrective Action Plan (CAP) and are used herein.

The Permittee must institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste(s) or hazardous constituent(s) from any waste management units (WMUs) at the facility, regardless of the time at which waste was placed in such units.

E.2. Corrective Action Beyond the Facility Boundary
OAC Rule 3745-54-101

The Permittee must implement corrective action(s) beyond the facility property boundary, where necessary to protect human health and the environment, unless the Permittee demonstrates to the satisfaction of Ohio EPA that, despite the Permittee's best efforts, the Permittee was unable to obtain the necessary permission to undertake such actions. The Permittee is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be

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addressed under the RFI, CMS, and CMI phases, as determined to be necessary on a case-by-case basis.

E.3 Identification Of Waste Management Units (WMUs)
OAC Rules 3745-50-44(D) & 3745-54-101

The 1993 PA/VSI documented releases to soil and groundwater at one area of concern (AOC), the former Charter Oil Facility Release Area (COFRA). A previous Interim Measures related to contamination at the former COFRA are now ongoing pursuant to a consent agreement with Ohio EPA. This AOC will now be addressed through the Corrective Action process. The previous Interim Measure related to contamination at the former COFRA will be replaced by full implementation of a Final Remedy. No corrective action is being required at the other WMUs at this time.

The following WMUs and AOC have been identified at this facility.

1. WMU 1: Incinerator System
2. WMU 2: Organic Waste Tank Farm
3. WMU 3: Organic Tanker Unload Station
4. WMU 4: Truck Holding and Sampling Area
5. WMU 5: Building B (External Truck Wash)
6. WMU 6: Wastewater Treatment
7. WMU 7: Storm Water Storage Tank Farm
8. WMU 8: Process Water Tanks
9. WMU 9: Laboratory Waste Storage Tank
10. WMU 10: Container Processing Building
11. WMU 11: Building A Storage Area (Drum Warehouse of the Container Processing Building)
12. WMU 12: Pump Out (PT) Tank Farm
13. WMU 13: Extruder
14. WMU 14: Container Receiving Area (unloading docks)
15. WMU 15: Container Holding Building (Slag Canopy)
16. WMU 16: Less Than 90 Day Accumulation Areas
17. WMU 17: Bulk Solid Waste Storage Tanks
18. WMU 18: Building C (Lab Pack Building)
19. WMU 19: Satellite Accumulation Areas
20. WMU 20: Incinerator Feed Building (Direct Organic Tanker South)

21. WMU 21: Incinerator Feed Building (Direct Drum Pump Out)
22. WMU 22: Decontamination Building
23. AOC: Former Charter Oil Facility Release Area

See Attachment 4 of this permit for a list and description of all WMUs and AOCs.

E.4 Reserved

E.5 RCRA Facility Investigation (RFI)
OAC Rule 3745-54-101

In the event of a newly discovered unit, the Permittee ~~shall~~ **must** conduct an RFI to thoroughly evaluate the nature and extent of the release of hazardous waste(s) and hazardous constituent(s) from the COFRA area identified in Permit Condition E.3, and any newly identified units per Permit Condition E.10. The major tasks and required submittal dates are shown below. The scope of work for each of the tasks is found in Attachment 5 (U.S. EPA's CAP).

(a) RFI Workplan

The Permittee ~~shall~~ **must** submit a written RFI Workplan to Ohio EPA ~~within 270 360 days after the effective date of this permit~~ or, in case of a newly discovered waste management unit, on a time frame established by Ohio EPA.

- (i) If necessary, Ohio EPA ~~will~~ **shall** provide written comments on the RFI Workplan to the Permittee.
- (ii) Within forty-five days of receipt of Ohio EPA's comments, the Permittee ~~shall~~ **must** submit either an amended or new RFI Workplan that incorporates Ohio EPA's comments.
- (iii) Ohio EPA ~~shall~~ **must** approve or modify and approve, in writing, the amended or new RFI Workplan. The RFI Workplan, as approved or

as modified and approved, **must** shall be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved RFI Work Plan must be authorized by Ohio EPA.

(b) RFI Implementation

The Permittee **must** shall implement the RFI Workplan according to the terms and schedule in the approved RFI Workplan.

(c) RFI Final Report

Within sixty days after the completion of the RFI, the Permittee **must** shall submit an RFI Final Report to Ohio EPA. The RFI Final Report **must** shall describe the procedures, methods, and results of the RFI. The Final Report must contain adequate information to support further decisions concerning **Corrective Action** ~~corrective action~~ at the facility.

- (i) If necessary, Ohio EPA **will** shall provide written comments on the RFI Report to the Permittee.
- (ii) Within forty-five days of receipt of Ohio EPA's comments, the Permittee **must** shall submit either an amended or new RFI **Final** Report that incorporates Ohio EPA's comments.
- (iii) Ohio EPA **will** shall approve or modify and approve, in writing, the amended or new RFI **Final** Report. The RFI **Final** Report, as approved or as modified and approved, **must** shall be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved RFI **Final** Report must be authorized by Ohio EPA.

E.6 Interim Measure (IM)

~~The Permittee shall continue to comply with the Director's 1991 Administrative Consent Agreement (Order) regarding interim measures at the former Charter Oil Facility Release Area (COFRA) until the Order has been revised or completed and terminated. The interim measures Order will continue to be implemented with oversight by Ohio EPA Division of Emergency and Remedial Response (DERR).~~

Based on the RFI Final Report or other information documenting a release of hazardous waste or constituents to the environment, Ohio EPA may require the development and implementation of an ~~additional~~ interim measure (this may include an IM Workplan) at any time during the life of the permit to mitigate or eliminate a

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threat to human health or the environment. **The Permittee must implement the IM upon a time frame established by Ohio EPA.**

E.7 Determination of No Further Action

(a) Permit Modification

Based on the results of the completed RFI and other relevant information, the Permittee may submit an application to Ohio EPA for a ~~Class 3~~ permit modification under OAC Rule 3745-50-51 to terminate the **Corrective Action** ~~corrective-action~~ tasks of the Schedule of Compliance. Other tasks identified in the Schedule of Compliance shall remain in effect. This permit modification application must conclusively demonstrate that there are no releases of hazardous waste or constituents from WMUs at the facility that pose a threat to human health and the environment.

If, based upon review of the Permittee's request for a permit modification, the results of the completed RFI, and other information, ~~including comments received during the initial sixty-day public comment period required for Class 3 permit modifications,~~ Ohio EPA determines that releases or suspected releases which were investigated either are nonexistent or do not pose **an unacceptable risk** ~~a threat~~ to human health and the environment, Ohio EPA will approve the requested modification. **Decisions regarding the completion of RCRA Corrective Action and no further action may be made for the entire Facility, for a portion of the Facility, or for a specific unit or release.**

(b) Periodic Monitoring

A determination of no further action ~~will~~ **shall** not preclude Ohio EPA from requiring continued or periodic monitoring of air, soil, ground water, or surface water, if necessary, to protect human health and the environment, when site-specific circumstances indicate that **a** potential or **an** actual releases of hazardous waste or constituents ~~exists,~~ **exists,** ~~are likely to occur.~~

(c) Further Investigations

A determination of no further action ~~will shall~~ not preclude Ohio EPA from requiring further investigations, studies, or remediation at a later date, if new information or subsequent analysis indicates that a release or ~~potential likelihood of a release from a WMU at the facility~~ ~~may is likely to~~ pose ~~an unacceptable risk a threat~~ to human health or the environment. In such a case, Ohio EPA ~~will shall~~ initiate a modification to the terms of the permit to rescind the determination made in accordance with Permit Condition ~~E.7(a).E.7.a.~~ Additionally, in the event Ohio EPA determines that there is insufficient information on which to base a determination, the Permittee, upon notification, ~~is will be~~ required to ~~develop a Work Plan and upon Ohio EPA approval of that Work Plan,~~ perform additional investigations as needed.

E.8 Corrective Measures Study (CMS)

If Ohio EPA determines, based on the results of the RFI and any other relevant information, that corrective measures are necessary, Ohio EPA will notify the Permittee in writing that the Permittee ~~must shall~~ conduct a CMS either as described below or as described in Ohio EPA's notification to the Permittee. The purpose of the CMS will be to develop and evaluate the corrective action alternative(s) and to outline one or more alternative corrective measure(s) that will satisfy the performance objectives specified ~~in Permit Condition E.9.~~ ~~by Ohio EPA.~~

(a) CMS Workplan

The Permittee ~~must shall~~ submit a written CMS Workplan to Ohio EPA within ninety days from the notification by Ohio EPA of the requirement to conduct a CMS.

- (i) If necessary, Ohio EPA ~~will shall~~ provide written comments on the CMS Workplan to the Permittee.
- (ii) Within forty-five days of receipt of Ohio EPA's comments, the Permittee ~~must shall~~ submit either an amended or new CMS Workplan that incorporates Ohio EPA's comments.

- (iii) Ohio EPA ~~will~~ shall approve or modify and approve, in writing, the amended or new CMS Workplan. The CMS Workplan, as approved or as modified and approved, ~~must~~ shall be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved CMS Workplan must be authorized by Ohio EPA.

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(b) CMS Workplan Implementation

The Permittee **must** shall implement the CMS Workplan according to the terms and schedule in the approved CMS Workplan.

(c) CMS Final Report

Within sixty days after the completion of the CMS, the Permittee **must** shall submit a CMS Final Report to Ohio EPA. The CMS Final Report **must** shall summarize the results of the investigations for each remedy studied and must include an evaluation of each remedial alternative.

- (i) If necessary, Ohio EPA **will** shall provide written comments on the CMS **Final** Report to the Permittee.
- (ii) Within forty-five days of receipt of Ohio EPA's comments, the Permittee **must** shall submit either an amended or new CMS **Final** Report that incorporates Ohio EPA's comments.
- (iii) Ohio EPA **will** shall approve or modify and approve, in writing, the amended or new CMS **Final** Report. The CMS **Final** Report, as approved or as modified and approved, **must** shall be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approve CMS **Final** Report must be authorized by Ohio EPA.

E.9 Corrective Measure Implementation (CMI)

~~Based on the results of the CMS, the Permittee shall implement one or more of the corrective measures authorized by Ohio EPA. Ohio EPA shall authorize one or more of the corrective measures in the CMS, and shall notify the Permittee in writing of the decision. The **Corrective Measures** corrective measure selected for implementation must: (1) be protective of human health and the environment; (2) attain media cleanup standards; (3) control the source(s) of releases so as to reduce or eliminate further releases of hazardous waste(s), including hazardous constituent(s); and (4) comply with all applicable standards for management of wastes.~~

If two or more of the corrective measures studied meet the threshold criteria set out above, Ohio EPA will authorize the CMI by considering remedy selection factors including: (1) long-term reliability and effectiveness; (2) the degree to which the corrective measure will reduce the toxicity, mobility or volume of contamination (3) the corrective measure's short-term effectiveness; (4) the corrective measure's implementability; and (5) the relative cost associated with the alternative.

In authorizing the proposed corrective measure(s), Ohio EPA may also consider such other factors as may be presented by site-specific conditions.

The Permittee must implement corrective measures as described below.

(a) Environmental Covenant

- (i) The Permittee must initiate entering into an Environmental Covenant (Ohio Revised Code 5301.80 through 5301.92) within sixty (60) days of issuance of this Permit Modification. The Environmental Covenant will restrict portions of the property, including the Charter Oil Facility Release Area (COFRA), to industrial use. The Environmental Covenant will also prohibit the extraction of ground water for the entire facility for any purpose other than sampling, monitoring or remediation pursuant to a ground water remedial action. The Environmental Covenant will include a legal description of the subject Facility, identifying the contaminated areas and describing acceptable and unacceptable land uses. The Permittee must submit a survey plat and legal description with the Environmental Covenant, specifying the areas of the facility to be restricted, and indicating the anticipated future use for each parcel. These restrictions will run with the land and will be binding upon all future Facility owners should the Facility be transferred. Ohio EPA will monitor the Facility owner's adherence to the Environmental Covenant to ensure continued protection of human health and the environment. The types of limitations for this Facility may include:
- (ii) Industrial land use limitations. Designated portions of the Facility must not be used for residential, commercial (other than those associated with and incidental to industrial operations) or agricultural activities, but may be used for certain industrial

(iii) activities. The term “residential activities” must include, but not be limited to, the following:

- (A) Single and multi-family dwelling and rental units;
- (B) Day care centers and preschools;
- (C) Hotels and motels;
- (D) Educational (except as a part of industrial activities within the Facility) and religious facilities;
- (E) Restaurants and other food and beverage services (except as a part of industrial activities within the Facility);
- (F) Entertainment and recreational facilities (except as a part of industrial activities within the Facility);
- (G) Hospitals and other extended care medical facilities (except as a part of industrial activities within the Facility); and
- (H) Transient or other residential facilities.

(b) Operations and Maintenance Plan for remediation system

(i) The Permittee must operate, maintain and monitor the skimmer LNAPL remediation system. The Permittee must also prepare and submit an Operation and Maintenance Plan (OMP) for the LNAPL remediation system within 90 days of the date of this permit modification. The OMP should document how to operate, maintain, and monitor the LNAPL remediation system to achieve optimal performance. The OMP should include the following elements:

- (A) A description of the LNAPL remediation system and how it operates,
- (B) A description of how to maintain the LNAPL remediation system to ensure it is operating for optimal performance,
- (C) A description of how the LNAPL remediation system is monitored and the frequency of the monitoring,
- (D) A description of the monthly progress reports that will be submitted to the Agency documenting the operation, maintenance, and monitoring of the LNAPL remediation system.
- (E) A description of the report that will be submitted to Ohio EPA every five years to document the effectiveness of the current LNAPL remediation system.

- (ii) Within 45 days of receipt of any Ohio EPA comments on the OMP, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.
 - (iii) Ohio EPA will approve or modify and approve, in writing, the amended OMP or new OMP. The OMP, as approved or as modified and approved, must be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved OMP must be authorized by Ohio EPA.
- (c) Integrated Ground Water Monitoring Plan
 - (i) The Permittee must submit an Integrated Ground Water Monitoring Plan (IGWMP) as described in the permit conditions found in Module Z of this permit. The IGWMP must be submitted within 90 days of the date of this permit modification.
 - (ii) Within 45 days of any Ohio EPA comments on the IGWMP, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.
 - (iii) Ohio EPA will approve or modify and approve, in writing, the amended or new IGWMP. The IGWMP, as approved or as modified and approved, must be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved GWMP must be authorized by Ohio EPA.
- (d) Soil Management Plan
 - (i) The Permittee must prepare and submit a Soil Management Plan (SMP) within 90 days of the date of this permit modification. The SMP will provide procedures that ensure worker health and safety protection and proper soil management for onsite activities that involve soil excavation within the restricted portion of the facility. The SMP will address intrusive activities and identify procedures to ensure worker protection and the proper management of potentially impacted material that may be encountered.

- (ii) Within 45 days of receipt of any Ohio EPA comments on the SMP, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.
- (iii) Ohio EPA will approve or modify and approve, in writing, the amended SMP or new SMP. The SMP, as approved or as modified and approved, must be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved SMP must be authorized by Ohio EPA.
- (e) Operation and Maintenance Plan for surface cover
 - (i) The Permittee must prepare and submit an OMP for the maintenance of the current surface cover (e.g., backfill, concrete cap, asphalt pavement, vegetation, and structures) for the use restricted area within 90 days of the date of this permit modification.
 - (ii) Within 45 days of receipt of any Ohio EPA comments on the OMP, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.
 - (iii) Ohio EPA will approve or modify and approve, in writing, the amended OMP or new OMP. The OMP, as approved or as modified and approved, must be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved OMP must be authorized by Ohio EPA.
- (f) Alternate Remedy Plan
 - (i) The Permittee must prepare and submit an Alternate Remedy Plan should the skimmer LNAPL remediation system fail to prevent the contaminated ground water plume from expanding or fail to effectively remove the LNAPL. If it is determined that the existing LNAPL remediation skimmer system is not performing adequately (i.e., the skimmers are no longer successfully removing the LNAPL present at the facility), then Ohio EPA may request the Permittee to submit an Alternate Remedy Plan which evaluates and proposes an alternate LNAPL collection method and remediation system.

- (ii) Within 45 days of receipt of any Ohio EPA comments on the Alternate Remedy Plan the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.
 - (iii) Ohio EPA will approve or modify and approve, in writing, the amended Alternate Remedy Plan or new Alternate Remedy Plan. The SMP, as approved or as modified and approved, must be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved Alternate Remedy Plan must be authorized by Ohio EPA.
- (g) Indoor Air Monitoring Plan
- (i) The Permittee must prepare and submit an indoor air monitoring plan to sample the indoor air if structures located within the use restricted portion of the facility are modified (e.g., newly enclosed). The indoor air monitoring plan should also include levels to which the sampling results will be compared to and any steps necessary to prevent unacceptable exposures from the vapor intrusion pathway if the sampling data indicates results above the levels identified.
 - (ii) Within 45 days of receipt of any Ohio EPA comments on the indoor air monitoring plan, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.
 - (iii) Ohio EPA will approve or modify and approve, in writing, the amended indoor air monitoring plan or new indoor air monitoring plan. The indoor air monitoring plan, as approved or as modified and approved, must be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved indoor air monitoring plan must be authorized by Ohio EPA.
- (h) (a) Permit Modification
OAC Rule 3745-50-51

Ohio EPA will initiate a permit modification, as provided by OAC Rule 3745-50-51 to require implementation of the corrective measure(s) authorized.

The Permittee **must** shall not implement the corrective measure until the permit is modified pursuant to OAC Rule 3745-50-51.

- (i) (b) Financial Assurance
OAC Rule ~~3745-55-011~~ **3745-54-101**

Within sixty days As part of the modification of this permit to incorporate the CMI, the Permittee **must** shall provide to **Ohio EPA** financial assurance **documentation** in the amount necessary to implement the corrective measure(s) as required by OAC Rules ~~3745-55-011~~ **3745-54-101** (b) and (c).

E.10 Newly Identified Waste Management Units or Releases
OAC Rule 3745-54-101

- (a) General Information

The Permittee **must** shall submit to Ohio EPA, within thirty days of discovery, the following information regarding any new WMU identified at the facility:

- (i) the location of the unit on the site topographic map;
(ii) designation of the type of unit;

- (iii) general dimensions and structural description (supply any available drawings);
- (iv) when the unit was operated; and
- (v) specifications of all waste(s) that have been managed at the unit.

(b) Release Information

The Permittee ~~shall~~ **must** submit to Ohio EPA, within thirty days of discovery, all available information pertaining to any release of hazardous waste(s) or hazardous constituent(s) from any new or existing WMU.

E.11 Corrective Action for Newly Identified WMUs and Releases
OAC Rule 3745-54-101

The Permittee ~~shall~~ **must** submit a written RCRA Facility Investigation Workplan to Ohio EPA upon a time frame established in written notification by Ohio EPA that further investigations or corrective measures are necessary.

Further investigations or corrective measures will be established by Ohio EPA. Permittee ~~shall~~ **must** make such submittal in accordance with time frames established by Ohio EPA.

E.12 Completion of Corrective Action
OAC Rule 3745-54-101

After completing Corrective Action as necessary to protect human health and the environment for all releases of hazardous wastes or hazardous constituents from any WMUs at the Facility, the Permittee **must** submit a Corrective Measures Completion of Work (CMCW) Report. The CMCW Report **must** document that Corrective Action construction is complete, cleanup objectives and standards have been met, and any releases of hazardous waste or constituents no longer pose an unacceptable risk to human health and the environment. The CMCW Report may be submitted for any part of the Facility for which corrective measures are complete, or for the entire Facility. The CMCW Report **must** be submitted as a request for permit modification pursuant to OAC Rule 3745-50-51.

E.13 Documents Requiring Professional Engineer Stamp
ORC Section 4733.01

Preparation of the following Corrective Action documents constitutes the “practice of engineering” as defined by ORC Section 4733.01:

Final Interim Measures Report
Corrective Measures Final Design
Corrective Measures Construction Completion Report
Corrective Measures Attainment of Ground Water Performance Standards Report
Corrective Measures Completion of Work Report

As such, the Permittee must ensure that these documents, as submitted to Ohio EPA, are stamped by a Professional Engineer licensed to practice in the State of Ohio.

DRAFT

MODULE Z - INTEGRATED GROUND WATER MONITORING OAC Rule 3745-54-101

Z. INTEGRATED GROUND WATER MONITORING

The Permittee maintains a network of ground water monitoring wells around the site for the purpose of detecting releases of hazardous constituents from the active incinerator operations and from the historic Charter Oil operations. The Permittee previously maintained two separate ground water programs. However, the two programs are now combined to form one Integrated Ground Water Monitoring Program (IGWMP). The IGWMP is specifically designed to coordinate the requirements of two programs: 1) on-going monitoring for the detection of new contaminant releases and 2) site-wide RCRA Corrective Action requirements. Specific RCRA Corrective Action requirements are found in Module E of this permit.

The Permittee must implement the Integrated Ground Water Monitoring Plan (IGWMP) for the facility to ensure that ground water contamination is not migrating off-site. The RCRA Facility Investigation (RFI) demonstrated that a Light Non-Aqueous Phase Liquid (LNAPL) free phase layer and dissolved phase ground water contamination still remain in the Area of Concern at the facility, also known as the Charter Oil Facility Release Area (COFRA). Ground water data collected during the RFI and as part of the Permittee's previous semi-annual ground water monitoring events has demonstrated that the ground water contamination plume is stable and not migrating off-site. Therefore, as part of the Corrective Action remedy, the Permittee will monitor the ground water on-site to address any potential migration of contamination to other areas of the property or off-site.

The IGWMP applies to the entire facility, including all regulated units listed in Modules C, D, F, and I and corrective action units listed in Module E. Under an integrated program and in accordance with OAC rule 3745-54-101, the well system, sampling scheme (including parameters monitored, appropriate sampling and analytical methods, and frequency of monitoring), evaluation procedures, record keeping, reporting and any necessary corrective action are coordinated across the site.

The ground water monitoring wells at the facility are screened in two separate zones: the silt, clay, and sand unit and the lower sand and gravel unit. Near the ground surface, the dense silt and sand to clayey-silt unit occurs and ranges in thickness from 1 to 35 feet. The unit thickens towards the Ohio River. Underlying the silt, clay and sand unit is a sand and gravel unit with a thickness ranging from 25 to 80 feet, which overlies the sandstone bedrock.

The IGWMP will include the list and description of ground water monitoring wells which will be sampled, the frequency at which the wells will be sampled, the constituents which will be analyzed, the test methods to be used, the ground water remediation goals, the sampling and analysis procedures, the recordkeeping and reporting requirements, and the quality assurance/quality control procedures. The Permittee will prepare a new IGWMP to be provided to Ohio EPA for review and approval.

More specifically, the IGWMP will group the ground water monitoring wells into four different categories. Wells located within the ground water contamination area (“in-the-plume wells”) will be sampled every two years unless LNAPL exists within the well. These “in-the-plume wells” include PRW-01, PRW-02, PRW-03, PA-07, and WTI-06. The data from these wells indicates ground water contamination and, therefore, the level of constituents of concern in these wells will be monitored for changes in constituent concentration levels over time. While these wells have not been sampled regularly in the past, they have indicated the presence of LNAPL at various times during the monthly monitoring events. However, ground water samples will not be collected if LNAPL exists in the well at the time of sampling because the data will indicate the ground water saturation level since the LNAPL layer is present.

Ground water wells located outside the ground water contamination area will be monitored to ensure that the ground water contamination is not migrating. These wells, which will include PA-03, PA-04, PMW-01, and PA-08, will be called the “point-of-action wells” and they will be sampled once per year.

Wells that are located downgradient from the point-of-action wells will be monitored to ensure ground water contamination is not migrating off-site. These wells, which will include WTI-04, WTI-05, and PA-02, will be called “farther-downgradient wells” and they will be sampled once every two years or more frequently if it is determined that ground water contamination has been detected in the point-of-action wells.

Additionally, Heritage-WTI will also sample wells that are upgradient and side gradient of the ground water contamination. These wells, which include WTI-01, WTI-02, and WTI-03, will be sampled every two years.

Ground water from each well in the four categories will be analyzed for volatile organic compounds, semi-volatile organic compounds, and inorganic compounds. More specifically, these constituents are:

- Volatile organic compounds: benzene, toluene, ethylbenzene, total xylenes, acetone, 2-Butanone (MEK), isopropylbenzene (cumene), methylcyclohexane, methylene chloride, 4-methyl-2-pentanone (MIBK), trans-1,2-dichloroethylene, trichloroethylene (TCE), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

- Semi-volatile organic compounds: m-dichlorobenzene, o-dichlorobenzene, p-dichlorobenzene, 2,4-dimethylphenol, 2-methylnaphthalene, bis(2-ethylhexyl)phthalate, di-n-octylphthalate, naphthalene
- Inorganic compounds: arsenic, barium, chromium, lead, nickel.

The results from each ground water sampling event will be evaluated by the Permittee and then submitted to Ohio EPA. More specifically, the data from the in-the-plume wells will be evaluated for any trends in the data which may demonstrate that the concentrations of constituents of concern in the ground water are increasing or decreasing. The point-of-action wells will be compared to ground water remediation goals defined in Z.2 to ensure that the LNAPL plume is not migrating. The farther-downgradient wells will be evaluated for any detection of constituents of concern above the Practical Quantitation Limit (PQL) in the ground water while the upgradient and sidegradient wells will be used to monitor any possible constituents flowing onto the Permittee's facility.

Z.1. Applicability
OAC Rule 3745-54-101

- (a) The Permittee must comply with the applicable requirements in OAC Rule 3745-54-101 and institute corrective action as necessary to protect human health and the environment for all releases of hazardous wastes or constituents from any waste management unit (WMU)/area at the facility, regardless of the time at which waste was placed in such unit/area for those listed in Module E.

The WMUs are operating units. The units were previously monitored under an approved detection ground water monitoring plan in accordance with the previous Permit Conditions. The AOC is a result of activities conducted under a previous owner, Charter Oil. The AOC, also known as the COFRA area, was investigated as part of RCRA Corrective Action. The IGWMP will create one ground water monitoring program for the entire facility.

- (b) Reserved.
- (c) The owner or operator must implement corrective actions beyond the facility property boundary, where necessary, to protect human health and the environment, unless the owner or operator demonstrates to the satisfaction of the director that, despite the owner's or operator's best efforts, the owner or operator was unable to obtain the necessary

permission to undertake such actions. The owner/operator is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis. Assurances of financial responsibility for such corrective action must be provided.

Z.2. Ground Water Remediation Standard (GWRS)

The Permittee must ensure that the hazardous constituents or constituents detected in the ground water from a unit/area listed in Permit Condition E.3 do not exceed the following clean-up standards in the uppermost aquifer underlying the units/areas beyond the point of action during the permit period and to respond with any necessary corrective action to bring the ground water back into compliance with those standards. The GWRS has been established in this Permit due to hazardous constituents being detected in the ground water.

(a) List of Hazardous Constituents and Ground Water Clean-Up Standards

The Permittee must monitor the ground water to determine whether units/areas are in compliance with the GWRS. The hazardous constituents listed in the Appendix to OAC Rule 3745-54-98 detected in the ground water underlying a unit/area and reasonably expected to be contained in or derived from the waste contained in the unit/area to which the GWRS applies and their ground water clean-up standards are listed below:

Hazardous Constituents	Clean-Up Standards
benzene	0.005 mg/L
toluene	1 mg/L
ethylbenzene	0.7 mg/L
total xylenes	10 mg/L
acetone	To Be Determined (TBD)
2-butanone (MEK)	TBD
isopropylbenzene (cumene)	TBD
methylcyclohexane	TBD

methylene chloride	TBD
4-methyl-2-pentanone (MIBK)	TBD
trans-1,2-dichloroethylene	0.1 mg/L
trichloroethylene (TCE)	0.005 mg/L
1,2,4-trimethylbenzene	TBD
1,3,5-trimethylbenzene	TBD
o-dichlorobenzene	0.6 mg/L
p-dichlorobenzene	0.075 mg/L
m-dichlorobenzene	TBD
2,4-dimethylphenol	TBD
2-methylnaphthalene	TBD
bis(2-ethylhexyl)phthalate	TBD
di-n-octylphthalate	TBD
naphthalene	TBD
arsenic	0.010 mg/L
barium	2 mg/L
chromium	0.1 mg/L
lead	0.015 mg/L
nickel	TBD

Within one year of the permit approval, the Permittee will provide to Ohio EPA for approval, risk-based GWRS for all compounds that do not have MCLs (i.e., all compounds in above table that currently have TBD listed as the GWRS). The risk-based GWRS must be unrestricted use and must take the additive affects of the compounds into consideration.

(b) Point of Action

The Permittee has integrated the ground water monitoring programs site-wide. The combined point of action (POA) at which the GWRS applies is indicated on a figure to be submitted by the Permittee as part of the Integrated Ground Water Monitoring Plan to be submitted by the Permittee and approved by Ohio EPA. The Permittee must monitor the wells listed in Permit Condition Z.3(b) for the constituents listed in Permit Condition Z.2(a). The Permittee must monitor the ground water passing the point of action, the ground water between the point of action and the downgradient property boundary to determine if the clean-up standard has been exceeded at any point between the point of action and the downgradient property boundary.

(c) Permit Period

The period, during which the GWRS applies, is the permit period, to be renewed as long as constituents are detected above the GWRS at any well facility wide. During the permit period the Permittee must establish and implement a monitoring program that will detect, respond, and report as necessary to protect human health and the environment from all releases of hazardous constituents above the cleanup standards at the point of action and between the point of action and the downgradient facility boundary. The Permittee shall implement corrective action beyond the facility property boundary, where necessary, to protect human health and the environment.

Z.3. Well Location, Installation, Maintenance, and Removal

(a) The Permittee's ground water monitoring system must consist of a sufficient number of wells, installed and screened at appropriate locations and depths to yield ground water samples from the silt, clay and sand zone and the sand and gravel zone. The samples must:

- (i) Represent the quality of background water that has not been affected by leakage from the units/areas;
- (ii) Represent the quality of ground water passing the point of action, between the point of action and the downgradient property boundary, and beyond the property boundary, where necessary, to protect human health and the environment;

- (iii) Allow for the detection and measurement of contamination for all potential release pathways to the uppermost aquifer from the waste management units/areas based on site-specific hydrogeologic characterization when hazardous constituents have migrated from the unit/area to the uppermost aquifer; and
 - (iv) Demonstrate the effectiveness of any corrective action program. The well system should be as effective in determining compliance with the GWRS and in determining the success of the corrective action program.
- (b) The Permittee will maintain the monitoring system, which consists of the ground water wells as specified on a figure to be submitted by the Permittee and approved by Ohio EPA as part of the Integrated Ground Water Monitoring Plan and in conformance with the following list:

Well Identifier	Upgradient/ Downgradient	Purpose
PA-03	Downgradient	Point of Action
PA-04	Downgradient	Point of Action
PMW-01	Downgradient	Point of Action
PA-08	Downgradient	Point of Action
WTI-04	Downgradient	Farther downgradient from Point of Action
WTI-05	Downgradient	Farther downgradient from Point of Action
PA-02	Downgradient	Farther downgradient from Point of Action
PRW-01	Within the plume	Record levels of contamination within the plume
PRW-02	Within the plume	Record levels of contamination within the plume
PRW-03	Within the plume	Record levels of contamination within the plume
PA-07	Within the plume	Record levels of contamination within the plume
WTI-06	Within the plume	Record levels of contamination within the plume
WTI-01	Upgradient	Record ground water quality entering facility
WTI-02	Upgradient	Record ground water quality entering facility
WTI-03	Sidegradient	Record ground water quality entering facility

- (c) Wells identified in Permit Condition Z.3(b) must be cased in a manner that maintains the integrity of the monitoring well bore hole and complies with the detailed plans and specifications presented in the IGWMP to be submitted by the Permittee and approved by Ohio EPA. The casing must be screened and packed with gravel or sand, where necessary, to enable collection of ground water samples. The annular space above the

sampling depth must be sealed to prevent contamination of samples and the ground water.

The IGWMP to be submitted by the Permittee and approved by Ohio EPA must contain ground water monitoring well construction diagrams which illustrate compliance with this Permit Condition.

- (d) The Permittee must remove or replace any monitoring well in Permit Condition Z.3(b) in accordance with the Appendix to OAC Rule 3745-50-51 permit modification process. Each change must be accompanied by a revised figure as specified in Permit Condition Z.3(b) and to be included in the Integrated Ground Water Monitoring Plan to be submitted by the Permittee and approved by Ohio EPA.
- (e) Whenever any of the wells specified in Permit Condition Z.3(b) are replaced, the Permittee must demonstrate to Ohio EPA that the ground water quality at the replacement well meets the criteria in Permit Condition Z.3(a) within one year from the date of replacement using means appropriate to the reason for replacement.

Z.4. Sampling and Analysis Procedures

- (a) The Permittee must implement the IGWMP to be submitted by the Permittee and approved by Ohio EPA. This program must include consistent sampling and analysis procedures designed to ensure monitoring results that provide a reliable indication of ground water quality below the units/areas and in compliance with this Permit Condition.
- (b) The IGWMP to be submitted by the Permittee and approved by Ohio EPA must include sampling and analytical methods that are appropriate for ground water sampling and that accurately measure hazardous constituents in ground water samples.
- (c) Field and analytical data must be validated in accordance with the procedures specified in the IGWMP to be submitted by the Permittee and approved by Ohio EPA.
- (d) Ground water elevations must be measured using the techniques described in the IGWMP to be submitted by the Permittee and approved by Ohio EPA.

- (e) Each well at the facility must be checked for the presence of immiscible layers using an interface probe prior to purging.
- (f) Samples must be collected and handled (including well evacuation, sample withdrawal, preservation, containerization, filtration, and shipment using Chain of Custody procedures) to ensure representative samples are obtained using the techniques and equipment described in the IGWMP to be submitted by the Permittee and approved by Ohio EPA.
- (g) The Permittee must collect samples from the wells least likely to exhibit ground water contamination prior to collecting samples from wells with known or suspected ground water contamination.
- (h) Field analysis must be performed using instruments, procedures, and forms described in the IGWMP to be submitted by the Permittee and approved by Ohio EPA.
- (i) Sampling equipment must be decontaminated using techniques described in the IGWMP to be submitted by the Permittee and approved by Ohio EPA.
- (j) Purge water must be disposed in accordance with the procedures described in the IGWMP to be submitted by the Permittee and approved by Ohio EPA.
- (k) Laboratory analytical methods, detection limits and sample holding time must be in accordance with techniques described in the IGWMP to be submitted by the Permittee and approved by Ohio EPA.
- (l) Quality assurance, including field, laboratory, and equipment blanks, duplicate samples, and identification of potential interferences, must be in accordance with the methods described in the IGWMP to be submitted by the Permittee and approved by Ohio EPA.
- (m) Field and analytical data must be validated in accordance with the procedures specified in the IGWMP to be submitted by the Permittee and approved by Ohio EPA and reported as specified in Permit Condition Z.8.
- (n) Chain of Custody procedures, including standardized field tracking reporting forms, and sample labels, must be in accordance with the IGWMP to be submitted by the Permittee and approved by Ohio EPA.

Z.5. Ground Water Surface Elevation

The Permittee must determine the ground water surface elevation at each well identified in the table in Permit Condition Z.3(b) and at all available monitoring wells, piezometers, and recovery wells at the facility each time ground water is sampled using the methods in the IGWMP to be submitted by the Permittee and approved by Ohio EPA. This information must be submitted in accordance with Permit Condition Z.8.

The Permittee must report, in writing to the Ohio EPA, Northeast District Office, the surveyed elevation of the tops of casings, the ground surface and/or aprons, and protective casing of any new or replacement monitoring wells within 30 days of the date of installation.

Z.6. Sampling Frequency

Data on each hazardous constituent specified in Permit Condition Z.2(a) will be collected from all wells listed in Permit Condition Z.3(b). The sampling procedure and interval for each constituent must be described in the IGWMP to be submitted by the Permittee and approved by Ohio EPA and in accordance with the below table.

Well Identifier	Sampling Frequency
PA-03	Annual
PA-04	Annual
PMW-01	Annual
PA-08	Annual
WTI-04	Every two years
WTI-05	Every two years
PA-02	Every two years
PRW-01	Every two years, unless LNAPL present in well at time of sampling
PRW-02	Every two years, unless LNAPL present in well at time of sampling
PRW-03	Every two years, unless LNAPL present in well at time of sampling
PA-07	Every two years, unless LNAPL present in well at time of sampling
WTI-06	Every two years, unless LNAPL present in well at time of sampling
WTI-01	Every two years
WTI-02	Every two years
WTI-03	Every two years

- (a) The number and kinds of samples collected to establish background must be appropriate for the form of statistical test employed, following generally accepted statistical principles.

- (b) The sample size must be as large as necessary to ensure with reasonable confidence that a contaminant release to ground water from a facility will be detected.
- (c) Background data must be updated as necessary in accordance with the IGWMP to be submitted by the Permittee and approved by Ohio EPA to provide an accurate representation of background ground water quality. New or revised background values must be established in the permit through the permit modification process in OAC Rule 3745-50-51.

Z.7. Statistical Procedures

The Permittee may evaluate the ground water monitoring results for each hazardous constituent in Permit Condition Z.2(a) by directly comparing the ground water monitoring analytical results from each sampling event to the GWRS as identified in Permit Condition Z.2(a) or the Permittee may use the following statistical procedures in evaluating ground water monitoring results for each hazardous constituent in Permit Condition Z.2(a) in each well in Permit Condition Z.3(b) to identify statistically significant evidence of contamination, the exceedance of a clean-up standard, and/or the effectiveness of corrective action:

- (a) For those constituents for which background values have not been collected and established at the time of Permit Application, the Permittee must choose and submit to Ohio EPA the appropriate statistical method within 45 days after the receipt of the last background sampling event data through the permit modification process in OAC Rule 3745-50-51.

For those constituents for which background values have been collected, the Permittee must conduct statistical procedures as presented in the IGWMP to be submitted by the Permittee and approved by Ohio EPA.

- (b) The Permittee's statistical procedures must be protective of human health and the environment, provide reasonable confidence that the migration of hazardous constituents from a unit/area into and through the aquifer will be indicated, and will determine whether such leakage of hazardous constituents into the ground water exceeds specified clean-up standards in Permit Condition Z.2(a). The statistical procedures must comply with the following performance standards:

- (i) The statistical evaluation of ground water monitoring data must be conducted separately for each hazardous constituent specified in Permit Condition Z.2(a) in each well.
- (ii) The statistical method must be appropriate for the distribution of the data used to establish background or clean-up standards. If the distribution for the constituents differ, then more than one statistical method may be needed. Methodology of updating background must be included in the IGWMP to be submitted by the Permittee and approved by Ohio EPA.
- (iii) The statistical method must provide a reasonable balance between the probability of falsely identifying a non-contaminating and/or exceeding unit/area and the probability of failing to identify a contaminating and/or exceeding unit/area.
- (iv) If a control chart approach is used, the specific type of control chart and its associated parameter values must be proposed by the Permittee and approved in the permit.
- (v) If a prediction interval procedure is used, the levels of confidence and the percentage of the population that the interval must contain, must be proposed by the Permittee and approved in the permit. These parameters must be determined after considering the number of samples in the background data base, the data distribution, and the range of concentration values for each constituent of concern.
- (vi) The statistical method must account for data below the limit of detection with one or more statistical procedures. Any practical quantitation limit (PQL) approved in the permit that is used in the statistical method must be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the Permittee.
- (vii) If necessary, the statistical method must include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

Z.8. Operating Record and Reporting

OAC Rules 3745-54-73, 3745-54-75, and 3745-54-77

(a) Operating Record

The Permittee must enter all of the following information obtained in accordance with Permit Module Z in the operating record and submit a Final Data Report and Evaluation to Ohio EPA, in accordance with Permit Condition Z.8(b):

- (i) Ground water monitoring data collected in accordance with this permit including actual levels of constituents.
- (ii) The laboratory results from each of the well samples and their associated qualifiers including the laboratory sheets for every sampling event (including laboratory method numbers, method detection limits, laboratory practical quantitation limits (PQLs), and units of measurement);
- (iii) The date each well was sampled (tabulated);
- (iv) The date, time, and identification of all blanks and duplicates;
- (v) Any field log or laboratory report documentation of deviation from the procedures in the IGWMP to be submitted by the Permittee and approved by Ohio EPA, including documentation of parameter omissions during the sampling event;
- (vi) The date the Permittee received the results from the laboratory;
- (vii) The date the owner or operator completed their review of the analytical laboratory's verification of the accuracy and precision of the analytical data and determined its quality.
- (viii) The results of the data validation review per Permit Condition Z.8(a)(vii) including: report completeness, chain of custody, sample receipt form, signed statement of validity, technical holding time review, data qualifiers including their definitions, dilutions, blank data, spikes, spike recovery percent, surrogate recovery, and an explanation of any rejected results;

- (ix) Results of all blanks, duplicates (trip, field, equipment, and method), matrix spike analysis, and laboratory control samples;
 - (x) Results of the field parameters;
 - (xi) The statistical evaluation of the data (must include all computations, results of statistical tests, and date the statistical evaluation was completed);
 - (xii) Ground water surface elevations taken at the time of sampling each well;
 - (xiii) Data and results of the annual determination of the ground water flow rate and direction, including potentiometric surface map;
 - (xiv) The results of the last three years of all inspections required under OAC Rule 3745-54-15(D) related to ground water monitoring and equipment as required under OAC Rule 3745-54-73(B)(5).
 - (xv) Evaluation of the efficiency of any corrective actions performed to bring the ground water quality into compliance with the GWRS per Permit Condition Z.2.
 - (xvi) A report on the effectiveness of the IGWMP, performed by a qualified hydrogeologist.
- (b) Sampling Reports

The Permittee must submit a Final Data Report and Evaluation for each sampling and analysis event, conducted in the spring (April, May, or June) of each year. Final Data Reports and Evaluation must be submitted within 90 days after the completion of the sampling event. If this date falls on a weekend or state holiday, the report will be due no later than the following business day. The report must be submitted to Ohio EPA, Northeast District Office and entered into the operating record. The Permittee must maintain all documentation from the laboratories regarding analysis of ground water samples. Ohio EPA may require submittal of a copy of the full quality assurance/quality control (QA/QC) report for a particular event if circumstances warrant; but, in general, this will not be required.

(c) Required Annual Reporting

The Permittee must submit an annual report to the Director by March 1st or the first business day thereafter if March 1st falls on a weekend or holiday. The annual reports must reference the titles and dates of any sampling reports required by the permit or any updates to those reports, but generally do not need to include duplicates of hard copies previously submitted.

The annual reports must include, at a minimum, the analytical results required by Permit Conditions Z.6 and Z.9, the ground water elevation data required by Permit Condition Z.5 and Z.8(a)(xii)&(xiii), and the results of any statistical analyses required by Permit Condition Z.7 and Z.9. In addition, a copy on disk of all ground water and blank data must be submitted electronically in the format for the Supplementary Annual Ground Water Monitoring Report supplied by the Director at www.epa.ohio.gov/dhwm/ann_report/ann_report_2010.aspx, a paper copy of well-specific information (location (latitude and longitude), depth, construction, etc.) for any new/replacement wells, and any other information specified in the instructions for the annual report not addressed in this Permit Condition must be submitted in accordance as required by OAC Rules 3745-54-75.

(d) Other Periodic Reporting

The Permittee must comply with any other reporting requirements that become necessary under Permit Condition Z.9 in accordance with the schedules covered by that permit condition and as required by OAC Rule 3745-54-77(C).

Z.9. Integrated Ground Water Monitoring Program (IGWMP)
OAC Rules 3745-54-101

- (a) The Permittee must establish and implement a ground water monitoring program to fully characterize the contaminated ground water as required by OAC Rule 3745-50-44(B)(8)(a) and to demonstrate the effectiveness of the corrective action program. Ground water monitoring must be effective in determining compliance with the GWRS in Permit Condition Z.2 and in determining the success of any corrective action program in this condition. The ground water monitoring program must include:

- (i) Installation and maintenance of a ground water monitoring system at the point of action as defined in Permit Condition Z.2(b), and, as necessary to protect human health and the environment, between the point of action and the downgradient property boundary and beyond the property boundary. The ground water monitoring system must comply with the requirements in Permit Condition Z.3.
- (ii) Collection, preservation, and analysis of samples pursuant to Permit Conditions Z.4, Z.5, and Z.6. Statistical analysis must be conducted pursuant to Permit Condition Z.7.
- (iii) The Permittee must conduct a sampling program as described in Z.6 for each chemical parameter and hazardous constituent specified in Permit Condition Z.2(a) from each well (background and action) specified in Permit Condition Z.3(b) during the permit period and any extensions due to corrective action implementation.

Any additional sampling shall be taken at an interval (frequency) that assures, to the greatest extent feasible, that an independent sample is obtained, by reference to the uppermost aquifer's effective porosity, hydraulic conductivity, hydraulic gradient, and the fate and transport characteristics of the potential contaminants.

- (iv) The Permittee shall determine the concentrations of the hazardous constituents specified in Permit Condition Z.2(a), throughout the permit period specified in Permit Condition Z.2(c), and report the concentrations, including all estimated values above the method detection limit and PQL, to Ohio EPA, per Permit Condition Z.8.

The Permittee shall compare the concentration of each hazardous constituent measured at each well specified in Permit Condition Z.3(b) with its cleanup standard each time ground water quality is determined in accordance with the procedures specified in Permit Condition Z.7.

Wells and the Ohio River beyond the property boundary shall be sampled where necessary to protect human health and the environment, unless the Permittee demonstrates to the Agency that, despite the Permittee's best efforts, the Permittee was unable to obtain the necessary permission to undertake such action. The Permittee is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site

access is denied. On-site measures to address such releases will be determined on a case-by-case basis.

- (v) The Permittee must maintain a record of ground water analytical data as measured and in a form necessary for the determination of statistical significance under Permit Conditions Z.7 and Z.8 for the permit period.
 - (vi) The Permittee must determine the ground water flow rate and direction in the uppermost aquifer at least annually using the procedures specified in the IGWMP to be submitted by the Permittee and approved by Ohio EPA.
 - (vii) Reserved.
- (b) The Permittee is required to establish and implement a ground water corrective action program under OAC Rule 3745-54-101 and must take corrective action, as necessary, to ensure that units/areas are in compliance with the GWRS as specified in Permit Condition Z.2.
- (i) The Permittee shall collect, preserve, and analyze samples in accordance with Permit Condition Z.4.
 - (ii) The Permittee shall determine the concentrations of the hazardous constituents specified in Permit Condition Z.2.a, throughout the permit period specified in Permit Condition Z.2.c, and report the concentrations, including all estimated values above the method detection limit and PQL, to Ohio EPA, per Permit Condition Z.8.
 - (iii) The Permittee shall determine the ground water flow rate and direction in the uppermost aquifer at least annually, as outlined in the IGWMP to be submitted by the Permittee and approved by Ohio EPA, and report the ground water flow rate and direction to Ohio EPA per Permit Condition Z.8.
- (c) Following any ground water sampling event, the Permittee must compare the analytical results from the in-the-plume wells, point-of-action wells, wells farther-downgradient from the point-of-action wells, and upgradient and sidegradient wells to the GWRS to determine if an exceedance occurred.

The Permittee must implement, as necessary, a corrective action program that prevents hazardous constituents specified in Permit Condition Z.2(a) from exceeding their respective clean-up standards specified in Permit Condition Z.2(a) at the point of action specified in Permit Condition Z.3(b), between the point of action and the downgradient property boundary, and beyond the property boundary during the permit period specified in Permit Condition Z.2(c) by removing the hazardous constituents or by treating them in place.

- (i) When the GWRS are exceeded at the in-the-plume wells listed in Permit Condition Z.3(b), then the Permittee must evaluate the data for any trends in the data which may demonstrate that the constituents listed in Permit Condition Z.2(a) are increasing or decreasing and report that information to Ohio EPA in accordance with Permit Condition Z.8.
- (ii) When the GWRS are exceeded at the point-of-action wells or the farther-downgradient from the point-of-action wells listed in Permit Condition Z.3(b), the Permittee must:
 - (a) Notify the director in writing within seven days of this finding.
 - (b) Sample the farther-downgradient from the point-of-action wells listed in Permit Condition Z.3(b) within 30 days of this finding, if not sampled as part of the current ground water sampling event.
 - (c) Within 90 days of this finding, submit a permit modification to establish and implement a corrective action program that prevents constituents in the ground water from exceeding the GWRS at the point-of-action wells or farther-downgradient from the point-of-action wells by removing the hazardous constituents or by treating them in place. If corrective action pursuant to OAC rule 3745-54-101 and Permit Module E is already occurring, then any corrective action necessary in response will be coordinated with Permit Module E to the extent practical. The modification application will, at a minimum, include the following information:

- (i) A detailed description of the remedial actions that will remove or treat in place any hazardous constituents that exceed their respective GWRS, as defined in Permit Condition Z.2.a, between the point-of-action wells and the downgradient facility property boundary. To the extent practicable, this remedial action shall be integrated with corrective action activities under Module E of this permit.
 - (ii) A plan for a ground water monitoring program that will demonstrate the effectiveness of the remedial action.
- (iii) When the GWRS are exceeded at the upgradient and sidegradient wells listed in Permit Condition Z.3(b), the Permittee must:
 - (a) Notify the director in writing within seven days of this finding.
 - (b) The Permittee may make a demonstration that the ground water upgradient or sidegradient of the facility property may be impacting the monitoring wells located on the facility property.
- (iv) The Permittee may demonstrate that a source other than the facility caused an exceedance of the GWRS or that the exceedance is an artifact caused by an error in sampling, analysis, or statistical evaluation or natural variation in the ground water. In making such a determination, the Permittee must:
 - (a) Notify the director in writing, within 7 days of determining that the facility has reached or exceeded the GWRS, of the intent to make a demonstration.
 - (b) Include in the Sampling Report in Permit Condition Z.8 a report which successfully demonstrates that a source other than the facility caused the standard to be exceeded or that the apparent noncompliance with the standards resulted from error in sampling, analysis or evaluation.
 - (c) Include in the Sampling Report in Permit Condition Z.8 an application for a permit modification to make any appropriate changes to the IGWMP at the facility.

- (d) The Permittee may make this demonstration in addition to, or in lieu of, submitting a permit modification application to modify the IGWMP for corrective action. However, the same period of 90 days is required for both a successful “Other Source Demonstration” and the submittal of the permit modification application in accordance with Z.9. The Permittee is not relieved of the 90 day requirement for a permit modification unless the “Other Source Demonstration” is deemed successful by the Agency prior to the 90 day time limit.
 - (e) Continue to monitor in accordance with the IGWMP at the facility.
- (d) Reserved
- (e) Response Action
 - (i) If, based on the results of the Permittee's ground water monitoring program, the GWRS detailed in Permit Condition Z.2(a) have not been exceeded, with the exception of in-the-plume wells, then the Permittee shall continue under routine IGWMP monitoring.
 - (ii) If the Permittee determines the corrective action program established by this permit no longer satisfies the requirements of OAC Rule 3745-54-101, then the Permittee must, within ninety (90) days of that determination, submit an application for a permit modification per OAC Rule 3745-50-51 to make any appropriate changes to the program.
 - (iii) The ground water monitoring requirements may be reduced in the event that the Permittee can successfully demonstrate that the level of contamination has been reduced to below the GWRS and is protective of human health and the environment.

END OF PERMIT CONDITIONS

- N) WMU 14- Container Receiving Area (unloading docks) - This unit consists of two covered truck unloading docks that abut the northeast side of the Container Processing Building (WMU 10). The unloading docks are paved with reinforced concrete treated to resist chemicals that are managed in this unit. A reinforced concrete containment wall and speed bump border the north and east edges of the unit along the two sides not bordered by the Container Processing Building (WMU 10). A reinforced concrete containment trench is located along the south side of each unloading station. The paved surface of each dock is sloped toward these trenches. This unit manages containerized wastes generated off-site. Tankers may also be staged in this unit in accordance with Section D of the approved Part B permit application and this permit. The wastes are subsequently unloaded to the Container Processing Building (WMU 10). There have been no documented releases from this unit. The potential for release to ground water, surface water, on-site soils, and air is low.
- O) WMU 15- Container Holding Building (Slag Canopy)- This unit is a 50 foot by 50 foot structure used to store containers of a wide range of waste types. Staging and processing activities are also conducted, in accordance with Section D of the approved Part B permit application and this permit. WMU 15 is located just north of the incineration system (WMU 1). The unit is fully enclosed and equipped with adequate health and safety equipment such as automatic fire detection and suppression, safety showers, and vapor recovery. The floor of this unit is constructed of reinforced concrete treated to resist chemicals managed in the unit. A combination of six inch high speed bumps and curbs surround the unit and are integral to the containment system and minimizing the accumulation of storm water. The floor is sloped towards a concrete sump, part of the 10, 520 gallon capacity containment system. There have been no documented releases from this unit. The potential for release to ground water, surface water, on-site soils, and air is low.
- P) WMU 16- Less than 90 Day Accumulation Areas - These units are currently sited at the following locations: (1) **North less than 90 day Area** - east of the Building B (External Truck Wash, WMU 5), and (2) **East less than 90 day Area** - along the utility bridge north of the Organic Waste Unloading Area (WMU 3). **These areas store wastes generated off-site, that are stored in containers within trailers, and** on-site, typically containers holding slag and ash (the treatment residuals from the incineration process), slag quench water, used refractory brick, and spent activated carbon. The Permittee is also permitted to conduct specifically approved hazardous waste activities as described in Section D of the Part B permit application. The two areas are open, uncovered, and located over reinforced concrete in constructed containment areas. Curbing, sumps, and sloped berms control run-on and are part of the containment system. There have been no documented releases from this unit. The potential for release to ground water, surface water, on-site soils, and air is low.

- Q) WMU 17- Bulk Solid Waste Storage Tanks- This unit consists of two reinforced concrete tanks located inside the Incinerator Feed Building. The units are open topped tanks separated by a center wall to prevent the co-mingling of waste. The total capacity of the two existing tanks is approximately 1,200 cubic yards. Bulk solid waste is unloaded from trucks or roll-offs into the tanks through doors located on the east side of the tanks. The waste is blended and transferred via an overhead crane from the tanks to the incineration system (SWMU 1) for treatment. Vapors released from the waste are collected by vapor recovery vents in the tank area and conveyed to the vapor recovery system. There have been no documented releases from this unit. The potential for release to ground water, surface water, on-site soils, and air is low.
- R) WMU 18 - Building C (Lab Pack Building)- Building C is located east of the Container Processing Building (WMU 10). The building is fully enclosed with exterior containment curbing. The base of the interior of the building is sloped to a sump located in the northwest corner. The containment capacity of this building is 11,200 gallons. Containers of waste stored in this building are placed on pallets (or equivalent) and /or in heavy duty storage racks to prevent contact with the building floor. This area has two-level racks with the ability to store an equivalent of 240 fifty five gallon drums or 13,200 gallons. The primary use for this unit is for auditing lab packs but other processing activities and the storage of lab packs are also permitted. The unit is connected to the vapor recovery system and is used during auditing lab packs or other waste processing activities when there is a potential for the release of vapors or fugitive emissions. There have been no documented releases from this unit. The potential for release to ground water, surface water, on-site soils, and air is low.
- S) WMU 19 - Reserved **Satellite Accumulation Areas – Satellite Accumulation Areas (SAAs) are areas where hazardous waste is accumulated at or near the point of generation which is under the control of an operator of the process generating the waste. The containers located at the SAAs are typically 55-gallon drums. SAA containers are typically designated by a sign located nearby and a yellow outline painted on the floor to indicate the container location. Wastes managed in the SAAs include, but are not limited to, lab wastes, cleanup debris, personal protection equipment, absorbent pads, and/or waste liquids from compatibility testing, sampling, and flushing lines. SAA containers are kept closed at all times unless waste is being added to or removed from the container.**

SAs are located in multiple areas throughout the facility. Most SAs are located within other WMUs as listed and described in Attachment 4. WMU 19 includes those SAs that are not contained within a specific WMU listed in Attachment 4. These include the SAs within the laboratory and the SAs within the Maintenance Building. There have been no documented releases from this unit and the potential for release to ground water, surface water, on-site soils, and air is low.

- T) WMU 20 and 21 - Incinerator Feed Building - In addition to containing the Bulk Solid Waste Storage Tanks (WMU 17) and the feed mechanisms to the Incinerator System (WMU 1), this unit also includes two direct feed units. These two direct feed units are the Direct Organic Tanker South and the Direct Drum Pump-out.

The Direct Organic Tanker South is located in a bay south of and adjacent to the Bulk Solid Waste Storage Tanks. The unit includes an unloading system to transfer liquid waste from tanker trucks directly to WMU1 by pressurizing the tanker truck with nitrogen thus displacing the contents. The feed rate is determined using the scale located in the Bay. The unit has an automated fire detection and suppression system capable of extinguishing Class 1A flammable liquids. The Direct Organic Tanker South is equipped with vapor recovery and all doors are kept closed during off-loading to ensure a negative pressure thus controlling possible fugitive emissions and the release of odors during unloading activities. Direct Organic Tanker South is isolated from the rest of the incinerator feed building by walls to the north, south, and west, with a roll-up door located on the east side for tanker entry. The floor is curbed to contain 10,000 gallons and includes a small sump to contain minor spills or leaks. The bay is paved with reinforced concrete treated to resist chemicals that are managed in the unit. When not feeding waste to WMU 1, bulk waste containers may be staged in this bay in accordance with the approved Part B permit application. There have been no documented releases from this unit. The potential for release to ground water, surface water, on-site soils, and air is low.

The Direct Drum Pump-out unit is located west of and adjacent to the Direct Organic Tanker South and is enclosed and isolated from the rest of the Incineration Feed Building. The unit has two stations for feeding containerized liquids to WMU 1 via lances. Waste feed rates are measured using a scale. The unit has an automated fire detection and suppression system capable of extinguishing Class 1A flammable liquids. The types of waste processed in this

unit include odorous waste, water-reactive waste, Class 1A flammable liquids, and highly reactive waste streams. Direct Drum Pump-out is isolated from the rest of the Incinerator Feed Building by walls to the north, east, and west, with a roll-up door located on the south side for transfer of containers into the unit. The doors are kept closed during processing to control fugitive emissions and to maximize the efforts of the vapor recovery system in the form of snorkels over each station. The unit has secondary containment with a capacity of 1,125 gallons that includes a sump. The floor is paved with reinforced concrete treated to resist chemicals that are managed in the unit. Hoses and lines used to feed the waste are flushed between transfer of each waste stream using a compatible material. There have been no documented releases from this unit. The potential for release to ground water, surface water, on-site soils, and air is low.

- U) WMU 22 - Decontamination Building - The Decontamination Building is a 14 foot by 12 foot completely enclosed structure attached to the eastern side of the External Truck Wash (WMU 5). A 6 inch deep metal catch basin collects the rinseate generated from decontamination activities and a grating is used to support equipment or containers being cleaned. Rinseate in the catch basin is drained to the sump located in the External Truck Wash after each decontamination activity has been completed. Decontamination activities may be conducted as described in Section D of the approved Part B permit application. Equipment can be cleaned in the Decontamination Building, and it may also be used for cleaning out containers that once held hazardous waste. The Permittee will not decontaminate containers that previously held odorous or low odor threshold waste in the Decontamination Building. To prevent accumulation of vapors, the Decontamination Building is equipped with a roof vent. There have been no documented releases from this unit. The potential for release to ground water, surface water, on-site soils, and air is low.

Area Of Concern (AOC) - Former Charter Oil Facility Release Area

The property where the Permittee is located was formerly occupied by Charter Oil. The Charter Oil facility included approximately 7.2 acres of property which consisted of a building, the barge off-loading pier which extended into the Ohio River and a petrochemical terminal. The petrochemical terminal, approximately two acres, consisted of ten large capacity, above ground, storage tanks surrounded by an earthen

dike; a metal transfer pipeline ten inches in diameter; and a tanker truck terminal. The transfer pipeline connected the storage tanks to a barge terminal in the Ohio River, and also to a truck load-out area north of the storage tank area. The petrochemical terminal and tanks have since been removed. Additional information regarding Charter Oil can be found in Section E of this permit.

DRAFT

ATTACHMENT 6 - ~~GROUNDWATER MONITORING PLAN~~ RESERVED

Refer to most recent version and/or updates to the Integrated Ground Water Monitoring Plan (IGWMP), which is a separate document.

DRAFT

Statement of Basis for Corrective Measures at

**Heritage-WTI, Inc. Facility
East Liverpool, Ohio
OHD 980 613 541**

**Prepared by
The Ohio Environmental Protection Agency
February 2011**

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1.0 INTRODUCTION

1.1 Executive Summary

The Ohio Environmental Protection Agency (Ohio EPA) has prepared this Statement of Basis (SB) for the remediation of the Heritage-WTI, Inc. (Heritage-WTI) facility, located in East Liverpool, Ohio. Public participation is one of the responsibilities addressed under the Resource Conservation and Recovery Act (RCRA). This SB identifies Ohio EPA's preferred remedies, explains the reasons for the selection of the remedies, solicits public review and comments, and provides information on how the public can be involved in the remedy selection process.

Under RCRA, the Corrective Action program was created to address threats to human health and the environment from historic or present waste management areas at RCRA treatment, storage or disposal facilities (TSDF). The Heritage-WTI facility is a permitted facility for the storage and treatment of hazardous wastes generated onsite and offsite.

Several investigations of environmental conditions have been conducted at the facility beginning in the mid-1980s, prior to and under Heritage-WTI's ownership. Subsequent to these investigations and to address the facility's Corrective Action requirements, Heritage-WTI performed a focused RCRA Facility Investigation (RFI) in 2007 and 2008. During the RFI, Heritage-WTI sampled and analyzed soil and ground water samples at the facility. Heritage-WTI documented the results of the investigation through submittal of a RFI Report in April 2009. Based on the findings in the RFI Report, it was determined that Corrective Measures would be necessary at the facility in order to protect human health and the environment.

Ohio EPA required Heritage-WTI to submit either a Corrective Measures Study to evaluate potential remedies or submit a Presumptive Remedy proposing a specific remedy for the facility. Since Heritage-WTI had already been conducting an Interim Measure to recover contamination from the subsurface, the facility submitted a Final Remedy Workplan in July 2009. The Final Remedy Workplan included a Presumptive Remedy, which built upon the proposed continuation of their current interim measure. Ohio EPA evaluated the proposed remedy and believes that continuation of the interim measure, along with additional conditions and restrictions would be protective of human health and the environment.

Therefore, Ohio EPA is proposing the below remedies for public comment in order to address affected areas at the facility. Ohio EPA will select a final remedy for the Heritage-WTI facility only after the public comment period has ended and the comments received during the comment period have been reviewed and considered.

In brief, Ohio EPA proposes the following measures:

- Heritage-WTI and Ohio EPA enter into an Environmental Covenant for the facility restricting future use of the facility and also restricting the use of ground water.
- Heritage-WTI will operate, monitor and maintain the skimmer Light Non-Aqueous Phase Liquid (LNAPL) remediation system. Heritage-WTI will develop and implement an Operations and Maintenance Plan for the operation, maintenance, monitoring and removal of the remaining free product floating on the water table (i.e., LNAPL) in the Charter Oil Facility Release Area (COFRA).
- Development and implementation of a facility-wide Integrated Ground Water Monitoring Program.
- Development and implementation of a Soil Management Plan to assure worker health and safety protection and proper soil management for onsite soil excavation activities.
- Development and implementation of an Operations and Maintenance Plan for the maintenance of the current surface cover in the restricted area.
- Development and implementation of an Alternate Remedy Plan should the skimmer LNAPL remediation system fail to achieve the remedial goals within an acceptable timeframe.
- Development and implementation of an Indoor Air Monitoring Program for newly enclosed structures located within the restricted area to ensure continued worker health and safety.

Ohio EPA finds that these remedies will further protect public health and the environment by reducing the risks to acceptable levels once the remedy is implemented.

1.2 How the Corrective Action Process Works

The initial step in the Corrective Action process for facilities regulated under RCRA is facility characterization or investigation to define the nature and extent of contamination at the facility. The information collected will support the selection and implementation of

a remedy or remedies. This step is culminated with the facility's submission of a report summarizing the data.

Upon completion of the investigation, the facility can either provide Ohio EPA with its proposed remedies or Ohio EPA may propose remedies. Ohio EPA may decide to approve the proposed remedy, tentatively approve a proposed remedy, tentatively select a different remedy, or require additional analysis of remedial alternatives. Ohio EPA will next present a preliminary decision on remedy selection for public comments by issuing a Statement of Basis. Following public review, Ohio EPA will respond to all comments received. Ohio EPA will take into account comments received during the Public Comment period in making the final decision. Ohio EPA will then issue a final decision selecting the remedy. The facility is then required to implement the remedy. At permitted facilities, the remedy implementation schedule would be incorporated into the permit via an Ohio EPA initiated modification to the permit.

2.0 PUBLIC PARTICIPATION

The Ohio EPA is seeking comments from the public on the proposed remedy presented in this document. The actual approval for the final remedy will be made after the comments received during the public comment period have been reviewed. Ohio EPA will consider all public comments on this Statement of Basis in finalizing the permit modification requiring implementation of the final remedy. All written and oral comments received during the public comments period will be summarized and addressed in the Responsiveness Summary of the final Permit Modification.

A copy of the draft permit and the documents which have been submitted to Ohio EPA on this matter by Heritage-WTI are available for review by the public at Ohio EPA's Northeast District Office, Division of Hazardous Waste Management, 2110 East Aurora Road, Twinsburg, Ohio 44087; and Carnegie Public Library, 219 E. Fourth Street, East Liverpool, Ohio 43920 (330) 385-2048. Please call Ohio EPA at (330) 963-1200 to make an appointment to review these records. A list of the primary documents detailing the Corrective Action investigations is attached (Attachment #1) to this Statement of Basis.

Your comments may either be submitted in writing by mail or e-mail to:

Ohio EPA, Division of Hazardous Waste Management
Regulatory and Information Services
P.O. Box 1049, Columbus, Ohio 43216-1049
dhwmcomments@epa.state.oh.us

The comment period for this Statement of Basis will run from February 9, 2011 to March 26, 2011. Written comments regarding information contained in this Statement of Basis must be submitted before the end of the public comment period. The comment period may be extended by Ohio EPA if a specific request for a comment period extension is received within the original comment period. All persons including Heritage-WTI may submit written comments relating to this matter.

3.0 FACILITY BACKGROUND

3.1 Facility Operational History

Heritage-WTI (formerly known as Von Roll America and Waste Technologies Industries) operates a hazardous waste incinerator on approximately 21.5 acres of property. The facility currently accepts hazardous waste from off-site hazardous waste generators for storage and treatment.

From the early 1920s to the late 1930s, the site was used for foundry operations. The site was relatively inactive until 1955, although dumping of construction debris and rubble fill was reported during this time. From 1955 to 1984, the facility was used by the River Services Company and the Charter International Oil Company (Charter Oil) as a bulk storage terminal for distributing a wide range of petroleum products. The Columbiana County Port Authority acquired the property in 1981 and continued to lease the property to Charter Oil until 1984. The storage tanks and transfer pipelines associated with Charter Oil operations were subsequently dismantled and removed after Charter Oil ceased operations at the site.

Heritage-WTI received the original hazardous waste permit for the facility in 1984 and constructed the incinerator from 1990 to 1992, when operation of the hazardous waste incinerator was initiated. Heritage-WTI purchased the facility property from the Columbiana County Port Authority in December 1992.

3.2 Environmental Setting

The Heritage-WTI facility is located along the Ohio River in East Liverpool, Ohio, directly across from West Virginia and less than 1.5 miles west of the Pennsylvania-Ohio border. The general layout of the facility is presented on Figure 1. The topography of the facility itself is gently rolling, except in the immediate vicinity of the southern portion of the facility where the Ohio River forms a steep river valley oriented in the east-northeast direction. A topographical map displaying the facility's topographical setting is included as Figure 2. In the immediate vicinity surrounding the facility, the area is mixed residential and commercial, with some light industrial activity present. The Heritage-WTI facility is situated on 21.5 acres of property that is zoned for general industrial

activity. The facility is bordered to the north by railroad tracks and a steep incline, to the west by the Columbiana County Port Authority, to the south by the Ohio River, and to the east by an S.H. Bell Company materials handling terminal.

The operational portion of the facility, which is surrounded by a locked fence, is mostly paved with concrete or asphalt pavement, although there are portions of grass and vegetation in areas. The dominant features of the operational portion of the facility are the hazardous waste incinerator and associated buildings and equipment, the container processing facility, the organic waste tank farm, the administration building and laboratory, the truck holding and sampling area, and the collection tank area. During construction of the incinerator and associated buildings, operational areas of the facility were raised to a minimum elevation of 695 feet above mean sea level by backfilling with low permeability soils. Additionally, a sheet pile wall along the river was installed. Outside the fenced operational area, Heritage-WTI maintains a grassy area on the east side of the facility property.

3.3 Geology and Hydrogeology

The Heritage-WTI facility is underlain by unconsolidated alluvial sediments deposited by the Ohio River, which overlie sandstone of Pennsylvanian age. As stated above, imported fill material is also present at varying depths across the majority of the facility. Two distinct stratigraphic units exist within the unconsolidated sediments underneath the fill material and can be grouped into the finer grained silts and clays (silt and clay unit) and the coarser grained sand and gravels (sand and gravel unit). Sandstone bedrock underlies the unconsolidated sediments.

Fill material is most prevalent in the areas of the former Charter Oil aboveground storage tanks. The layout of the former Charter Oil facility can be found in Figure 3. Additional fill material was also needed in the southern areas of the facility towards the Ohio River in order to raise those sloping areas up to the current grade during the incinerator construction. Boring logs indicate that approximately 15 feet of fill material was added to the former Charter Oil storage tank area and over 20 feet of fill is present in some areas of the facility. The fill material varies but can be generally characterized as clay to sand with evidence of anthropogenic material (e.g., slag, brick fragments, etc.).

The silt and clay unit consists of a range of finer grained sediments including sand (fine grained), silt and clay. The sand fraction is more prevalent in the southern and northern facility areas, while the clay and silt are the dominant lithology under the portion of the facility which previously included the former Charter Oil aboveground storage tanks. The boundary of the silt and clay unit has been defined as approximately parallel to the

Ohio River to the south of the former Charter Oil aboveground storage tanks and extends more inland in the northern facility area. The silt and clay unit thickness (where present) ranges from approximately 7 to 25 feet, with the maximum thickness observed to the south of and in the southern area of the former Charter Oil aboveground tanks. However, based on boring logs, it appears that the silt and clay may be absent in the areas at well PA-07, located within the former Charter Oil operations area and at soil boring VRA07-SB105 near the northwestern portion of the facility. Refer to Figure 4 for a hydrogeologic cross section of a portion of the facility. Figure 5 also indicates the approximate limit of the “silt/clay lens.”

The sand and gravel unit is the dominant lithology underlying the facility and the silt and clay unit. Fine to coarse sand and gravels are the dominant grain size, but silt and cobble size particles have also been noted. The maximum thickness (68 feet) of the sand and gravel unit is observed in the northern portion of the facility, while the projected minimum sand and gravel thickness (approximately 26 feet) occurs in the southern facility area along the Ohio River. Below the sand and gravel unit is a fine grained sandstone layer of Pennsylvania age. The sandstone is encountered at a depth that may range from 71 to 89 feet below ground surface.

Ground water at the facility is unconfined and found in the unconsolidated silt and clay unit and the sand and gravel unit. Ground water generally flows from the northern portion of the facility towards the south (i.e., towards the Ohio River).

The sand and gravel unit is the primary ground water bearing zone and has the ability to yield high volumes of ground water. Based on ground water level measurements obtained during the RFI, an asymmetric semi-radial ground water contour pattern is noted with flow directed to the east in the eastern portion of the facility and to the south in the western portion of the facility. The ground water contour and flow pattern reflect the influence of the surface water bodies in the area, with flow in the eastern portion of the facility directed toward a drainage conveyance and in the western portion of the facility directed toward the Ohio River. (Refer to Figure 6 for a shallow ground water contour map.) Because differences were observed between contour intervals, hydraulic gradients were estimated separately for the eastern, northwestern, and south-central areas of the facility. Therefore, the average horizontal ground water flow is estimated to range from 0.1 feet/day to 2.5 feet/day. A downward vertical hydraulic gradient of 0.11 feet/foot was estimated in the northern portion of the facility. However, near the Ohio River in the southern portion of the facility, an upward vertical hydraulic gradient is expected since the Ohio River serves as a ground water discharge boundary.¹

¹ Final Remedy Workplan, Heritage-WTI, Inc./COFRA, July 2009, Prepared by Management and Technical Resources, Inc.

4.0 WASTE MANAGEMENT UNITS AND AREAS OF CONCERN

4.1 Facility Assessment

Several investigations into the environmental conditions at the facility have been conducted since the mid-1980s. In particular, analytical results from samples collected at the facility in March 1990, prior to the facility being constructed, indicated the presence of toluene, ethylbenzene, and xylene in the ground water and soil. Additionally, the results indicated the presence of benzene, acetone, and trimethylbenzenes in the ground water. The soil and ground water investigations were conducted based on previous events that occurred while Charter Oil was operating. Based on the results of the early investigations, an Administrative Consent Agreement (Consent Agreement) was negotiated between the Columbiana County Port Authority and Ohio EPA in November 1991 to address the ground water contamination at the facility. The 1991 Consent Agreement required the development and implementation of an Investigation Work Plan, and the design and installation of a floating contaminant removal and gradient control system. In general, the Consent Agreement required work that was designed to contain and mitigate the ground water contamination through an interim measure. Subsequent to the required aquifer testing conducted at the facility, the interim measure was developed for a system using product only pumps to remove the free product (i.e., Light Non-Aqueous Phase Liquid (LNAPL)) from the subsurface. However, the goal of pumping ground water to create a cone of depression and potentially enhancing LNAPL recovery was not pursued further because of the high pumping rate required and the generation of an excessive amount of ground water requiring management and disposal. The proposed LNAPL recovery system was then initially installed in 1997. This interim measure is described in further detail in Section 4.2.

Aside from the Consent Agreement and interim measure and subsequent to the Heritage-WTI facility's construction, a preliminary assessment and visual site inspection (PA/VS) was performed on behalf of the U.S. EPA in August 1993 to identify and assess the existence and likelihood of releases from solid waste management units (SWMUs) and other areas of concern (AOC) at the facility. The PA/VS identified 18 SWMUs (also known as waste management units (WMUs)) and one area of concern (AOC) at the facility. Since the PA/VS activities conducted in 1993, four additional waste management units have been identified at the facility. One SWMU, the Decontamination Building, has not yet been constructed.

The following WMUs and AOC have been identified at the facility.

1. WMU 1: Incinerator System
2. WMU 2: Organic Waste Tank Farm

3. WMU 3: Organic Tanker Unload Station
4. WMU 4: Truck Holding and Sampling Area
5. WMU 5: Building B (External Truck Wash)
6. WMU 6: Wastewater Treatment
7. WMU 7: Storm Water Storage Tank Farm
8. WMU 8: Process Water Tanks
9. WMU 9: Laboratory Waste Storage Tank
10. WMU 10: Container Processing Building
11. WMU 11: Building A Storage Area (Drum Warehouse of the Container Processing Building)
12. WMU 12: Pump Out (PT) Tank Farm
13. WMU 13: Extruder
14. WMU 14: Container Receiving Area (unloading docks)
15. WMU 15: Container Holding Building (Slag Canopy)
16. WMU 16: Less Than 90 Day Accumulation Areas
17. WMU 17: Bulk Solid Waste Storage Tanks
18. WMU 18: Building C (Lab Pack Building)
19. WMU 19: Satellite Accumulation Areas
20. WMU 20: Incinerator Feed Building (Direct Organic Tanker South)
21. WMU 21: Incinerator Feed Building (Direct Drum Pump Out)
22. WMU 22: Decontamination Building
23. AOC: Former Charter Oil Facility Release Area

The hazardous waste permit for the facility was renewed on March 23, 2005. Descriptions of the 18 WMUs previously identified, the four WMUs newly identified and the AOC are provided in the renewal permit issued by Ohio EPA, Division of Hazardous Waste Management. Except for the AOC, which is known as the Charter Oil Facility Release Area (COFRA), no further action is needed at the other WMUs. All of the WMUs listed above have a low potential for a release to the environment. Most are operating units. Additionally, some of the WMUs are also subject to RCRA closure requirements. Therefore, requirements of the 2005 Permit renewal included development and implementation of a RFI Work Plan for the COFRA, and continued compliance with the November 1991 Consent Agreement regarding the interim measure.

4.2 Interim Measure

In accordance with the 1991 Consent Agreement, an interim measure LNAPL recovery system was installed in 1997 for the COFRA area. The system initially consisted of three pneumatic pumps placed in three recovery wells on-site (PRW-01, PRW-02, and PRW-03) designed to remove the free product (i.e., LNAPL) from the subsurface. The

system was connected by underground hoses to a recovery shed that housed a drum for LNAPL storage with a high-level cut-off switch and secondary containment pad. The system used plant-supplied compressed air and was operated by a control panel located on the exterior wall of the shed.

In January 2006, in order to optimize the rate of LNAPL recovery, Heritage-WTI installed passive LNAPL skimmers in two wells (WTI-06 and PA-07) located at the facility. The previous system was in need of replacement equipment and an appreciable amount of LNAPL had not been observed in the three recovery wells associated with the pump system for several years. The two passive LNAPL skimmers were installed in January 2006 and the three pneumatic product only pumps were then removed in April 2006. A third passive skimmer was installed in June 2009 in well PRW-02. The third passive skimmer is placed in either well PRW-02 or PRW-01, depending on which well has had LNAPL occurrences most recently. The passive skimmers float on top of the ground water table, skim the LNAPL from the surface and collect it in their internal reservoirs. Heritage-WTI conducts a monthly LNAPL monitoring program, which includes checking seven monitoring or recovery wells (PMW-01, PRW-01, PRW-02, PRW-03, WTI-06, PA-07, and PA-08) associated with the COFRA area for the presence of LNAPL. During this monthly monitoring program, the passive LNAPL skimmers are manually removed, emptied, and placed back into the well. Heritage-WTI then prepares and submits a monthly progress report to Ohio EPA, which documents among other things, the depth to water and LNAPL for each well, and any amount of LNAPL that is recovered.

With the exception of several minor and non-sustained accumulations of LNAPL in wells PRW-01 and PRW-02, measurable amounts of LNAPL are generally limited to wells PA-07 and WTI-06.

4.3 Charter Oil Facility Release Area (COFRA)

As stated earlier in this Statement of Basis, the facility was used as a bulk storage terminal for distributing petroleum products from 1955 to 1984. The facility was initially used by the River Services Company and later by the Charter International Oil Company (Charter Oil). The Charter Oil facility was comprised of approximately 7.2 acres, which included a building, the barge off-loading pier that extended into the Ohio River and a petrochemical terminal. During operations, the facility received petroleum products such as acetone, toluene, xylene, and mineral spirits. The products were transferred from river transport ships to storage tanks at the facility and then to tanker trucks for distribution. The bulk storage terminal at the facility, which was approximately two acres in size, consisted of ten large capacity, aboveground storage tanks surrounded by an earthen dike. The transfer pipelines connected the storage tanks to a

barge terminal at the Ohio River and also to a truck load-out terminal north of the tank area. The layout of the former Charter Oil facility is shown on Figure 3.

The earthen dike that surrounded the storage tanks and the surface within the diked area reportedly consisted of relatively loose, large grained soil with a high percentage of gravel and stones. According to past records, the berm appears to have surrounded the storage tanks to the south, east and west, but not to the north. Additionally, while the dike may have been capable of preventing a release from discharging directly into the Ohio River, it may not have been sufficient to prevent migration of contaminants into the subsurface. In particular, there were two documented releases from the COFRA. The first one occurred in 1983 and consisted of approximately 19,000 gallons of xylene being released from a storage tank. The second release occurred in 1984 and consisted of a release of 33,000 gallons of mineral spirits from a storage tank. There was also an alleged release or possible theft of 200,000 gallons of an unidentified petroleum product that was reported in June 1984. However, an FBI investigation into the possible theft was unable to confirm the theft. The report of the FBI investigation did note that the pipelines servicing the Charter Oil tanks were corroded.

Based on previous investigations conducted at the facility, soils and ground water were contaminated during the operation of the Charter Oil facility. In particular, areas beneath the former aboveground storage tanks and in the immediate vicinity of the truck load-out area were impacted. Additionally, it appears that the raising and lowering of the water table created a smear zone due to the presence of LNAPL in the subsurface. Historical soil sample results indicated that residual impacts were present in the unsaturated zone beneath the presumed spill area associated with the former aboveground storage tanks and a broader area of impacts was reported in the smear zone immediately above the water table. Because the facility was backfilled to raise the site elevation during construction of the incinerator, impacts mainly appear to be associated with the subsurface soils (greater than two feet bgs) and primarily associated with the LNAPL smear zone located immediately above the water table.

As mentioned earlier, the primary subsurface impacts of the COFRA are related to the presence of LNAPL within the smear zone associated with the normally fluctuating water table. The occurrence of a floating hydrocarbon phase in monitoring wells was documented in 1987 and apparent LNAPL thickness measurements were obtained in March 1990. Additional LNAPL measurements were again collected in December 1995.

Several investigations into ground water conditions at the facility have been conducted, beginning as early as 1987. Based on previous investigations and the semi-annual ground water detection monitoring program currently conducted at the facility, it appears that the impacts to ground water from the COFRA are mainly limited to the ground water zone in the central portion of the Heritage-WTI facility, surrounding the interim

measure/COFRA wells. The impacts to ground water have continued due to the presence of LNAPL within the smear zone immediately above the water table.

The COFRA impacted soil and ground water area currently includes the incinerator building, steam plant, truck loading and sampling area, container holding area, and container processing facility, as well as associated asphalt driveways and access roads. The current surface cover is characterized by asphalt and concrete paving, above grade industrial structures and grassy areas regularly maintained by Heritage-WTI.

Approximately 15 feet of fill material was placed in the COFRA to raise the original ground surface to the current grade during construction of the incinerator.

4.4 RCRA Facility Investigation (RFI)

Based on the previous investigations conducted at the facility, it was determined that the COFRA AOC was the only WMU or AOC that warranted further investigation. The WMUs do not warrant any further corrective action at this time because the potential for release from the WMUs is low and because the WMUs, which are operating units, are also subject to RCRA closure requirements. Therefore, the RFI was conducted to further assess the nature and extent of contamination at the COFRA, identify potential receptors and exposure pathways, and obtain information necessary to determine appropriate corrective action objectives. The RFI included soil sampling, ground water sampling, and indoor air sampling. The approximate extent of the COFRA contamination is shown on Figure 5.

Soil

Five soil borings were installed at the facility during July 2007 to determine current conditions of the facility and the extent of contamination in the COFRA. Three soil samples were collected from each location before saturated conditions (i.e., the water table) were encountered. One surface soil sample from each location was collected from the 0-2 feet below ground surface (bgs) range, one subsurface soil sample was collected just above the saturated zone, and one subsurface soil sample was collected from a midpoint range in between the other two sample depths. Each soil sample was then analyzed for a site-specific list of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and inorganic compounds.

The results of the RFI soil sample analyses indicated organic constituents above the reporting limit in both the surface and subsurface soils. The results also indicated inorganic constituents greater than the referenced background range in both surface and subsurface soils. However, it was determined that even though the soil samples collected during the RFI indicated detections of constituents of concern, the sample

results at the boundary of the COFRA were below screening levels for an unrestricted use scenario.

Ground water

As mentioned previously, ground water samples were also collected during the RFI activities. Ground water level measurements and the depth to LNAPL measurements, if present, were first collected from each of the 24 currently existing monitoring wells, recovery wells, and piezometers at the facility in July 2007. The LNAPL measurements collected in July 2007 indicated that no measurable amount of LNAPL was present in any of the wells at that time, but a sheen was noted in PRW-03. However, the passive skimmers installed in wells PA-07 and WTI-06 may have influenced these measurements. Based on the July 2007 data and the monthly interim measure program, it appears that the extent of remaining LNAPL may be limited to the area in the immediate vicinity of wells PA-07 and WTI-06.

Ground water sampling then began for a site-specific list of monitoring wells at the facility. In particular, twelve ground water wells were sampled, including seven wells associated with the COFRA interim measure activities (PMW-01, PRW-01, PRW-02, PRW-03, WTI-06, PA-07, and PA-08) and five wells located in the general vicinity of the COFRA (RW-1, PA-03, PA-04, PA-05, and PA-06). Each ground water sample collected was then analyzed for a site-specific list of constituents of concern, including VOCs, SVOCs, and inorganic compounds. An additional RFI ground water sampling event was later conducted in June 2008. Two wells (PMW-01 and PA-02) were sampled and analyzed for the same site-specific COC list as those samples collected in July 2007. PA-02 was not included in the July 2007 ground water sampling event and was therefore initially sampled in June 2008, while PMW-01 was re-sampled in June 2008 in order for the results from the two wells to be evaluated together.

Analytical results for the June 2007 ground water sampling event indicated that wells PA-03, PA-04, PA-05, PA-06, PMW-01, RW-1, and PA-08 provide delineation of the horizontal and vertical extent of contamination in ground water. The concentrations of constituents of concern found in the ground water from wells PA-07, PRW-01, PRW-02, and WTI-06 indicate that these wells remain within the plume of contaminated ground water. Inorganic constituents were detected above the detection limit within the plume area and also in the wells used for delineation purposes. However only the dissolved lead and nickel results in PA-03 (a well used for delineation purposes) had an exceedance above its statistically significant detection limit, but the exceedance may have been related to turbidity in the sample and not ground water quality itself.

A second RFI ground water investigation was conducted in June 2008 for wells PA-02 and PMW-01. The analytical results from well PMW-01 were similar to the July 2007 ground water sampling event and indicate that PMW-01 is considered within the ground

water plume of contamination. However, analytical results from well PA-02 indicate that this well is beyond the limit of contamination.

Indoor Air

Indoor air monitoring was also conducted as part of the RFI. Specifically, three enclosed areas located within the COFRA were monitored for a site-specific list of VOCs and SVOCs in September 2008. Samples were obtained using an organic vapor badge-type monitor, which uses activated carbon as the sampling medium. Because the facility is industrial, the analytical results were then compared to the American Conference of Governmental Industrial Hygienists Threshold Limit Values or the Occupational Safety and Health Administration Permissible Exposure Limits, whichever was less. The facility sample results were below these established limits.

5.0 SUMMARY OF FACILITY RISKS

5.1 Human Health Risk Assessment

Previous investigations at the facility have demonstrated elevated levels of constituents of concern (COCs) in the soil and ground water in the COFRA. The analytical results from the soil and ground water samples collected during the RFI investigation were used to determine the nature and extent of the COFRA compared to Ohio EPA screening values. The COCs identified during previous investigations and sampled and analyzed for during the RFI included benzene, toluene, ethylbenzene, total xylenes, acetone, 2-butanone, isopropylbenzene, methylcyclohexane, methylene chloride, 4-methyl-2-pentanone, trans-1,2-dichloroethylene, trichloroethylene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, m-dichlorobenzene, o-dichlorobenzene, p-dichlorobenzene, 2,4-dimethylphenol, 2-methylnaphthalene, bis(2-ethylhexyl)phthalate, di-n-octyl phthalate, naphthalene, arsenic, barium, chromium, lead, and nickel.

The levels of COCs in soil and ground water have varied across the facility over the years, including the presence of LNAPL product detected in monitoring wells in the COFRA. However, soil sample results and monitoring wells outside of the COFRA impacted areas have demonstrated that the levels of COCs in soil and ground water are protective of a residential scenario. Specific sampling results can be found in the RCRA Facility Investigation Report, dated November 2007 and updated October 2008. Additionally, based on the soil and ground water samples collected at the facility during the RFI and during the facility's semi-annual ground water detection monitoring program, there are no COCs identified as migrating into the Ohio River at concentrations exceeding applicable human health risk-based standards with no adverse impact on surface water quality.

Potential receptors identified during the RFI for current and future land uses include on-site workers, trespassers, utility/construction workers, local residents, downriver

residents in Chester, WV, and recreational users of the Ohio River adjacent to the facility. Based on the conceptual site model included in the RFI Report, potentially complete exposure pathways do not exist for any of the potential receptors except the utility/construction worker who may perform invasive activities (e.g., underground utility excavation) and on-site workers within enclosed structures (where vapors from the subsurface could accumulate).

Residents and workers in the vicinity of the facility are expected to continue to use the public water supply as the source for drinking water and potable uses. Therefore, the ingestion of ground water is not a complete exposure pathway. Additionally, due to the placement of backfill material during the construction of the incinerator and current concrete and asphalt pavement and vegetation, potential exposures via the direct contact pathway are not complete, except for a utility/construction worker during invasive activities. Further, the potential for exposure to on-site workers via the vapor intrusion pathway was evaluated at several locations within or near the area of remaining LNAPL and dissolved phase impacted ground water, and the RFI Report documented that the pathway is incomplete at this time.

Based on the conceptual site model (refer to Figure 7) of potential receptors and exposure pathways, it was determined that media cleanup standards for impacted soils were not necessary to assure adequate protection of human health. Additionally, based on the results of the conceptual site model, it was determined that contaminated ground water is not impacting human health or the environment and not migrating off-site. However, in order to continue to prevent contaminated soil and ground water from adversely impacting human health or the environment, the following corrective action objectives were identified based on the RFI findings:

- Assure that soil and ground water do not pose an unacceptable risk to human health based on continued industrial land use,
- Continue removal of LNAPL,
- Ensure ground water contamination is contained, and
- Coordinate plans with current operations so that activities are conducted safely and without compromising the containment provisions of the facility.

5.2 Ecological Risk Assessment

A Level 1 scoping ecological risk assessment was completed by Heritage-WTI in accordance with Ohio EPA's guidance using the data collected during the RFI. The results of the RFI investigation confirm that the extent of the COFRA-related impacts do not extend to the Ohio River's edge. The RFI investigation also confirmed that the

COFRA-related impacts do not extend eastward beyond the facility fenceline and into the grassy area located on the eastern portion of the facility property. Therefore, it was determined that the COFRA does not contain sensitive environments or important ecological features or resources and no habitat is present that may be utilized by threatened or endangered species, and further ecological assessment is not required.

6.0 REMEDY EVALUATION AND SELECTION

6.1 Description of Remedies Considered

For a proposed remedy to be considered a viable remedy when implemented, it must meet the threshold criteria that it be protective of human health and the environment. The threshold criteria are: (1) Protect human health and the environment; (2) Attain media cleanup standards set by the implementing agency; (3) Control the source of the release(s) to reduce or eliminate, to the extent practicable, further releases that may pose a threat to human health and the environment; and (4) Comply with applicable standards for management of waste.

An option of “no action” to be implemented to address the contamination at the facility is not acceptable to Ohio EPA. Even though use of the facility is industrial and the current levels of contamination present in the soil and ground water are not presenting an unacceptable exposure or risk for current facility use, and it has been determined that migration of ground water contamination is under control, corrective measures are required to maintain the corrective action threshold criterion of being protective of human health and the environment. There is currently no legally enforceable mechanism in place to prevent the facility from being converted to residential use in the future.

To ensure the affected portion of the facility continues to be used for designated purposes, and to ensure restricted use of ground water, Ohio EPA considered as a remedy that the facility owner and Ohio EPA enter into an Environmental Covenant. An Environmental Covenant is a legally enforceable mechanism that would describe the facility and limit its use to designated purposes. The Environmental Covenant would list appropriate land and ground water use while also describing what uses would not be allowable. The Environmental Covenant would run with the land and attach to the deed and could not be changed without written agreement of both the facility owner and Ohio EPA, even if the facility was sold at some point in the future. Ohio EPA would monitor the facility to ensure that its use was consistent with the allowed uses listed in the Environmental Covenant.

Other measures are also necessary to minimize direct contact with contamination and to contain and control the contamination remaining on-site. Some actions have been

taken to meet the corrective action threshold criteria at the facility. However, additional actions will be necessary, which are described in Section 6.2.

6.2 Proposed Remedy Selection and Summary

Environmental Covenant – Heritage-WTI and Ohio EPA will enter into an Environmental Covenant for the facility restricting future use of the facility and also restricting the use of ground water. The City of East Liverpool Planning Department has indicated that the property currently has commercial zoning affixed to it and that no use other than industrial is anticipated.

Ohio EPA proposes that affected portions of the facility will have use restrictions through enactment of an Environmental Covenant, an enforceable mechanism under Ohio law that can be used to restrict facility use. This restriction will run with the land and be binding upon all future facility owners should the facility be transferred. The Environmental Covenant will include a legal description of the subject facility, identify the contaminated areas and describe acceptable and unacceptable land uses. Heritage-WTI will submit a survey plat and legal description with the Environmental Covenant, specifying the areas of the facility to be restricted, and indicating the anticipated future use for each parcel. Ohio EPA will monitor the facility owner's adherence to the Environmental Covenant to ensure continued protection of human health and the environment. The Environmental Covenant will:

- Restrict a portion of the property, including the COFRA, to industrial land use, and
- Prohibit the extraction and use of ground water for the entire facility for any purpose other than sampling, monitoring or pursuant to a ground water remedial action.

The RFI assumed there would be no human exposure to the ground water. Accordingly, Ohio EPA believes that human health will be protected if on-site use of ground water is prohibited. The RFI found that the ground water, which has been impacted in the COFRA area, is unlikely to migrate off the Heritage-WTI facility property.

Operation and Maintenance Plan for remediation system – Heritage-WTI will operate, maintain, and monitor the skimmer LNAPL remediation system. Heritage-WTI will also prepare and submit an Operation and Maintenance Plan (OMP) for the current LNAPL remediation system. The RFI demonstrated that LNAPL still remains in a portion of the facility property. Therefore, Ohio EPA believes that the facility should

continue to monitor and remove the LNAPL to prevent any migration of contamination to other areas of the facility or offsite.

The current LNAPL remediation system consists of three passive skimmers placed inside three ground water monitoring wells (WTI-06, PA-07, and PRW-01). The passive skimmers float on top of the ground water table, skim the LNAPL from the surface and collect it in their internal reservoirs. As part of the LNAPL remediation system, the skimmers are manually removed, emptied, and placed back into the well once a month. Additional wells associated with the COFRA area (PMW-01, PRW-02, PRW-03, and PA-08) are also checked for the presence of LNAPL once a month. If the skimmer is full or LNAPL is detected in a well, either after removal of the skimmer or in a well which does not have a skimmer, the LNAPL is removed from the well. If LNAPL remains in a well after the skimmer is removed, the skimmer is checked again at an increased monitoring frequency. Heritage-WTI will continue to conduct a monthly, or more frequent as needed, LNAPL monitoring program. Heritage-WTI will then submit a monthly progress report to Ohio EPA, which documents, at a minimum, a description of the monitoring event(s), the depth to water and LNAPL for each well, and any amount of LNAPL that is recovered.

As part of the final remedy, Heritage-WTI will prepare and submit an OMP to document how the LNAPL remediation system will be operated, maintained, and monitored to achieve optimal performance. More specifically, the OMP will include a detailed description of the LNAPL remediation system, a description of how the LNAPL remediation system is maintained to ensure it is operating for optimal performance, a description of how the LNAPL remediation system is monitored and the frequency of the monitoring, a description of the monthly progress reports that Heritage-WTI will submit to Ohio EPA which documents the LNAPL remediation activities for the month, and a description of how Heritage-WTI will evaluate the effectiveness of the LNAPL remediation system every five years. The OMP will be provided for Ohio EPA review and approval.

Integrated Ground Water Monitoring Plan – Heritage-WTI will develop and implement an Integrated Ground Water Monitoring Plan (IGWMP) for the facility to ensure that ground water contamination is not migrating offsite. The RFI demonstrated that an LNAPL free phase layer and dissolved phase ground water contamination still remain in the COFRA area of the facility. However, ground water data collected during the RFI and as part of Heritage-WTI's semi-annual ground water monitoring events has demonstrated that the ground water contamination is not migrating off site. Therefore, as part of the remedy, Ohio EPA believes that the facility should monitor the ground water onsite to address any potential migration of contamination to other areas of the property or off-site, if it should happen in the future.

The IGWMP should include a list of ground water monitoring wells which will be sampled, the frequency at which the wells will be sampled, the constituents which will be analyzed, the test methods to be used, the ground water remediation goals, the sampling and analysis procedures, the recordkeeping and reporting requirements, and the quality assurance/quality control procedures. The IGWMP will be provided for Ohio EPA review and approval.

More specifically, the ground water monitoring wells at the facility will be grouped into four different categories. Wells located within the ground water contamination area (“in-the-plume wells”) will be sampled every two years unless LNAPL exists within the well. These in-the-plume wells include PRW-01, PRW-02, PRW-03, PA-07, and WTI-06. The data from these wells indicates ground water contamination and therefore the level of constituents of concern in these wells will be monitored for changes in constituent concentration levels over time. While these wells have not been sampled regularly in the past, they have indicated the presence of LNAPL at various times during the monthly monitoring events. The wells will not be sampled if LNAPL exists at the time of sampling because the data will indicate the ground water saturation level since the LNAPL layer is present.

Ground water wells located outside the ground water contamination area will be monitored to ensure that the ground water contamination is not migrating. These wells, which will include PA-03, PA-04, PMW-01, and PA-08, will be called the “point-of-action wells” and they will be sampled once per year.

Wells that are located downgradient from the point-of-action wells will be monitored to ensure ground water contamination is not migrating offsite. These wells, which will include WTI-04, WTI-05, and PA-02, will be called “farther-downgradient wells” and they will be sampled every two years or more frequently if it is determined that ground water contamination has been detected in the point of action wells.

Additionally, Heritage-WTI will also sample wells that are upgradient and side gradient of the ground water contamination. These wells, which include WTI-01, WTI-02, and WTI-03, will be sampled every two years.

Ground water from each well in the four categories will be analyzed for volatile organic compounds, semi-volatile organic compounds, and inorganic compounds. More specifically, these constituents are:

- Volatile organic compounds: benzene, toluene, ethylbenzene, total xylenes, acetone, 2-Butanone (MEK), isopropylbenzene (cumene), methylcyclohexane, methylene chloride, 4-methyl-2-pentanone (MIBK),

trans-1,2-dichloroethylene, trichloroethylene (TCE), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

- Semi-volatile organic compounds: m-dichlorobenzene, o-dichlorobenzene, p-dichlorobenzene, 2,4-dimethylphenol, 2-methylnaphthalene, bis(2-ethylhexyl)phthalate, di-n-octylphthalate, naphthalene
- Inorganic compounds: arsenic, barium, chromium, lead, nickel.

The results from each ground water sampling event will be evaluated by Heritage-WTI and then submitted to Ohio EPA. More specifically, the data from the in-the-plume wells will be evaluated for any trends in the data which may demonstrate that the concentrations of constituents of concern in the ground water are decreasing. The point-of-action wells will be compared to ground water remediation goals to ensure that the LNAPL plume is not migrating. These ground water remediation goals will consist of maximum contaminant levels (MCLs) and risk based levels. Refer to table below for the list of constituents of concern. The farther-downgradient wells will be evaluated for any detection of constituents of concern in the ground water while the upgradient and side gradient wells will be used to monitor any possible constituents flowing onto the Heritage-WTI facility.

Constituent of Concern	Remediation Goal at Point of Action Wells
benzene	0.005 mg/L
toluene	1 mg/L
ethylbenzene	0.7 mg/L
total xylenes	10 mg/L
acetone	To Be Determined (TBD)
2-butanone (MEK)	TBD
isopropylbenzene (cumene)	TBD
methylcyclohexane	TBD
methylene chloride	TBD
4-methyl-2-pentanone (MIBK)	TBD
trans-1,2-dichloroethylene	0.1 mg/L
trichloroethylene (TCE)	0.005 mg/L
1,2,4-trimethylbenzene	TBD
1,3,5-trimethylbenzene	TBD
o-dichlorobenzene	TBD
p-dichlorobenzene	TBD
m-dichlorobenzene	TBD
2,4-dimethylphenol	TBD
2-methylnaphthalene	TBD
bis(2-ethylhexyl)phthalate	TBD

di-n-octylphthalate	TBD
naphthalene	TBD
arsenic	0.010 mg/L
barium	2 mg/L
chromium	0.1 mg/L
lead	0.015 mg/L
nickel	TBD

Within one year of the permit modification approval, Heritage-WTI will provide to Ohio EPA for approval, risk-based ground water remediation standards (GWRS) for all compounds that do not have maximum contaminant levels (MCLs) (i.e., all compounds in above table that currently have TBD listed as the GWRS). The risk-based GWRS must be unrestricted use and must take the additive affects of the compounds into consideration.

Soil Management Plan – Heritage-WTI will develop and implement a Soil Management Plan (SMP) that provides procedures to ensure worker health and safety protection and proper soil management for onsite activities that involve soil excavation within the restricted portion of the property. The conceptual site model in the RFI assumed that there would be no human exposure to impacted soils on the site. Therefore, Ohio EPA believes that human health will be protected if a SMP is developed and implemented to notify workers of the hazards present and to prevent excavation work without appropriate safeguards. The SMP will address intrusive activities and identify procedures to ensure worker protection and the proper management of potentially impacted material that may be encountered. The SMP will be provided for Ohio EPA review and approval.

Operations and Maintenance Plan for surface cover – Heritage-WTI will develop and implement an Operations and Maintenance Plan (OMP) for the maintenance of the current surface cover in the use restricted area. The data collected during the RFI demonstrated that soil and ground water contamination remains at the facility property. However, the conceptual site model in the RFI demonstrated that the current surface cover at the facility prevents an onsite worker or visitor from direct contact with the contaminated soil and ground water. Therefore, the OMP will describe how the current surface cover (backfill, concrete cap, asphalt pavement, and vegetation) will be monitored and maintained to continue to prevent any direct contact between the soils

and ground water and any potential receptors. The OMP will be provided for Ohio EPA review and approval.

Alternate Remedy Plan – Heritage-WTI will develop and implement an Alternate Remedy Plan should the current LNAPL skimmer corrective measures approach fail to prevent the contaminated ground water plume from expanding or fail to effectively remove the LNAPL. If it is determined that the existing LNAPL remediation skimmer system is not performing adequately (e.g., the skimmers are no longer successfully removing the LNAPL present at the facility), then Ohio EPA may request Heritage-WTI to submit an Alternate Remedy Plan which evaluates and proposes an alternate LNAPL collection method and remediation system. The Alternate Remedy Plan will be provided to Ohio EPA for review and approval.

Indoor Air Monitoring Plan – Heritage-WTI will develop and implement an Indoor Air Monitoring Program, as necessary to address potential future exposures to on-site workers via the vapor intrusion pathway. Indoor air sampling will be conducted in the future should structural modifications (e.g., enclosure of open areas) occur within the restricted area of the facility. The Indoor Air Monitoring Program should also include levels to which the sampling results will be compared to and any steps necessary to prevent unacceptable exposures from the vapor intrusion pathway if the sampling data indicates results above the levels identified. Subsequent to conducting the RFI, Heritage-WTI installed doors on the formerly open slag canopy storage area. At this time, the doors remain open and ambient air continues to move in and out of the space. However, if this condition changes and the doors on the slag canopy are closed, then Heritage-WTI will need to submit an Indoor Air Monitoring Plan for the building. The Indoor Air Monitoring Plan will be provided to Ohio EPA for review and approval.

ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
CFR	Code of Federal Regulations
cm/sec	centimeter per second
CMS	Corrective Measures Study
COC	Constituent of Concern
ERA	Ecological Risk Assessment
GWRS	Ground Water Remediation Standards
HHRA	Human Health Risk Assessment
IM	Interim Measure
LNAPL	Light Non-Aqueous Phase Liquid
MCL	Maximum Contaminant Level
MCS	Media Cleanup Standard
OAC	Ohio Administrative Code
Ohio EPA	Ohio Environmental Protection Agency
ORC	Ohio Revised Code
POA	Point of Action
PRG	Preliminary Remediation Goal
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SB	Statement of Basis
SVOC	Semi-Volatile Organic Compound
U.S. EPA	U.S. Environmental Protection Agency
VOC	Volatile Organic Compound
WMU	Waste Management Unit

GLOSSARY

Administrative Record – A collection of all documents that the Ohio Environmental Protection Agency (Ohio EPA) considers when selecting corrective measures for a Resource Conservation and Recovery Act (RCRA) facility.

Aquifer – Bedrock or unconsolidated material that is saturated and sufficiently permeable to transmit ground water to wells or springs.

Area of Concern (AOC) – Any area where a nonroutine release of hazardous waste or constituents to the environment has occurred or is suspected to have occurred.

Background – Constituent concentrations in nearby environmental media that are unaffected by a RCRA unit or any other concentrated waste activities.

Bedrock – The solid rock that underlies gravel, soil, or other unconsolidated surficial material.

Constituent of Concern – Any contaminant discovered during a facility investigation at a level that has the potential to negatively affect human health or the environment.

Corrective Action – Gives RCRA authority to require responsible parties to address the investigation and cleanup of hazardous releases.

Corrective Measures Study (CMS) – An evaluation of alternatives for cleanup of a facility contaminated with hazardous waste or hazardous constituents.

Environmental Covenant – A legally enforceable document that imposes activity and use limitations. The land use restriction runs with the land and is binding upon existing and any future facility owner, should the facility be sold.

Exposure Pathway – Route by which a contaminant is transported from the source to a human or ecological receptor.

Facility – All contiguous land and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. For the purposes of implementing corrective action under rule 3745-54-101 of the Ohio Administrative Code, all contiguous property under the control of the owner or operator seeking or holding a permit under the hazardous waste rules is considered to be the facility.

Ground Water – Water found beneath the earth's surface in a saturated zone. Ground water fills pores between materials such as sand, soil, and gravel as well as cracks in bedrock.

Hazardous constituents – Constituents listed in Appendix to Ohio Administrative Code (OAC) rule 3745-51-11 and in Appendix to OAC rule 3745-54-98.

Hazardous Waste – Waste as defined in OAC rule 3745-51-03.

Hazardous Waste Management Unit – A unit in which hazardous waste is disposed of, treated or stored and which requires a RCRA Part A and Part B permit.

Hydraulic conductivity – The rate at which ground water can move through a subsurface soil unit.

Inorganics – Chemical substances of mineral rather than organic origin (for example, barium)

Institutional Control – Controls that do not involve engineering or construction, such as land use restrictions, easements, covenants, zoning, deed notices, and advisories.

Interim Measure – A remedy implemented immediately upon identifying a unit or situation which presents a current and on-going threat to human health or the environment.

Maximum Contaminant Level (MCL) – The federally enforceable maximum concentration of a chemical that may be present in drinking water.

Operation and Maintenance Plan – A plan that defines long-term measures that will be implemented at a facility, after the initial remedial actions, to assure that a remedy remains protective of human health and the environment.

Point of Action – The defined location at which a cleanup level is attained.

Property – A piece of land or real estate.

RCRA – A law authorizing a regulatory program for generation, transport, treatment, storage, and disposal of hazardous waste. The law includes corrective action provisions that authorize the federal government to respond directly to releases of hazardous waste that may pose a threat to public health or the environment. Ohio EPA is responsible for implementing RCRA corrective action activities in Ohio.

RCRA Closure – Closure of a hazardous waste management unit that meets the performance standards in OAC rule 3745-55-11.

RCRA Facility Assessment (RFA) – A RCRA Facility Assessment documents environmental conditions at the facility in regard to past and present waste management activities. All related facility files are reviewed and a visual on-site evaluation is also performed. The final RFA document identifies all waste management units and areas of

concern and indicated if either a release of hazardous waste or constituents has occurred or if the potential for such a release exists. Conclusions and recommendations are included for each unit or area regarding the need for further investigation and/or some type of corrective action.

RCRA Facility Investigation (RFI) – An investigation conducted to collect information necessary to adequately characterize a facility for the purpose of developing and evaluating effective remedial alternatives. The RFI include a study to determine the nature and extent of contamination at a facility and the problems that the contamination may cause.

Responsiveness Summary – A summary of all comments received from the public on the Statement of Basis and RCRA Facility Investigation Report and Ohio EPA's response to those comments.

Risk Assessment – A study that evaluated the potential health risks to people and the environment from exposure to contaminated air, water, soil, and sediment. This evaluation is of existing conditions at a facility with respect to protection of human health, the environment, or both. This evaluation estimates, either qualitatively or quantitatively, the potential for adverse human health or ecological effects associated with potential contamination at a facility. Examples of risk assessments include human health risk assessment (HHRA) and ecological risk assessment (ERA).

Semi-Volatile Organic Compound – Carbon based compounds that do not evaporate very fast at room temperature.

Statement of Basis (SB) – A document that summarizes past investigations for a facility, identifies environmental problems, and seeks public input on the rationale for a proposed final remedy.

Treatment, Storage and Disposal Facility – A facility where hazardous waste is treated, stored or disposed. A hazardous waste permit is required for these activities.

Visual Site Inspection – An on-site inspection to visibly verify facility conditions, waste management units, areas of concern, and potential releases.

Volatile Organic Compound – Carbon based compounds which evaporate quickly at room temperature (e.g., solvents).

Waste Management Unit (WMU) – Any discernible unit at which solid waste, hazardous waste, infectious waste (as those terms are defined ORD Chapter 3734), construction and demolition debris (as defined in ORC Chapter 3714), industrial waste, or other waste (as those terms are defined in ORC Chapter 6111) has been placed at any time, irrespective of whether the unit was intended for the management of waste or hazardous waste. Such units include any area at a facility at which wastes have been routinely and systematically released. The term “waste management unit” is generally equivalent to the term “solid waste management unit.” Examples of WMUs include landfills, surface impoundments, waste piles, land treatment units, incinerators, injection wells, tanks (including 90-day accumulation tanks), container storage areas, transfer stations, and waste recycling operations.

FIGURES

FIGURE 1: General Layout of the Facility

Source: MTR, July 2009. Final Remedy Workplan, Charter Oil Facility Release Area, Heritage-WTI, Inc., Figure 1.1.

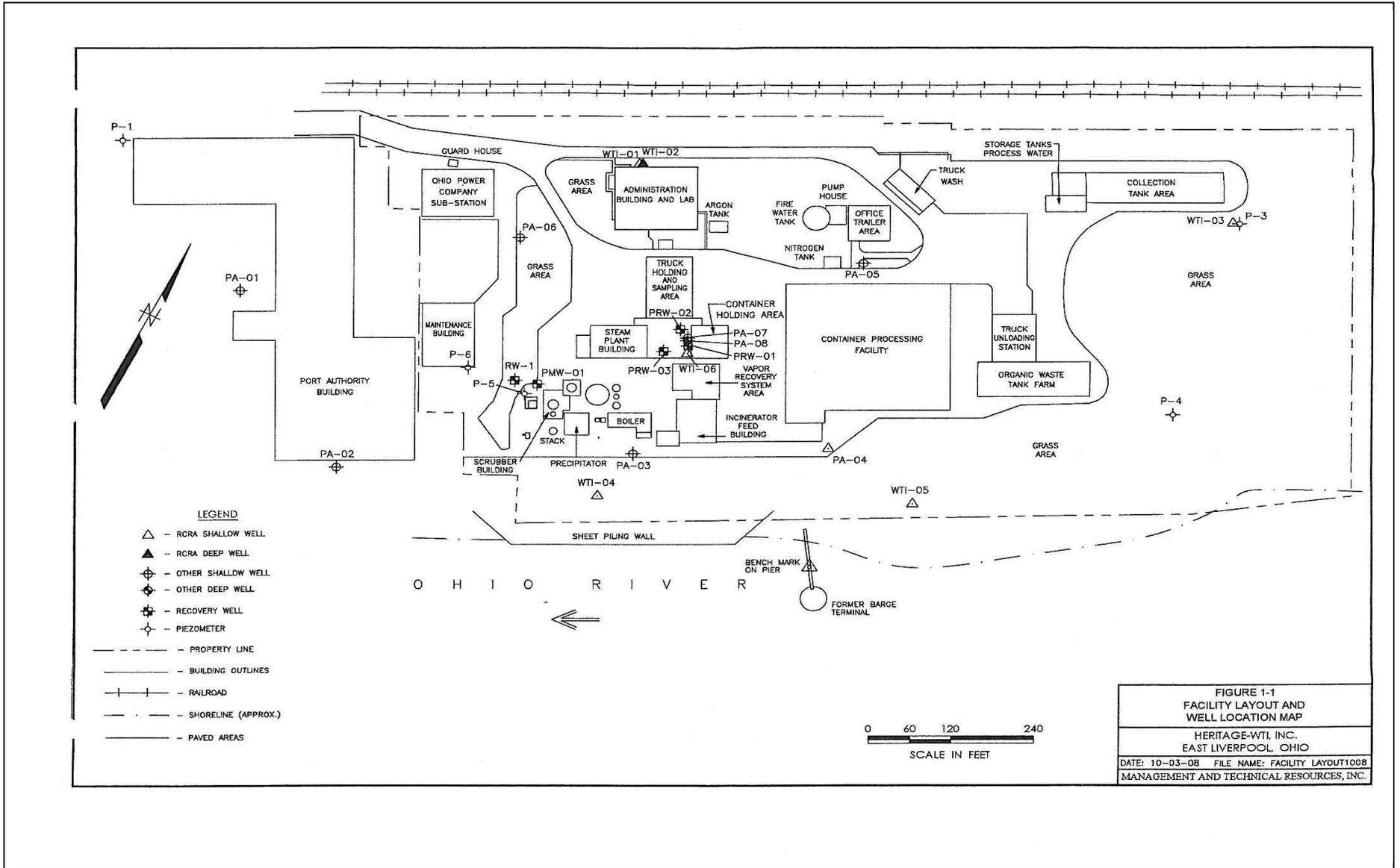


FIGURE 2: Topographical Map

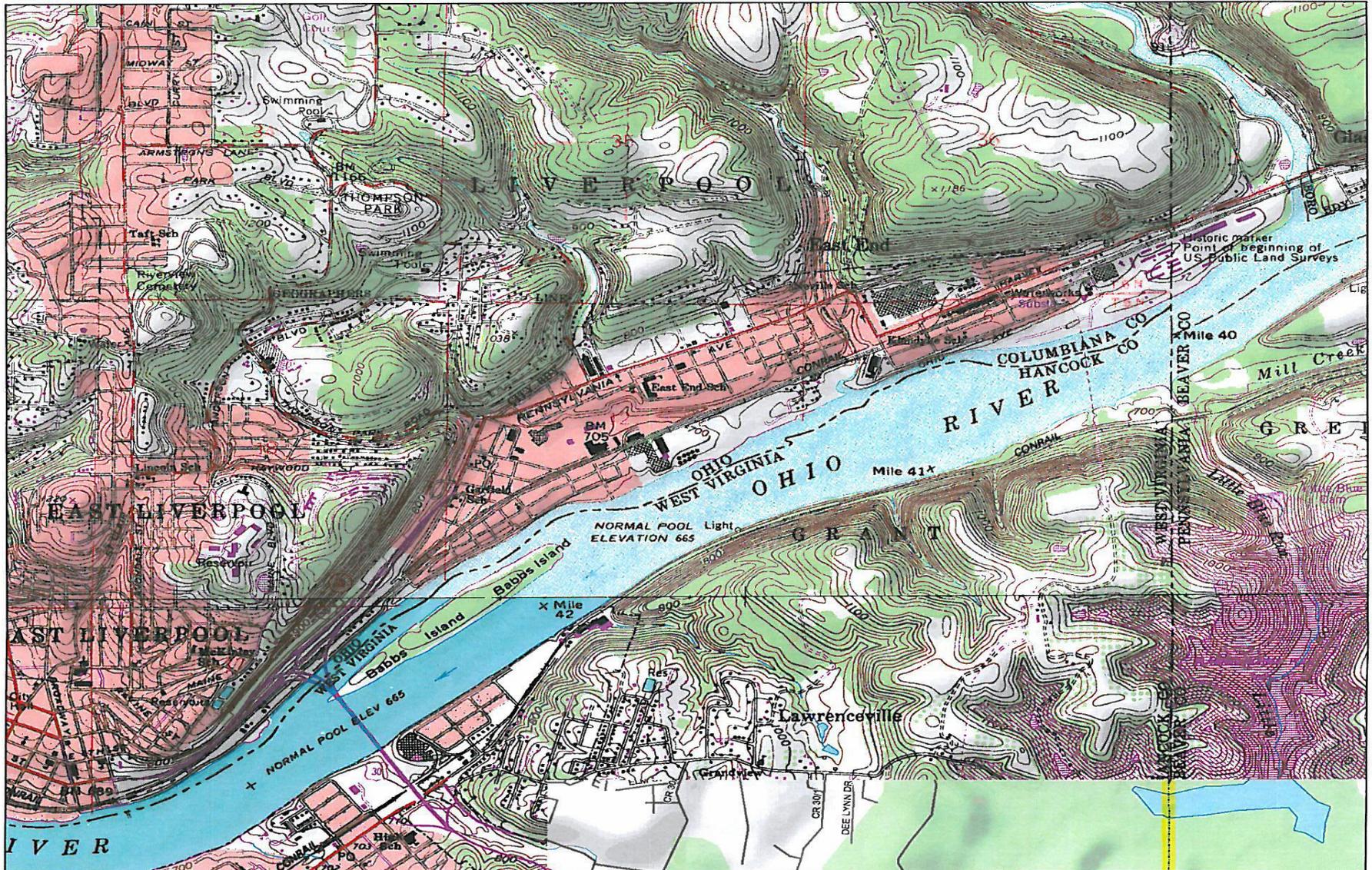


FIGURE 3: Layout of Former Charter Oil Facility

Source: MTR, July 2009. Final Remedy Workplan, Charter Oil Facility Release Area, Heritage-WTI, Inc. Figure 1-2.

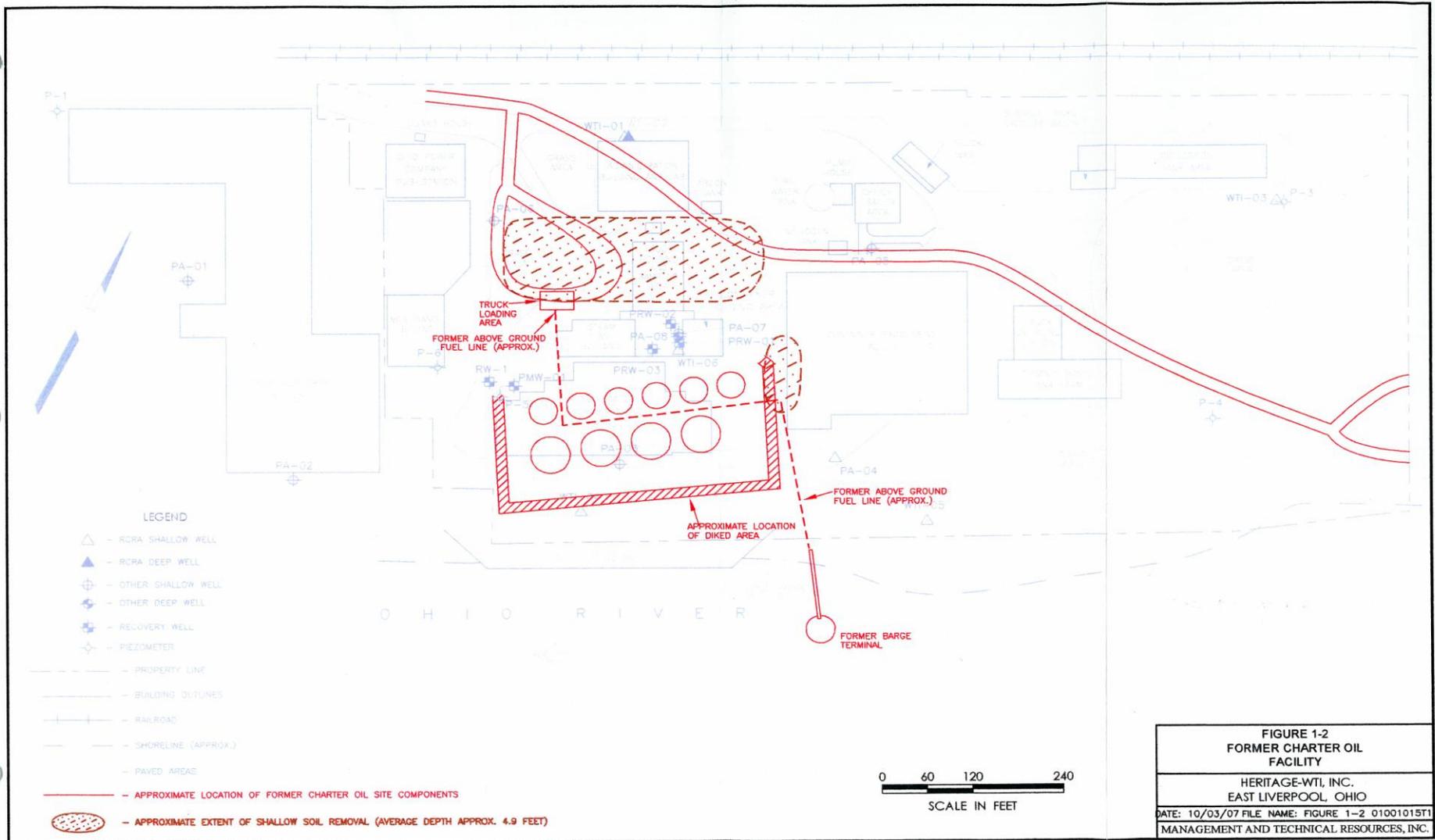


FIGURE 4: Hydrogeologic Cross Section of Facility

Source: MTR, October 2008. RCRA Facility Investigation Report, Charter Oil Facility Release Area, Heritage-WTI, Inc. Figure 3-2.

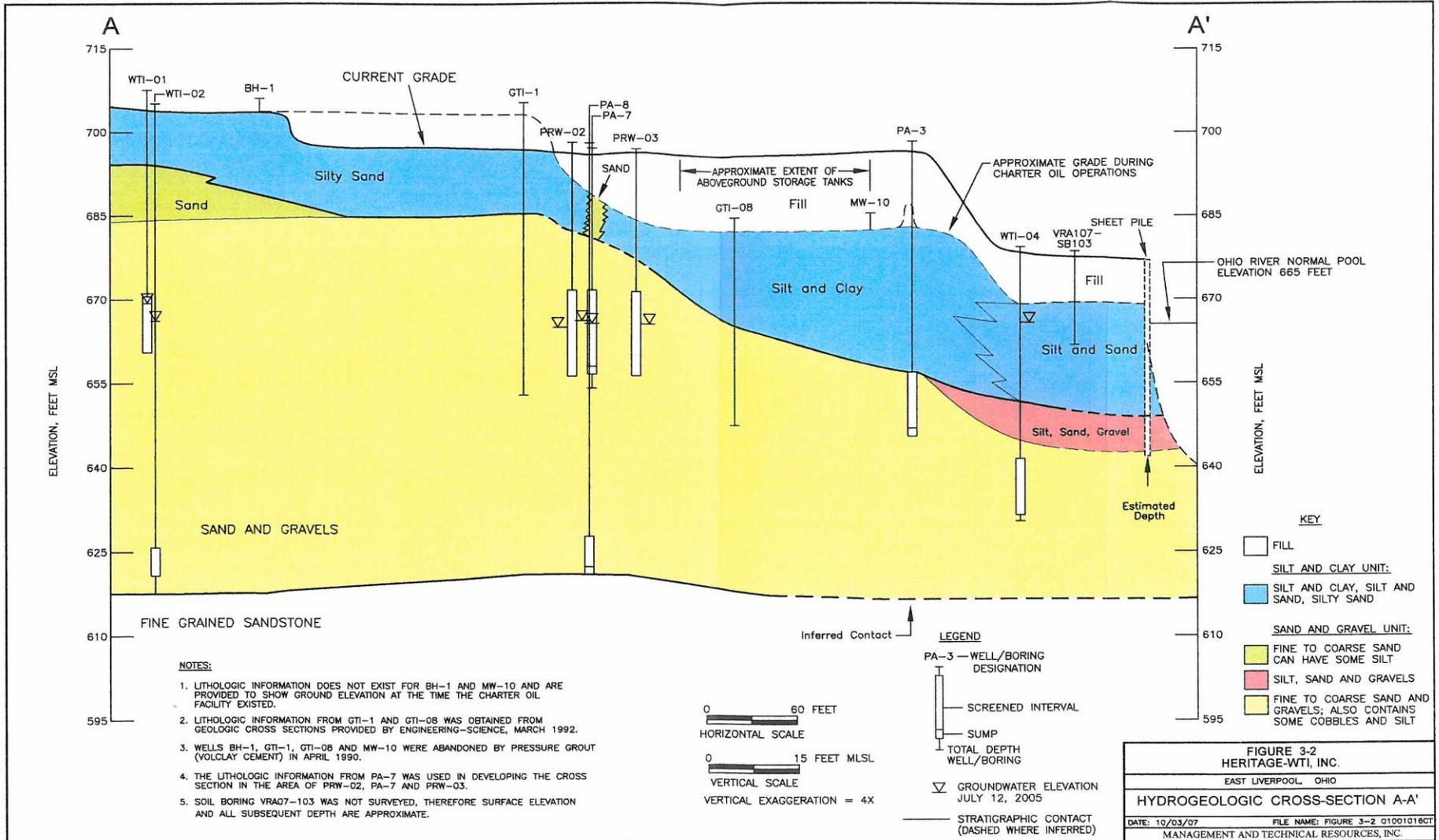


FIGURE 5: Approximate Extent of the COFRA Impacts

Source: MTR, October 2008. RCRA Facility Investigation Report, Charter Oil Facility Release Area, Heritage-WTI, Inc. Figure 5-1.

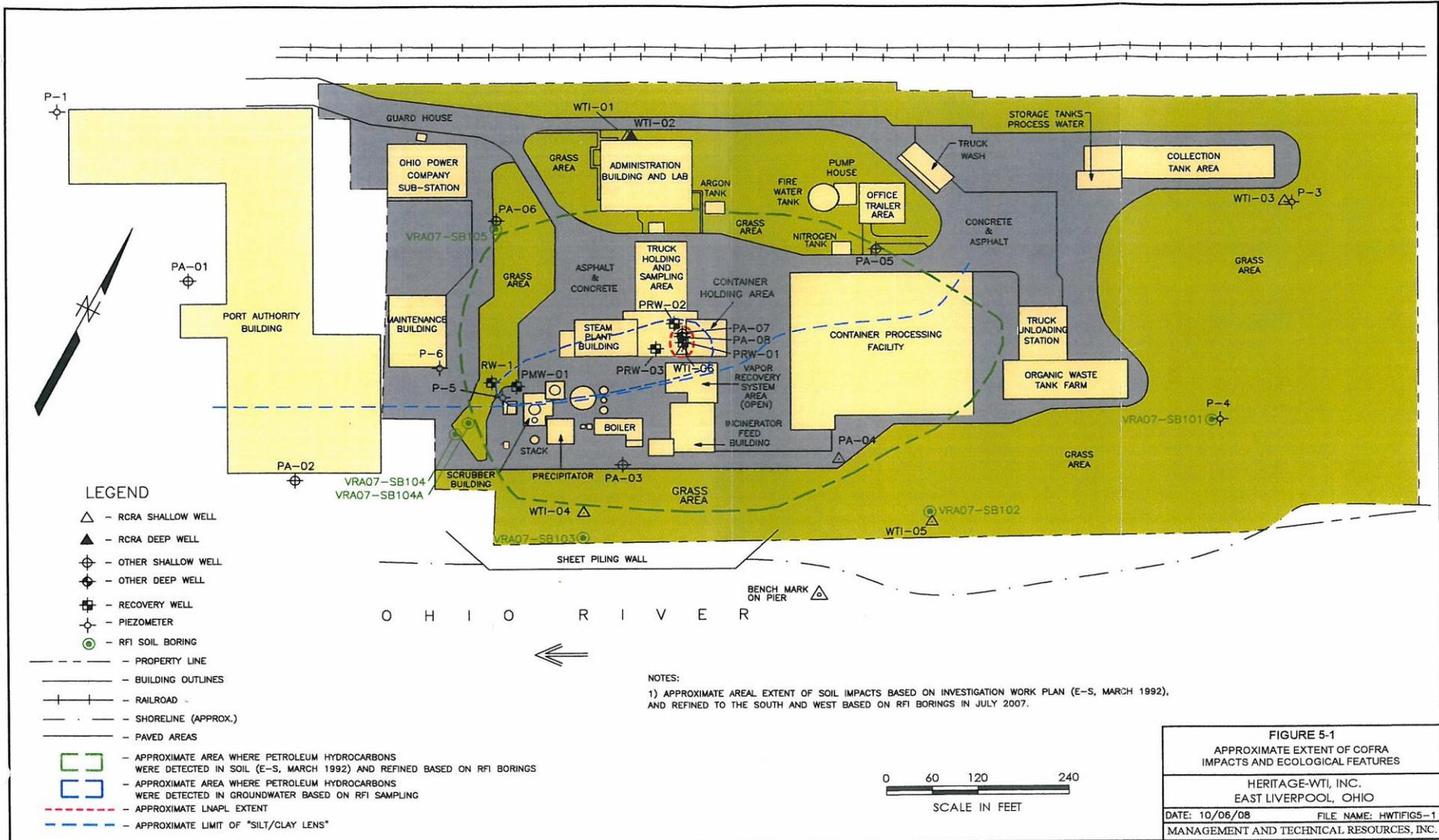


FIGURE 6: Shallow Ground Water Contour Map

Source: MTR, October 2008. RCRA Facility Investigation Report, Charter Oil Facility Release Area, Heritage-WTI, Inc. Figure 3-4.

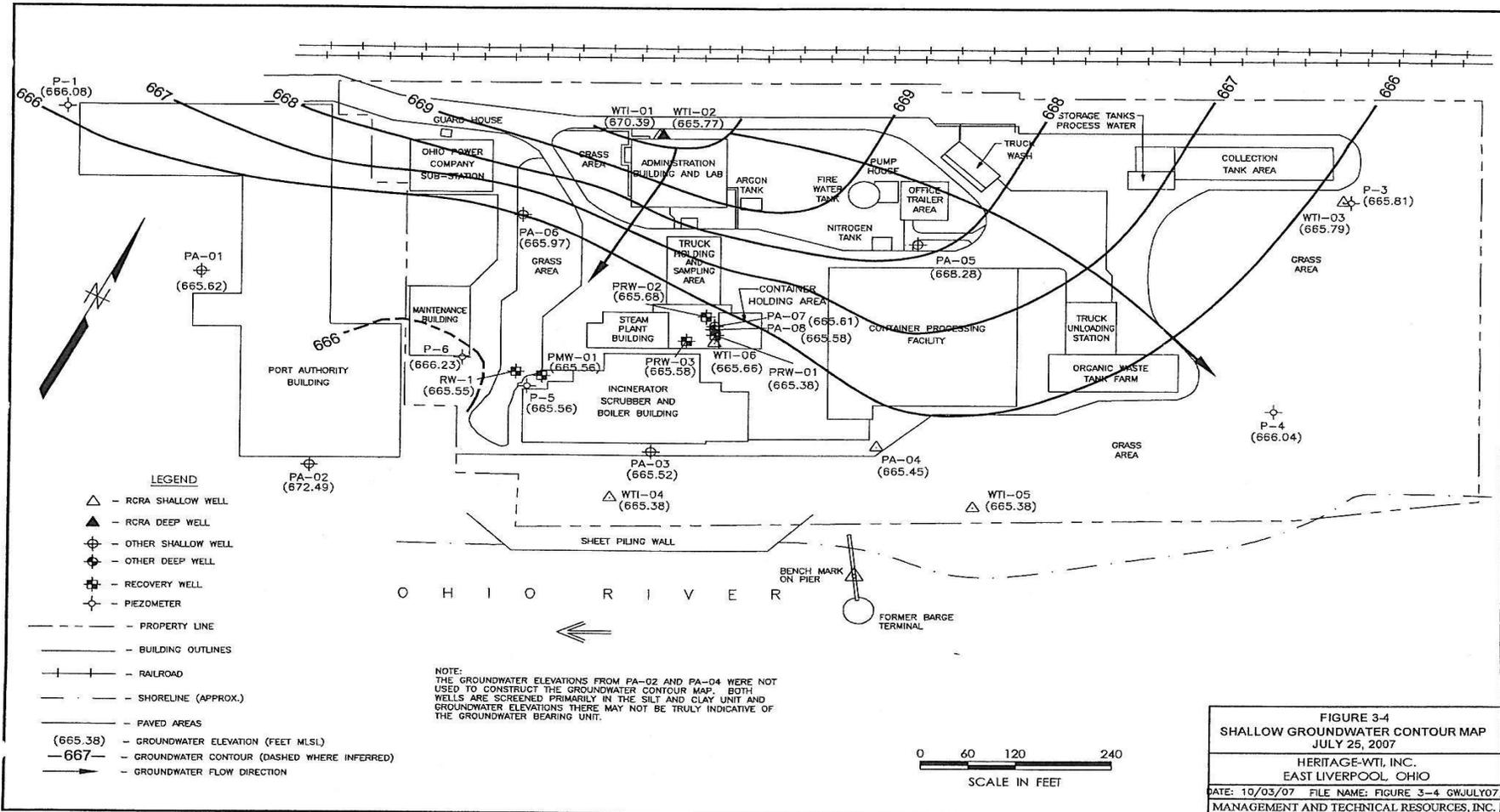
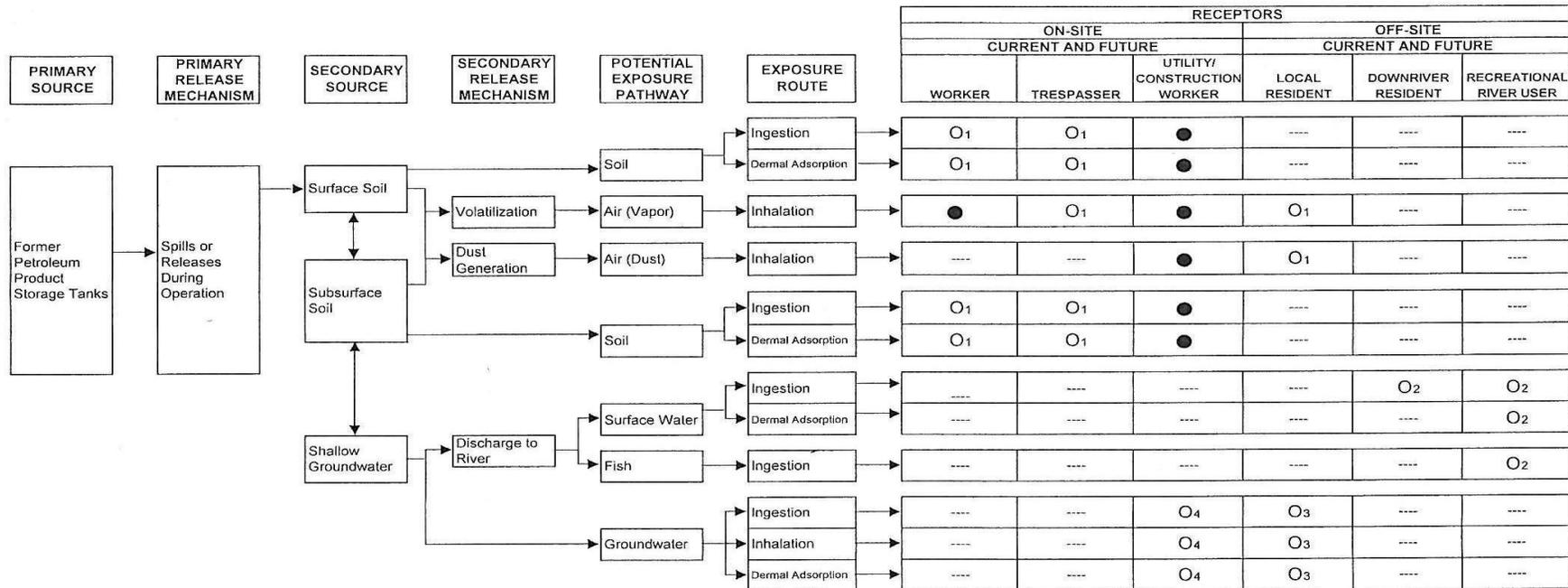


FIGURE 7: Conceptual Site Model

Source: MTR, October 2008. RCRA Facility Investigation Report, Charter Oil Facility Release Area, Heritage-WTI, Inc. Figure 6-1.

FIGURE 6-1 (REVISED OCTOBER 2008)
 POTENTIAL RECEPTORS AND EXPOSURE PATHWAYS

CHARTER OIL FACILITY RELEASE AREA
 HERITAGE-WTI, INC.
 EAST LIVERPOOL, OHIO



- - No potential for exposure identified in Baseline Risk Assessment (E-S, July 1990).
- O1 - Incomplete pathway - cover (backfill, concrete cap, asphalt pavement and vegetation) prevents exposure to volatilized vapors, impacted dust or impacted soil.
- O2 - Incomplete pathway - impacted groundwater has not migrated to river and sheet piling wall provides additional precaution.
- O3 - Incomplete pathway - groundwater not used as water supply by local residents or workers.
- O4 - Incomplete pathway - excavation into saturated zone is unlikely due to depth to groundwater
- - Potentially complete pathway

Notes:

1. Potential inhalation of soil vapors via volatilization from subsurface soil or groundwater is accounted for via the directional flow arrows to surface soil.
2. The potential receptors and exposure pathways may be reevaluated, if necessary, should structural modifications occur in the future.

ATTACHMENTS

ATTACHMENT 1: Primary Documents of Previous Investigations

MTR, January 2006. Modification to Proposed Remedial Action Plan, Von Roll America, Inc., East Liverpool, Ohio. MTR letter to Ohio EPA dated January 18, 2006.

MTR, June 2007. RCRA Facility Investigation Work Plan, Charter Oil Facility Release Area, Von Roll America, Inc., East Liverpool, Ohio, U.S. EPA ID# OHD 980 613 541, March 2006, Revised January 2007 and June 2007.

MTR, October 2008. RCRA Facility Investigation Report, Charter Oil Facility Release Area, Heritage-WTI, Inc., East Liverpool, Ohio, U.S. EPA ID# OHD 980 613 541, November 2007, Revised October 2008.

MTR, July 2009. Final Remedy Workplan, Charter Oil Facility Release Area, Heritage-WTI, Inc., East Liverpool, Ohio, U.S. EPA ID# OHD 980 613 541.

Ohio EPA, Division of Hazardous Waste Management File.