

OHIO ENVIRONMENTAL PROTECTION AGENCY

OHIO HAZARDOUS WASTE FACILITY
INSTALLATION AND OPERATION PERMIT RENEWAL

Permittee: Cytec Industries, Inc.
Mailing Address: Cytec Industries, Inc.
5 Garret Mountain Plaza
West Paterson, NJ 07424
Owner: Cytec Industries, Inc.
5 Garret Mountain Plaza
West Paterson, NJ 07424
Operator: Cytec Industries, Inc.
1405 Greene Street
Marietta, Ohio 45750
Location: Cytec Industries, Inc.
1405 Greene Street
Marietta, Ohio 45750

Ohio Permit No.	04-84-0023
US EPA ID	OH04004341509
Issue Date	June 18, 2004
Effective Date	June 18, 2004
Expiration Date	June 18, 2014

AUTHORIZED ACTIVITIES

In reference to the application of Cytec Industries, Inc., for an Ohio Hazardous Waste Facility Installation and Operation Renewal Permit under Ohio Revised Code (ORC) Chapter 3734 and the record in this matter, you are authorized to conduct at the above-named facility the following hazardous waste management activities:

Closure, Post-Closure and Corrective Action activities.

OHIO ENVIRONMENTAL PROTECTION AGENCY
OHIO E.P.A.

JUN 18 2004

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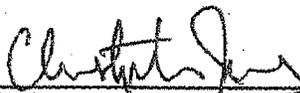
Ohio Permit No.	04-8420023
USEPA ID	OHIO0045411500
Issue Date	June 18, 2004
Effective Date	June 18, 2004
Expiration Date	June 18, 2009

AUTHORIZED ACTIVITIES

In reference to the application of Cytec Industries, Inc., for an Ohio Hazardous Waste Facility Installation and Operation Renewal Permit under Ohio Revised Code (ORC) Chapter 3734 and the record in this matter, you are authorized to conduct at the above-named facility the following hazardous waste management activities:

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PERMIT APPROVAL

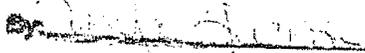

Christopher Jones, Director
Ohio Environmental Protection Agency

This permit approval is based upon the record in this matter which is maintained at the offices of the Ohio Environmental Protection Agency. The Director has considered the application, accompanying information, inspection reports of the facility, a report regarding the facility's compliance or noncompliance with the terms and conditions of its permit and rules adopted by the Director under this chapter, and such other information as is relevant to the operation of the facility. The Director has determined that the facility under the existing permit has a history of compliance with ORC Chapter 3734, rules adopted under it, the existing permit, or orders entered to enforce such requirements that demonstrate sufficient reliability, expertise, and competency to operate the facility henceforth under this chapter, rules adopted under it, and the renewal permit.

Entered into the Journal of the Director this 18 day of June, 2004.

By  of the Ohio Environmental Protection Agency.

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

 Date 6/18/04

OHIO E.P.A.

SEP 26 2012

ENTERED DIRECTOR'S JOURNAL

OHIO ENVIRONMENTAL PROTECTION AGENCY

MODIFIED OHIO HAZARDOUS WASTE FACILITY
INSTALLATION AND OPERATION PERMIT

Date of Issuance: September 26, 2012
Effective Date: September 26, 2012

U.S. EPA ID No.: OHD004341509
Ohio Permit No.: 04-84-0023

Name of Permittee: Cytec Industries Inc.
Mailing Address: 5 Garret Mountain Plaza
Woodland Park, NJ 07424
Facility Location: 1405 Greene Street
Marietta, OH 45750
Person to Contact: Mr. Anton Marek

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 June 18, 2004, 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.

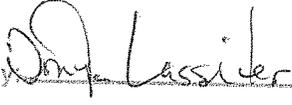
The Permittee shall comply with all requirements of the modified Part B permit application as amended or supplemented by Ohio EPA. The information contained in the modified Part B permit application is incorporated herein by reference. Specifically, all written statements regarding the specifications, locations or capabilities of the processes, equipment, containment devices, safety devices or programs or other matters made by Ohio EPA are hereby incorporated as express, binding terms and conditions of this modified permit.

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 June 18, 2004 renewal permit.

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



Scott J. Nally, Director

By  Date: 9/26/12

MODULE A - GENERAL PERMIT CONDITIONS

A. GENERAL PERMIT CONDITIONS

A.1 Effect of Permit

ORC Sections 3734.02 (E) and (F) and 3734.05
OAC Rule 3745-50-58(G)

- (a) The Permittee is authorized to continue closure and post-closure activities for two surface impoundments in accordance with the terms and conditions of this Ohio hazardous waste permit (hereinafter "permit"), ORC Chapter 3734, all applicable Ohio hazardous waste rules, all applicable regulations promulgated under the Resource Conservation and Recovery Act (RCRA), as amended, and the permit application. The permit renewal for Pond 1 and Pond 2 is for the purpose of accomplishing closure, post-closure, and corrective action activities. These units are currently inactive and undergoing closure and/or post-closure. These units shall not be reactivated for management of hazardous waste. Numerous solid waste management units (SWMU's) exist at the site which are being addressed through the corrective action program. The permit application, including the Class 3 permit modification application, as submitted to Ohio EPA on August 28, 2003 and last updated on December 3, 2003 is hereby incorporated into this permit. In the instance of inconsistent language or discrepancies between the above, the language of the more stringent provision shall govern.
- (b) Any management of hazardous waste not authorized by this permit is prohibited, unless otherwise expressly authorized or specifically exempted by law. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, or invasion of other private rights. Compliance with the terms and conditions of this permit does not obviate Permittee's obligation to comply with other applicable provisions of law governing protection of public health or the environment including but not limited to the Community Right to Know law under ORC Chapter 3750.

A.2 Permit Actions

OAC Rule 3745-50-58(F)

This permit may be modified or revoked as specified by Ohio law. The filing of a request by the Permittee for a permit modification, or the notification of planned changes or anticipated noncompliance on the part of the Permittee, does not stay any permit term or condition.

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A.3 Permit Effective/Expiration Date
OAC Rule 3745-50-54

The effective date of this permit is the date the permit is entered into the director's Journal. The permit expiration date is five ~~ten~~ years after the date of journalization of this permit. ~~This permit expires on June 18, 2014.~~

A.4 Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

A.5 Duty to Comply
OAC Rule 3745-50-58(A)

The Permittee must comply with all applicable provisions of ORC Chapter 3734, all applicable Ohio hazardous waste rules, and all terms and conditions of this permit, except to the extent and for the duration such noncompliance is authorized by the laws of the State of Ohio. Any permit noncompliance, other than noncompliance authorized by the laws of the State of Ohio, constitutes a violation of ORC Chapter 3734 and is grounds for enforcement action, revocation, modification, denial of a permit renewal application or other appropriate action.

A.6 Duty to Reapply and Permit Expiration
OAC Rules 3745-50-40(D), 3745-50-58(B), 3745-50-56 and ORC Section 3734.05(H)

- (a) If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee must submit a completed permit application for a hazardous waste facility installation and operation permit renewal and any necessary accompanying general plans, detailed plans, specifications, and such information as the director may require, to the director no later than one hundred eighty (180) days prior to the expiration date of this permit, unless a later submittal date has been authorized by the director upon a showing of good cause.
- (b) The Permittee may continue to operate in accordance with the terms and conditions of the expired permit until a renewal permit is issued or denied if:
 - (i) the Permittee has submitted a timely and complete permit application for a renewal permit under OAC Rule 3745-50-40; and

- (ii) through no fault of the Permittee, a new permit has not been issued pursuant to OAC Rule 3745-50-40 on or before the expiration date of this permit.

- (c) The Corrective Action obligations contained in this permit will continue regardless of whether the facility continues to operate or ceases operation and closes. The Permittee is obligated to complete facility-wide Corrective Action under the conditions of this permit regardless of the operational status of the facility. The Permittee must submit an application for permit renewal at least 180 days before the expiration date of this permit pursuant to OAC Rule 3745-50-40(D) unless a) the permit has been modified to terminate the Corrective Action schedule of compliance and the Permittee has been released from the requirements for financial assurance for Corrective Action; or b) a later submittal date has been authorized by the director.

A.7 Need to Halt or Reduce Activity Not a Defense
OAC Rule 3745-50-58(C)

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce a permitted activity in order to maintain compliance with the conditions of this permit.

A.8 Duty to Mitigate
OAC Rule 3745-50-58(D)

The Permittee must take all reasonable steps to minimize releases to the environment and must carry out such measures as are reasonable to prevent significant adverse impact on human health or the environment resulting from noncompliance with this permit.

A.9 Proper Operation and Maintenance
OAC Rule 3745-50-58(E)

The Permittee must at all times properly operate and maintain the facility (and related appurtenances) to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective management practices, adequate funding, adequate operator staffing and training, and where appropriate, adequate laboratory and process controls, including appropriate quality assurance/quality control procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the terms and conditions of this permit.

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A.10 Duty to Provide Information
OAC Rule 3745-50-58(H)

The Permittee must furnish to the director, within a reasonable time, any relevant information which the director may request to determine whether cause exists for modifying or revoking, or to determine compliance with, this permit. The Permittee must also furnish to the director, upon request, copies of records required to be kept by this permit.

A.11 Inspection and Entry
OAC Rules 3745-50-58(I) and 3745-50-30, and ORC Section 3734.07

- (a) The Permittee must allow the director, or an authorized representative, upon stating the purpose and necessity of the inspection and upon proper identification, to:
- (i) enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the terms and conditions of this permit, within 15 minutes of arrival on-site;
 - (ii) have access to and copy, at reasonable times, any records required to be kept under the terms and conditions of this permit;
 - (iii) inspect and photograph at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under the terms and conditions of this permit; and
 - (iv) sample, document, or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by ORC Chapter 3734 and the rules adopted thereunder, any substances or parameter at any location.
- (b) When field activities are occurring at the site, the Permittee or the Permittee's onsite representative(s) shall be familiar with all activities to be able to adequately update the Ohio EPA authorized representative regarding the status of site activities.
- (c) Any record, report or other information obtained under the hazardous waste rules or Chapter 3734 of the Revised Code shall not be available to the public upon the Permittee's satisfactory showing to Ohio EPA that all or part of the information would divulge methods or processes entitled to protection

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as trade secrets pursuant to Ohio Trade Secret Law and OAC Rule 3745-50-30.

A.12 Monitoring and Records
OAC Rule 3745-50-58(J)

- (a) Any sample and measurement taken for the purpose of monitoring must be representative of the monitored activity. Further, a sample must be a representative sample, as such term is defined and used in the Ohio hazardous waste rules. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix I of OAC Rule 3745-51-20, Laboratory Methods. Laboratory methods must be those specified in Test Methods for the Evaluation of Solid Waste: Physical /Chemical Methods; SW-846:Third Edition, November 1992; and additional supplements or editions thereof; Standard Methods for the Examination of Water and Wastewater; Twentieth Edition, 1999; or an equivalent method as specified in the approved waste analysis plan, or as this term is defined and used in the Ohio hazardous waste rules.
- (b) Records of monitoring information must specify the:
- (i) date(s), exact place(s), and time(s) of sampling or measurements;
 - (ii) individual(s) who performed the sampling or measurements;
 - (iii) date(s) analyses were performed;
 - (iv) individual(s) who performed the analyses;
 - (v) results of the data validation review 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 %, surrogate recovery, and an explanation of any rejected results consistent with the US EPA and Ohio EPA guidelines for data review;
 - (vi) analytical technique(s) or method(s) used; and
 - (vii) results of such analyses.

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A.13 Signatory Requirement and Certification of Records
OAC Rules 3745-50-58(K) and 3745-50-42

All applications, reports or information must be properly signed and certified in accordance with OAC Rule 3745-50-58(K).

A.14 Retention of Records
OAC Rules 3745-50-40(G), 3745-50-58(J) and 3745-50-58(M)

- (a) The Permittee must retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, the certification required by OAC Rule 3745-54-73(B)(9), and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report, certification, or application.
- (b) The record retention period may be extended by request of the director at any time and is automatically extended during the course of any unresolved enforcement action regarding the facility.
- (c) The Permittee must maintain, in accordance with the Ohio hazardous waste rules, records of all data used to complete the permit application and any amendments, supplements or modifications of such application and must retain a complete copy of the application for a period of at least five (5) years from the effective date of the permit.
- (d) The Permittee must maintain records from all ground water monitoring wells and associated ground water surface elevations for the active life of the facility, and for disposal facilities for the post-closure care period as well.
- (e) Corrective Action records must be maintained at least three (3) years after all Corrective Action activities have been completed.

A.15 Planned Changes
OAC Rules 3745-50-51 and 3745-50-58(L)(1)

The Permittee must give notice to the director as soon as possible of any planned physical alterations or additions to the facility. All such changes must be made in accordance with OAC Rule 3745-50-51.

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A.16 Waste Shipments

OAC Rule 3745-52-12, ORC Section 3734.15(C)

The Permittee must only use properly registered transporters of hazardous waste to remove hazardous waste from the facility, in accordance with all applicable laws and rules.

A.17 Anticipated Noncompliance

OAC Rule 3745-50-58(L)(2)

The Permittee must give advance notice to the director of any planned changes in the permitted facility or operations which may result in noncompliance with the terms and conditions of this permit. Such notification does not waive the Permittee's duty to comply with this permit pursuant to Permit Condition A.5.

A.18 Transfer of Permits

OAC Rules 3745-50-52, 3745-50-58(L)(3) and 3745-54-12

- (a) The permit may be transferred to a new owner or operator only if such transfer is conducted in accordance with ORC Chapter 3734 and the rules adopted thereunder. This permit may be transferred by the Permittee to a new owner or operator only if the permit has been modified under OAC Rule 3745-50-51. Before transferring ownership or operation of the facility, the Permittee must notify the new owner or operator in writing of the requirements of ORC Chapter 3734 and the rules adopted thereunder (including all applicable Corrective Action requirements).
- (b) The Permittee's failure to notify the new owner or operator of the requirements of the applicable Ohio law or hazardous waste rules does not relieve the new owner or operator of its obligation to comply with all applicable requirements.

A.19 Compliance Reports

OAC Rules 3745-50-58(L)(5) and 3745-50-50

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule (developed in accordance with OAC Rule 3745-50-50) of this permit must be submitted to the director no later than fourteen (14) days following each scheduled date.

A.20 Immediate Reporting of Noncompliance
OAC Rule 3745-50-58(L)(6)

- (a) The Permittee must report verbally to Ohio EPA's Division of Emergency and Remedial Response within twenty-four (24) hours from the time the Permittee becomes aware of any noncompliance with this permit, ORC Chapter 3734 or the rules adopted thereunder, which may endanger human health or the environment, including:
 - (i) information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies; and
 - (ii) any information of a release or discharge of hazardous waste or a fire or explosion from the hazardous waste facility, which could threaten the environment or human health outside the facility.
- (b) The report must consist of the following information (if such information is available at the time of the verbal report):
 - (i) name, address, and telephone number of the owner or operator;
 - (ii) name, address, and telephone number of the facility;
 - (iii) date, time, and type of incident;
 - (iv) name and quantity of material(s) involved;
 - (v) the extent of injuries, if any;
 - (vi) an assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable; and
 - (vii) estimated quantity and disposition of recovered material that resulted from the incident.

A.21 Follow-Up Written Report of Noncompliance
OAC Rule 3745-50-58(L)(6)(c)

- (a) A written report must also be provided to Ohio EPA's Division of Emergency and Remedial Response and the Division of Hazardous Waste Management Southeast District Office within five (5) days of the time the Permittee becomes aware of the circumstances reported in Permit Condition A.20.

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- (b) The written report must address the items in Permit Condition A.20 and must contain a description of such noncompliance and its cause; the period(s) of noncompliance (including exact dates and times); whether the noncompliance has been corrected; and, if not, the anticipated time it is expected to continue; and steps taken or planned to minimize the impact on human health and the environment and to reduce, eliminate, and prevent recurrence of the noncompliance.
- (c) The Permittee need not comply with the five (5) day written report requirement if the director, upon good cause shown by the Permittee, waives that requirement and the Permittee submits a written report within fifteen (15) days of the time the Permittee becomes aware of the circumstances.

A.22 Other Noncompliance

OAC Rules 3745-50-58(L)(10) and 3745-50-58(L)(4)

The Permittee must report to the director all other instances of noncompliance not provided for in Permit Conditions A.19 and A.20. These reports must be submitted within thirty (30) days of the time at which the Permittee is aware of such noncompliance. Such reports must contain all information set forth within Permit Condition A.20 of this permit.

A.23 Reserved

A.24 Other Information

OAC Rule 3745-50-58(L)(11)

If at any time the Permittee becomes aware that it failed to submit any relevant facts, or submitted incorrect information to the director, the Permittee must promptly submit such facts, information or corrected information to the director.

A.25 Confidential Information

OAC Rule 3745-50-30

In accordance with ORC Chapter 3734 and the rules adopted thereunder, the Permittee may request confidentiality for any information required to be submitted by the terms and conditions of this permit, or any information obtained by the director, or an authorized representative, pursuant to the authority provided under Permit Condition A.11 of this permit.

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A.26 Ohio Annual Permit Fee
OAC Rule 3745-50-36

The annual permit fee, calculated pursuant to OAC Rule 3745-50-36 and payable to the Treasurer of the State, must be submitted to the director on or before the anniversary of the date of issuance during the term of the permit. For the purpose of the payment of the Ohio Annual Permit Fee, the date of issuance is the date the permit was entered into the Journal of the director of Ohio EPA.

A.27 Compliance Schedule - Documents
OAC Rules 3745-50-50 and 3745-50-51

Ninety (90) days after the effective date of the permit, the Permittee shall submit a sitewide RFI Report to Ohio EPA. The RFI Report must describe the procedures, methods, and results of the RFI consistent with Section 8 of the approved RFI Workplan. In addition, the RFI Report shall evaluate the RFI data against generic cleanup standards. In the absence of generic standards, a baseline risk assessment shall be performed. If a site-specific baseline risk assessment is performed, the methodologies and assumptions used to perform it shall be described along with any cleanup standards developed. The human health risk assessment shall be included in the RFI Report. WMU's designated as No Further Action status in Table J-1 of the Part B permit application shall be fully described in the RFI Report (including data to support NFA status) and shall follow the procedures outlined in condition E.7 of this permit. The RFI Report must contain adequate information to support further decisions concerning Corrective Action at the Facility.

- (a) Unless specified otherwise, Permittee must submit the documents to:

Ohio EPA, Director
P.O. Box 1049
Columbus, Ohio 43216-1049
Ohio EPA, DHWM
Attn: Regulatory and Information Services Section
P.O. Box 1049
Columbus, Ohio 43216-1049

Southeast District Office
Division of Hazardous Waste Management
Attn: Environmental Supervisor
2195 Front Street
Logan, Ohio 43138

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- (b) The Permittee must submit to the Ohio EPA within sixty (60) days after permit journalization, in accordance with Ohio's hazardous waste rules, the following information to be incorporated in the permit application:

- (i) Updated Closure/Post-Closure Cost Estimate
OAC Rules 3745-55-42 and 3745-55-44

Section I of the permit application containing the financial assurance mechanism for closure must be updated to include a copy of the current closure/post-closure cost estimate as set forth in OAC Rules 3745-55-42 and 3745-55-44.

- (ii) Updated Financial Assurance Mechanism for Closure
OAC Rules 3745-55-43 and 3745-55-45

Section I of the permit application containing the financial assurance mechanism for closure must be updated to include a copy of the current financial assurance mechanism, as set forth in OAC Rules 3745-55-43 and 3745-55-45, and as specified by the wording requirements of OAC Rule 3745-55-51. The value of the financial assurance mechanism must reflect at least the current amount of the closure/post-closure cost estimate.

During the life of the permit the facility may change the financial assurance mechanism as stated in OAC Rules 3745-55-43 and 3745-55-45. The facility must submit the financial assurance mechanism documentation to the director of Ohio EPA in accordance with the parameters set forth in OAC Rules 3745-55-43 and 3745-55-45.

- (iii) Updated Liability Requirements
OAC Rule 3745-55-47

Section I of the permit application containing the mechanism used to demonstrate third party liability coverage must be updated to include a copy of the current liability mechanism as set forth in OAC Rule 3745-55-47 and as specified by the wording requirements of OAC Rule 3745-55-51.

During the life of the permit the facility may change the mechanism used to demonstrate liability coverage as stated in OAC Rule 3745-55-47. The facility must submit the liability mechanism

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documentation to the director of Ohio EPA in accordance with the parameters set forth in OAC Rule 3745-55-47.

This information must be submitted in accordance with OAC Rule 3745-50-51.

A.28 Information to be Maintained at the Facility

OAC Rule 3745-54-74

- (a) Unless otherwise specified by the hazardous waste rules, the Permittee must maintain at the facility, until closure is completed and certified by an independent, registered professional engineer, pursuant to OAC Rule 3745-55-15, and until the director releases the Permittee from financial assurance requirements pursuant to OAC Rule 3745-55-47, the following documents (including amendments, revisions and modifications):
- (i) closure plan, developed and maintained in accordance with OAC Rule 3745-55-12 and the terms and conditions of this permit;
 - (ii) cost estimate for facility closure, developed and maintained in accordance with OAC Rule 3745-55-42 and the terms and conditions of this permit;
 - (iii) personnel training plan and the training records for the duration of activities conducted on-site, developed and maintained in accordance with OAC Rule 3745-54-16 and the terms and conditions of this permit;
 - (iv) operating record, required by OAC Rule 3745-54-73 and the terms and conditions of this permit; and
 - (v) inspection schedules, developed in accordance with OAC Rules 3745-54-15, 3745-55-74 and 3745-55-95 and the terms and conditions of this permit.
 - (vi) post-closure plan, as required by OAC Rule 3745-55-18(A) and the terms and conditions of this permit.
 - (vii) annually-adjusted cost estimate for facility closure and post-closure, as required by OAC Rules 3745-55-42 and 3745-55-44 and the terms and conditions of this permit.

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- (viii) all other documents required by Module A, Permit Condition A.12.
- (b) The Permittee must maintain copies of all inspection logs at the facility for a period not less than three (3) years from the date of inspection.

A.29 Reserved

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MODULE B - GENERAL FACILITY CONDITIONS

B. GENERAL FACILITY CONDITIONS

B.1 Design and Operation of Facility OAC Rule 3745-54-31

- (a) The Permittee must design, construct, maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, ground water or surface waters which could threaten human health or the environment.
- (b) Reserved

B.2 Required Notices OAC Rule 3745-54-12

- (a) The Permittee shall not receive hazardous waste from a foreign source.
- (b) The Permittee shall not receive hazardous waste from off-site sources.

B.3 Reserved

B.4 Security OAC Rule 3745-54-14

The Permittee must comply with the security provisions of OAC Rule 3745-54-14(B)(1) or (2), and (C) and Section F of the permit application.

B.5 General Inspection Requirements OAC Rules 3745-54-15 and 3745-54-73

The Permittee must follow the inspection schedule set forth in Section F of the permit application. The Permittee must remedy any deterioration or malfunction discovered by an inspection, as required by OAC Rule 3745-54-15(C). Records of inspection must be kept for a minimum of three years from the date of inspection. These records must be a part of the facility's operating record as required by OAC Rule 3745-54-73.

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B.6 Personnel Training
OAC Rule 3745-54-16

The Permittee must conduct personnel training, as required by OAC Rule 3745-54-16. This training program must contain at least the elements set forth in Section H of the permit application. The Permittee must maintain training documents and records as required by OAC Rule 3745-54-16(D) and (E).

B.7 Reserved

B.8 Reserved

B.9 Required Equipment
OAC Rule 3745-54-32

At a minimum, the Permittee must maintain at the facility all the equipment required by OAC Rule 3745-54-32, as applicable, and the equipment set forth in the contingency plan contained in Section G of the permit application.

B.10 Testing and Maintenance of Equipment
OAC Rule 3745-54-33

The Permittee must inspect, test and maintain the equipment required by Permit Condition B.9 as necessary to assure its proper operation in time of emergency, as specified in OAC Rule 3745-54-33, Section F of the permit application and the terms and conditions of this permit.

B.11 Access to Communications or Alarm System
OAC Rule 3745-54-34

The Permittee must maintain access to the communications and alarm systems, as required by OAC Rule 3745-54-34, Section F of the permit application and the terms and conditions of this permit.

B.12 Required Aisle Space
OAC Rule 3745-54-35

At a minimum, the Permittee must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency, as required by OAC Rule 3745-54-35.

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B.13 Arrangements with Local Authorities

OAC Rule 3745-54-37

- (a) The Permittee must comply with the requirements of OAC Rule 3745-54-37 (A) by making a diligent effort to:
- (i) make arrangements and familiarize the emergency response agencies identified in Section G of the permit application which are likely to respond in an emergency with the location and layout of the facility, properties of hazardous waste generated or managed at the facility and associated hazards, places where facility personnel will normally be working, entrances to and roads inside the facility, and possible evacuation routes as depicted and explained in Section G of the permit application;
 - (ii) make arrangements with Ohio EPA emergency response teams, emergency response contractors, and equipment suppliers, as necessary;
 - (iii) make arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and types of injuries or illnesses which could result from fires, explosions, or releases at the facility;
- (b) Where authorities decline to enter into such agreements or arrangements set forth in OAC Rule 3745-54-37(A), the Permittee must document the refusal in the operating record as required by OAC Rule 3745-54-37(B).

B.14 Implementation of Contingency Plan

OAC Rules 3745-54-51 and 3745-54-56

The Permittee must immediately carry out the provisions of the contingency plan and follow the emergency procedures described in OAC Rule 3745-54-56, and Section G of the permit application, whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which threatens or could threaten human health or the environment.

In regard to spills and related toxic gas releases, the plan must describe the criteria to be used by the emergency coordinator to determine when the plan will be implemented. At a minimum, the plan must be implemented in the following situations:

- (a) Any fire involving hazardous waste; or

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- (b) Any explosion involving hazardous waste; or
- (c) Any hazardous waste release, outside of a secondary containment system, that causes or has the potential to cause off-site soil and/or surface water contamination; or
- (d) Any hazardous waste release that produces or has the potential to produce hazardous conditions, including noxious, poisonous, flammable and/or explosive gases, fumes, or vapors; harmful dust; or explosive conditions.

B.15 Content of the Contingency Plan
OAC Rule 3745-54-52

The Permittee must comply with OAC Rule 3745-54-52 regarding content of the contingency plan, as set forth in Section G of the permit application.

B.16 Contingency Plan - Released Material and Emergency Response Material and By-products
OAC Rule 3745-54-56(G)

- (a) Immediately after an emergency, the emergency coordinator must provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility.
- (b) All liquid or solid material resulting from fire, explosion, released material or emergency response material and by-products that the Permittee is required to evaluate to determine whether such material is hazardous waste in accordance with OAC Rule 3745-52-11, must be collected and managed as a hazardous waste unless the Permittee can demonstrate that such waste is not hazardous in accordance with OAC Rule 3745-51-03(C) and (D).

B.17 Amendments to Plan
OAC Rule 3745-54-54

The Permittee must review the contingency plan at least annually and upon the occurrence of any event listed in OAC Rule 3745-54-54. If necessary or appropriate, the Permittee must amend the contingency plan as required by OAC Rule 3745-54-54 in accordance with OAC Rule 3745-50-51.

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B.18 Copies of Plan
OAC Rule 3745-54-53

- (a) The Permittee must comply with the requirements set forth in OAC Rule 3745-54-53 regarding contingency plan distribution. The Permittee must maintain at the facility (at the guard gate building) a copy of the contingency plan and all revisions to the plan during the duration of investigation and/or remediation activities conducted on-site.
- (b) In the event of an emergency, the Permittee must, in accordance with OAC Rule 3745-54-53, provide a copy of the contingency plan and any relevant job-specific hazard assessments to the emergency response agencies identified in Section G of the permit application when they arrive on-site. The Permittee must review the content of the Contingency Plan and hazard assessments with the emergency authorities at the site.
- (c) The Permittee must, in accordance with OAC Rule 3745-54-53, submit a copy of the contingency plan to the Ohio Environmental Protection Agency's Division of Emergency and Remedial Response.

B.19 Emergency Coordinator
OAC Rule 3745-54-55

The Permittee must comply with the requirements set forth in OAC Rule 3745-54-55 regarding the emergency coordinator.

B.20 Emergency Procedures
OAC Rule 3745-54-56

The Permittee must comply with the requirements regarding emergency procedures set forth in OAC Rule 3745-54-56, Section G of the permit application, and the terms and conditions of this permit.

B.21 Availability, Retention and Disposition of Records
OAC Rule 3745-54-74

All records shall be furnished by the Permittee upon request, and made available at all reasonable times for inspection by, Ohio EPA, in accordance with OAC Rule 3745-54-74.

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B.22 Operating Record
OAC Rule 3745-54-73

The Permittee must comply with the requirements set forth in OAC Rule 3745-54-73 regarding an operating record, including information to be recorded and the maintenance thereof.

B.23 Contingency Plan Records
OAC Rule 3745-54-56(J)

The Permittee must note in the operating record the time, date, and details of any incident that requires the implementation of the contingency plan. Within fifteen (15) days after any such incident the Permittee must submit to the director a written report of the incident containing the elements set forth in OAC Rule 3745-54-56(J).

B.24 Reserved :

B.25 Annual Reports and Additional Reports
OAC Rules 3745-54-77 and 3745-54-75

The Permittee must comply with the annual report requirements set forth in OAC Rule 3745-54-75 and the additional report requirements set forth in OAC Rule 3745-54-77.

B.26 Closure Performance Standard
OAC Rule 3745-55-11

During facility closure, the Permittee must implement the provisions of the approved ~~Amended Pond 1~~ closure plan (once the Class 3 permit modification for Pond 1 closure plan has been finalized) in such a manner as to achieve compliance with OAC Rule 3745-55-11.

The Permittee shall also comply with the contingent closure provisions in OAC Rule 3745-56-28.

B.27 Closure Plan
OAC Rules 3745-55-10, 3745-55-11 and 3745-55-13

The Permittee must implement the procedures of the approved ~~Amended Pond 1~~ closure plan (once the Class 3 permit modification for Pond 1 closure plan has been finalized), in accordance with OAC Rules 3745-55-10 through 3745-55-20.

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B.28 Amendment of Closure Plan
OAC Rules 3745-55-12 and 3745-50-51

Should a change in the facility closure plan become necessary, the Permittee must amend the closure plan in accordance with OAC Rule 3745-55-12 (C).

B.29 Content of Closure Plan
OAC Rule 3745-55-12

The Permittee must maintain the closure plan at the facility which contains the elements set forth in OAC Rule 3745-55-12 and all elements required by the terms and conditions of this permit.

B.30 Reserved Status of Closure

~~The amended Pond 1 Closure/Post-Closure Plan dated October 22, 2004 is incorporated into the permit.~~

B.31 Reserved

B.32 Disposal or Decontamination of Equipment, Structures, and Soils
OAC Rule 3745-55-14

- (a) The Permittee must decontaminate or dispose of all contaminated facility equipment, structures, and soils, as required by OAC Rule 3745-55-14, the closure plan and the terms and conditions of this permit.
- (b) The Permittee must notify the Ohio EPA Southeast District Office within five (5) working days prior to all closure activities, including rinseate and soil sampling activities.

B.33 Certification of Closure
OAC Rule 3745-55-15

The Permittee and an independent, registered professional engineer, registered in the State of Ohio, must certify that each hazardous waste management unit or the facility has been closed in accordance with the specifications in the closure plan and the terms and conditions of this permit, as required by OAC Rule 3745-55-15. The Permittee must furnish to the director, upon request, documentation supporting the certification.

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B.34 Survey Plat

OAC Rule 3745-55-16

The Permittee must submit a survey plat to the director and the local zoning authority no later than the submission of certification of closure of each hazardous waste disposal unit, in accordance with OAC Rule 3745-55-16.

B.35 General Post-Closure Requirements

OAC Rules 3745-55-17, 3745-55-18, 3745-55-19 and 3745-55-20

(a) Post-Closure Care Period

The Permittee must begin post-closure care for each certified closed unit not clean closed, after completion of closure of the unit, and continue for 30 years after that date. Post-closure care must be in accordance with OAC Rule 3745-55-17 and the post-closure plan.

The Permittee shall also comply with the contingent closure provisions in OAC Rule 3745-56-28.

(b) Reserved

(c) Amendment to Post-Closure Plan

The Permittee must amend the post-closure plan, when necessary, in accordance with OAC Rule 3745-55-18(D).

(d) Post-Closure Notices

(i) No later than 60 days after certification of closure of each hazardous waste disposal unit, the Permittee must submit to the director and the local zoning authority records of the type, location, and quantity of hazardous waste disposed of within each cell or disposal unit, in accordance with OAC Rule 3745-55-19(A).

(ii) Within 60 days of certification of closure of the hazardous waste disposal unit that has not been clean closed, the Permittee must do the following:

- (1) Record a notation on the deed to the facility property, or on some other instrument which is normally examined during title search, which contains the information required by OAC Rule 3745-55-19(B)(1).

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- (2) Submit to the director a certification that the Permittee has recorded the notation on the deed to the facility property, or on some other instrument which is normally examined during title search, and submit a copy of the document in which the Permittee placed the notation.
- (3) The Permittee must request and obtain a permit modification prior to post-closure removal of hazardous wastes, hazardous waste residues, liners, or contaminated soils, in accordance with OAC Rule 3745-55-19(C).

(e) Certification of Completion of Post-Closure Care

No later than sixty days after completion of the established post-closure care period for each hazardous waste disposal unit, the Permittee must certify that the post-closure care period was performed in accordance with the specifications in the post-closure plan and the terms and conditions of this permit, as required by OAC Rule 3745-55-20. The Permittee must furnish to the director, documentation supporting the certification.

B.36 Cost Estimate for Facility Closure and Post-Closure
OAC Rules 3745-55-42 and 3745-55-44

- (a) The Permittee's most recent closure and post-closure cost estimate, prepared in accordance with OAC Rule 3745-55-42 and 3745-55-44 is specified in Section I of the permit application.
- (b) The Permittee must adjust the closure cost estimate and post-closure cost estimate for inflation within 30 days after the close of the Permittee's fiscal year and before submission of updated information to the director, as specified in OAC Rules 3745-55-42(B) and 3745-55-44(B).
- (c) The Permittee must revise the closure cost estimate and post-closure cost estimate within 30 days and must submit the estimate to Ohio EPA, whenever there is a change in the facility's closure plan and post-closure plan that increases the cost of closure and post-closure care, as required by OAC Rules 3745-55-42(C) and 3745-55-44(C).
- (d) The Permittee must submit to the Ohio EPA and keep on-site at the facility the latest closure cost estimate and post-closure cost estimate as required by OAC Rules 3745-55-42(D) and (E) and 3745-55-44(D) and (E).

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B.37 Financial Assurance for Facility Closure and Post-Closure

The Permittee must maintain continuous compliance with OAC Rules 3745-55-43, 3745-55-45, and 3745-55-46 and provide documentation of financial assurance, which meets the requirements of OAC Rule 3745-55-51, in at least the amount of the cost estimates required by Permit Condition B.36.

B.38 Liability Requirements

The Permittee must maintain continuous compliance with the requirements of OAC Rule 3745-55-47 and the documentation of liability by providing liability coverage which meets the requirements of OAC Rule 3745-55-51 for sudden accidental occurrences in the amount of at least \$1 million per occurrence, with an annual aggregate of at least \$2 million, exclusive of legal defense costs. A copy of the documentation must be submitted to Ohio EPA within 60 days of the effective date of the permit and within 30 days of liability coverage renewal or change in coverage.

The Permittee also must demonstrate compliance with OAC Rule 3745-55-47(B) by maintaining liability coverage for nonsudden accidental occurrences in the amount of at least \$3 million per occurrence, with an annual aggregate of at least \$6 million, exclusive of legal defense costs. A copy of the documentation must be submitted to Ohio EPA within 60 days of the effective date of the permit and within 30 days of liability coverage renewal or change in coverage.

B.39 Incapacity of Owners or Operators, Guarantors, or Financial Institutions
OAC Rule 3745-55-48

The Permittee must comply with requirements set forth in OAC Rule 3745-55-48 regarding the incapacity of owners, operators, guarantors or financial institutions.

B.40 General Requirements for Land Disposal Restrictions
OAC Chapter 3745-270

The Permittee must comply with all applicable regulations regarding land disposal prohibitions and restrictions as required by OAC Chapter 3745-270.

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MODULE C - RESERVED

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MODULE D - RESERVED

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MODULE E - CORRECTIVE ACTION REQUIREMENTS

Prior to 1999, U.S. EPA Region 5 had the lead role in overseeing the corrective action activities at the Cytec Marietta facility. When Ohio EPA issued Cytec a renewal Part B permit on February 22, 1999, Ohio EPA took over the lead role for corrective action oversight from U.S. EPA. Since that time, Cytec has been conducting various corrective action sampling, investigation, and cleanup efforts in accordance with approved RCRA Facility Investigation (RFI) workplans and submittals to Ohio EPA.

Cytec submitted a draft RFI Report to Ohio EPA in October, 1999. Ohio EPA identified a number of deficiencies in the report which Cytec has been addressing since that time. In addition to performing these RFI activities, since 1999 Cytec has performed Interim Measures on WMUs 3, 11, and 12, has undertaken an expanded investigation of Duck Creek, and is performing a sitewide ecological risk assessment. Many of the RFI related activities are drawing to a close. To finalize the RFI, the Permittee is required to submit an RFI Report to Ohio EPA in accordance with Permit Condition E.5. The project will then progress to the Corrective Measures Study (CMS) phase and the Permittee is required to submit a CMS work plan in accordance with Permit Condition E.8.

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

In accordance with OAC Rule 3745-50-10 "waste management unit" (WMU) means any discernible unit at which solid waste, hazardous waste, infectious waste (as those terms are defined in ORC 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. 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 U.S. EPA's Corrective Action Plan (CAP) (OSWER Directive 9902.3-2A, May 1994).

The Permittee must institute 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, regardless of the time at which waste, or hazardous 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 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 addressed under the RFI, CMS, and CMI phases, as determined to be necessary on a case-by-case basis.

E.3 Identification of WMUs
OAC Rules 3745-50-44(D) and 3745-54-101

A RCRA Facility Assessment (RFA) was conducted by U.S. EPA, and consisted of a preliminary review (PR) and visual site inspection (VSI). The RFA/PR was performed in May 1986 and the RFA/VSI was performed in November, 1990. Twenty-six (26) WMU's were identified in this process. These units consist of three (3) landfills, three (3) ponds, eleven (11) storage areas, three (3) disposal areas, and six (6) process areas. Subsequent to the initial report, additional waste management units were identified, bringing the total to thirty-three (33) WMU's. These units are listed and described in Section J and Table J-1 of the Part B permit application.

E.4 Reserved

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

(a) RFI Report

Ninety (90) days after the effective date of the permit, Permittee shall submit a sitewide RFI Report to Ohio EPA. The RFI Report must describe the procedures, methods, and results of the RFI consistent with Section 8 of the approved RFI Workplan. In addition, the RFI Report shall evaluate the RFI data against generic cleanup standards. In the absence of generic standards, a baseline risk assessment shall be performed. If a site-specific baseline risk assessment is performed, the methodologies and assumptions used to perform it shall be described along with any cleanup standards developed. The human health risk assessment shall be included in the RFI Report. WMU's designated as No Further Action

status in Table J-1 of the Part B permit application shall be fully described in the RFI Report (including data to support NFA status) and shall follow the procedures outlined in Permit Condition E.7 of this permit. The RFI Report must contain adequate information to support further decisions concerning Corrective Action at the Facility.

- (i) Within 45 days of receipt of any Ohio EPA comments on the RFI Report, the Permittee must submit either an amended or new RFI Report that incorporates Ohio EPA's comments.
- (ii) Ohio EPA will approve or modify and approve, in writing, the amended or new RFI Report. The RFI Report, as approved or as modified and approved, shall be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved RFI Report must be authorized by Ohio EPA.

(b) RFI Workplan

The Permittee must conduct a RFI to thoroughly evaluate the nature and extent of the release of hazardous wastes and hazardous constituents from any newly discovered WMUs identified in 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 U.S. EPA's CAP.

In case of a newly discovered waste management unit, the Permittee must submit a written RFI Workplan to Ohio EPA on a time frame established by Ohio EPA.

- (i) Upon receipt of any Ohio EPA comments on the RFI Workplan, the Permittee must submit either an amended or new RFI Workplan that incorporates Ohio EPA's comments within a time frame established by Ohio EPA.
- (ii) Ohio EPA will approve or modify and approve, in writing, the amended or new RFI Workplan. The RFI Workplan, as approved or as modified and approved, shall be incorporated into the permit and become an enforceable condition of the permit. Subsequent changes to the approved RFI Workplan must be authorized by Ohio EPA.

(c) RFI Implementation for Newly Discovered Units

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

(d) RFI Final Report for Newly Discovered Units

Within 90 days after the completion of the RFI, the Permittee must submit an RFI Final Report to Ohio EPA. The RFI Final Report must describe the procedures, methods, and results of the RFI. The Final Report must contain adequate information to support further decisions concerning Corrective Action at the Facility.

E.6 Interim Measure (IM)

Based on the RFI Final Report or other information documenting a release of hazardous waste or constituents at any time to the environment, Ohio EPA may require (or the Permittee may propose) the development and implementation of an IM (this may include an IM Workplan) at any time during the life of the permit to mitigate or eliminate a 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 permit modification under OAC Rule 3745-50-51 to terminate the Corrective Action tasks for certain WMU's. Other tasks identified in the Schedule of Compliance in Permit Condition A.27 shall remain in effect. This permit modification application must conclusively demonstrate that there are no releases of hazardous waste or constituents from those WMUs at the Facility that pose an unacceptable risk 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, Interim Measures conducted, and other information, Ohio EPA determines that releases or suspected releases which were investigated either are nonexistent or do not pose an unacceptable risk to human health and the environment for those WMU's,

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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

When site-specific circumstances indicate that a potential or an actual release of hazardous waste or constituents exists, a determination of no further action 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.

(c) Further Investigations

A determination of no further action 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 release from a WMU at the Facility may pose an unacceptable risk to human health or the environment. In such a case, Ohio EPA shall initiate a modification to the terms of the permit to rescind the determination made in accordance with Permit Condition E.7(a). Additionally, in the event Ohio EPA determines there is insufficient information on which to base a determination, the Permittee, upon notification, is 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)

Based on the results of the RFI investigations and various interim measures conducted at the site, Ohio EPA has determined that a CMS is necessary. The purpose of the CMS will be to develop and evaluate the corrective action alternatives and to outline the alternative corrective measures that will satisfy the performance objectives specified in Permit Condition E.9. The CMS shall also include proposed corrective measures for remediation of contaminated groundwater emanating from the facility, in accordance with the provisions of Permit Condition G.9 and Module G of this permit.

(a) CMS Workplan

The Permittee must submit a written CMS Workplan to Ohio EPA one hundred twenty (120) days after the effective date of the permit.

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- (i) Within 45 days of receipt of any Ohio EPA comments, the Permittee must submit either an amended or new CMS Workplan that incorporates Ohio EPA's comments.
 - (ii) Ohio EPA will approve or modify and approve, in writing, the amended or new CMS Workplan. The CMS Workplan, 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 CMS Workplan must be authorized by Ohio EPA.

(b) CMS Workplan Implementation

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

(c) CMS Final Report

Within 60 days after the completion of the CMS, the Permittee must submit a CMS Final Report to Ohio EPA. The CMS Final Report must summarize the results of the investigations for each remedy studied and must include an evaluation of each remedial alternative.

- (i) Within 45 days of receipt of any Ohio EPA comments, the Permittee must submit either an amended or new CMS Final Report that incorporates Ohio EPA's comments.
- (ii) Ohio EPA will 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 be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved CMS Final Report must be authorized by Ohio EPA.

The CMS Final Report shall include a remediation schedule for each WMU at the site, unless Permit Condition E.7 applies.

E.9 Corrective Measures Implementation (CMI)

Based on the results of the CMS, the Permittee must implement one or more of the Corrective Measures authorized by Ohio EPA. Ohio EPA will authorize one

or more of the Corrective Measures in the CMS, and will notify the Permittee in writing of the decision. The 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 constituents); 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.

(a) Permit Modification

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 not implement the corrective measure until the permit is modified pursuant to OAC Rule 3745-50-51.

(b) Selected Corrective Measures (Remedies)

Based on the final RFI and CMS Reports, and the remedial measures that have previously been conducted at the site, Ohio EPA proposes the following corrective measures for on-site WMUs and other areas of concern:

(i) WMU 1 (North Landfill):

The Ohio EPA is selecting a remedy that includes:

- (1) A slurry wall extending along the west and south sides of the landfill. The slurry wall will be designed to be keyed into bedrock to prevent lateral migration of groundwater into the landfill;
- (2) Cap augmentation consisting of a synthetic liner and recompacted clay in areas of the landfill where the current cap is less than 3 feet thick;

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- (3) A recompacted clay berm placed along the northeast corner of the landfill to prevent infiltration of waters from a 100-year flood event;
- (4) Hydraulic control downgradient of the landfill (hydraulic control is part of the groundwater remedy in E.9(b)(xv) of this document); and
- (5) A component of this remedy shall also include an environmental covenant to identify this area as having waste remaining in place, require that no disturbance of the cap or its components be allowed without consent by Ohio EPA and restrict ground water use.

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(ii) WMU 2 (North Storage Yard):

The remedy for WMU 2 is an institutional control in the form of an environmental covenant, since the results of the Human Health Risk Assessment (HHRA) indicate that this measure is appropriate and adequate to provide protection of human health and the environment.

(iii) WMU 3 (South Landfill):

The remedy for WMU 3 is an institutional control in the form of an environmental covenant. WMU 3 was excavated in 2001-02, for off-site disposal. A component of this remedy is the requirement to establish a permanent wetland in the area, where the current pond is located near Hunter Avenue.

(iv) WMU 8 (Pond 1):

Corrective measures were implemented at Pond 1 through Ohio EPA's closure program by removal of contaminated sludges, backfilling with clean soil, and capping technologies. A component of this remedy that remains to be implemented is an environmental covenant to identify this area as having waste remaining in place, require that no disturbance of the cap or its components be allowed without consent by Ohio EPA, restrict ground water use, and indicate that monitoring (e.g. cap condition, ground water monitoring) will occur to confirm the adequacy of the remedy.

(v) WMU 10 (Building 60 Outside North):

The selected remedy for WMU 10 is a Type 2 cap (Ohio EPA's "Closure Plan Review Guidance 2008", Appendix G). A Type 2 cap shall consist of a synthetic liner, a drainage layer, a protective geotextile layer, and a two feet thick clean soil layer placed on top. It will eliminate direct contact with contaminated soils, and minimize surface water infiltration. (An alternative cap which meets this design criteria and performance may also be approved.) The area that the cap covers will also include the building 60/62 complex where COCs in soils exceed screening values. A component of this remedy shall include an environmental covenant to identify this area as having waste remaining in place, require that no disturbance of the cap or its components be allowed without consent by Ohio EPA, restrict ground water use, and indicate that

monitoring (e.g., cap condition, ground water monitoring) will occur to confirm the adequacy of the remedy.

(vi) WMU 11 (Eastern Disposal Area):

Since WMU 11 was excavated in 2002 for off-site disposal, the selected remedy is an institutional control in the form of an environmental covenant. In addition to this remedy, a permanent wetland shall be established in the area where the current pond is located near Hunter Avenue.

(vii) WMU 14 (West Disposal Area):

No further action is necessary since WMU 14 was removed during the 1996 RM (Remedial Measure) and the area is incorporated into the Pond 1 remedy. Arsenic concentrations were demonstrated to be representative of background conditions.

(viii) WMU 19 (Cooling Pond North):

The selected remedy for WMU 19 is an institutional control in the form of an environmental covenant. The results of the HHRA indicate that the institutional control is appropriate and adequate to provide protection of human health and the environment.

(ix) WMU 20 (North Equipment Storage Area):

The selected remedy for WMU 20 is an institutional control in the form of an environmental covenant. The results of the HHRA indicate that the institutional control is appropriate and adequate to provide protection of human health and the environment.

(x) WMU 25 (Pond 1 Extension):

No further action is necessary since arsenic concentrations at WMU 25 were demonstrated to be representative of background conditions.

(xi) WMU 26 (East Storage Pad):

The selected remedy for WMU 26 is excavation and offsite disposal of contaminated soils. Contaminated soils have been identified in the WMU 26 area that exhibit unacceptable risks to human health

and the environment, and exceed impacts to ground water protection levels. The excavation should remove contaminated source materials to provide a long term effective remedy. This remedy, in addition to hydraulic control for ground water, will shorten the overall ground water cleanup timeframes.

(xii) WMU 28 (Piping from Pond 1 to Pond 2):

The selected remedy for WMU 28 is an institutional control in the form of an environmental covenant. The results of the HHRA indicate that the institutional control is appropriate and adequate to provide protection of human health and the environment.

(xiii) West Tank Farm:

The selected remedy for the west tank farm (WTF) is an institutional control in the form of an environmental covenant, plus hydraulic control for ground water. A multi-layer cap was placed over the former WTF when the unit was incorporated into the Pond 1 remedy, eliminating direct contact with COCs and minimizing surface water infiltration. The environmental covenant shall identify this area as having waste remaining in place, require that no disturbance of the cap or its components be allowed without consent by Ohio EPA, restrict ground water use, and indicate that monitoring (e.g., cap condition, groundwater monitoring) will occur to confirm the adequacy of the remedy.

(xiv) OSC A (Concrete Tank Saddles):

The selected remedy for OSC A is to incorporate the SWMU 10 cap described in section E.9.b.v. by extending the cap to cover the OSC A Concrete Tank Saddle area. One constituent (nitrobenzene) was identified in soil at an estimated concentration just above the applicable impact to ground water screening value.

(xv) Ground Water:

The selected remedy for ground water is hydraulic control. This remedy shall include pumping ground water from approximately six extraction wells to prevent further migration of COCs beyond the Point of Compliance (POC). The POC extends along the northern and eastern portions of the property, mainly along Hunter Avenue. Further details concerning the extraction wells, system

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components, pretreatment technology, and discharge location(s) shall be specified in the Corrective Measures Design document for the ground water remedy.

(xvi) Duck Creek:

The selected remedy for Duck Creek is biocriteria monitoring on a five year schedule for the next two sampling events. The next sampling events would be 2016 and 2021. Currently, monitoring activities include sediment sampling, surface water sampling, fish tissue sampling, and biocriteria evaluations. Changes to the monitoring plan and/or corrective measures to Duck Creek may be necessary based on future sampling results. As a protective measure, a fish consumption advisory is currently in place for Duck Creek from Township Road 329 (Stanleyville) to SR 26 (Norwood) and from SR 26 (Norwood) to the mouth of the Ohio River for total DDT and mercury.

(xvii) Drainage Swale:

The selected remedy for the swale at sampling location SWL-01 is no further action based upon confirmation sampling that indicated non detect for constituents of concern.

- (c) Within ninety (90) days after the effective date of this Permit Modification, Permittee shall submit to Ohio EPA for its review and comment a

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Corrective Measures Implementation (CMI) Work Plan, where applicable, for the above selected corrective measures (i) through (xvii).

The CMI Work Plan shall be developed in conformance with the site-specific Scope of Work (SOW) provided in Appendix A, following this Permit Condition E.9.

- (i) Ohio EPA will review the CMI Work Plan and provide comments to Permittee. Within 30 days of receipt of Ohio EPA's comments on the CMI Work Plan, the Permittee shall submit a new or revised CMI Work Plan that incorporates Ohio EPA's comments.
 - (ii) Ohio EPA shall approve or modify and approve, in writing, the amended or new CMI Work Plan. The CMI Work Plan, as approved or as modified and approved, shall be incorporated in and made an enforceable part of this Permit. The approved CMI Work Plan shall be implemented in accordance with the terms, conditions and schedules contained therein. Subsequent changes to the approved CMI Work Plan must be authorized by Ohio EPA.
 - (iii) The Permittee shall submit the additional reports specified in Attachment A in accordance with the schedules contained therein.
 - (iv) Should the Permittee identify any inconsistency between any of the laws and regulations which it is required to follow by this Permit, Permittee shall promptly notify Ohio EPA in writing of each inconsistency and the effect of the inconsistencies upon the work to be performed. Permittee shall also recommend, along with a supportable rationale justifying each recommendation, the requirement Permittee believes should be followed. Permittee shall implement the affected work as directed by Ohio EPA.
- (d) Additional Work:

Ohio EPA may determine that in addition to the tasks defined in the CMI Work Plan, additional work may be necessary to accomplish the objectives of this Permit.

Within 30 days after receipt of written notice from Ohio EPA that additional work is necessary; the Permittee shall submit a Work Plan for the performance of the additional work. The Work Plan, as approved by Ohio EPA, shall be incorporated in and made an enforceable part of this Permit. Upon approval of the Work Plan by Ohio EPA, the Permittee shall

implement the work plan in accordance with the schedules contained therein.

- (i) The Permittee shall provide a copy of this Permit to all contractors, subcontractors, laboratories, and consultants retained to perform any portion of the work pursuant to this Permit. The Permittee shall ensure that all contractors, subcontractors, laboratories and consultants retained to perform work pursuant to this Permit comply with the provisions of this Permit.
- (ii) For the duration of the Permit, Permittee shall use reasonable best efforts to assure that no portion of the Site will be used in any manner which would adversely affect the integrity of any corrective measures, including monitoring systems, at the Site. Permittee shall promptly notify Ohio EPA by registered mail of any conveyance of any interest in real property which is known to comprise the Site of which it has actual knowledge. Permittee's notice shall include the name and address of the grantee and a description of the provisions made for continued maintenance of containment or monitoring systems. In no event shall the conveyance of any interest in the property that includes, or is a portion of, the Site, release or otherwise affect the liability of Permittee to comply with this Permit. In the alternative, Permittee Cytec, along with its prospective buyer, may provide such notice to Ohio EPA in advance of any conveyance of any interest in real property which is known to compromise the Site and request modification of this Permit pursuant Permit Conditions A.2 and A.18, in order to transfer Permittee Cytec's obligations under this Permit to the prospective buyer.
- (iii) Consistent with the approved detailed schedule and plan to construct and implement the selected remedy, the Permittee must complete the CMI tasks identified in the SOW, including but not limited to, demonstrating that the appropriate soil and groundwater performance standards are met. The final remedy shall meet the groundwater performance standards specified in Module G of the permit. The Permittee shall develop appropriate soil cleanup standards as part of the CMI Work Plan for remedies involving soil excavation (WMU 26 and Drainage Swale).

(e) Environmental Covenants

Many of the WMU's and Areas of Concern will be protected by an environmental covenant. Environmental Covenants in accordance with Ohio's Environmental Covenant law Section 5301.80 to 5301.92 will declare the site as industrial use only, controlling human exposure to COCs in soils and ground water. Restrictions shall include, but not be limited to prohibition of extraction or use of ground water on-site, and prohibition of on-site excavation (excluding utility easements).

(f) Financial Assurance
OAC Rule 3745-54-101

Within 30 days after receiving approval of the CMI Work Plan, the Permittee must provide financial assurance in the amount necessary to implement the corrective measure(s) as required by OAC Rule 3745-54-011 (b) and (c).

APPENDIX A

CMI SCOPE OF WORK

PURPOSE

This Scope of Work (SOW) sets forth the requirements for the implementation of the design, construction, operation, maintenance, and monitoring of the corrective measures provided in Cytec's part B Permit, Module E, Condition E.9. The Permittee will furnish all personnel, materials, and services necessary for the implementation of the corrective measures.

THE SCOPE OF WORK FOR IMPLEMENTATION OF CORRECTIVE MEASURES

The Corrective Measures Implementation consists of four tasks:

Task I: CMI Work Plan

- A. Project Management Plan
- B. Public Involvement Plan

Task II: Corrective Measures Design

- A. Design Plans and Specifications
- B. Operation and Maintenance Plan
- C. Health and Safety Plan
- D. Sampling and Analysis Plan/Performance Monitoring Plan
- E. Cost Estimate

Task III: Corrective Measures Construction and Construction Completion Report

Task IV: Reports and Submissions

- A. Quarterly Progress Reports of CMI
- B. Annual Progress Reports
- C. 5-Year Report
- D. Attainment of Ground Water Performance Standards Report
- E. Corrective Measures Completion of Work (CMCW) Report

Further specifications of the work outlined in this SOW will be provided in the CMI Work Plan and subsequent plans to be reviewed and approved by Ohio EPA. Variations from the SOW will be made, if necessary, to fulfill the objectives of the corrective measures. Additional studies may be necessary as part of the CMI to supplement the available data. At the direction of Ohio EPA for any such studies required, the Permittee shall

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furnish all services, including field work, materials, supplies, labor, equipment, investigations, and superintendence. Sufficient sampling, testing and analysis shall be performed to optimize the operation of the required treatment, disposal, containment and/or monitoring systems.

TASK I: CORRECTIVE MEASURE IMPLEMENTATION WORK PLAN

The Permittee shall prepare a Corrective Measure Implementation ("CMI") Work Plan. The CMI Work Plan shall outline the design, construction, operation, maintenance and monitoring of all actions taken to implement the corrective measures provided in Cytec's part B Permit, Module E, Condition E.9. This CMI Work Plan will include the development and implementation of several plans, which require concurrent preparation. It may be necessary to revise plans as necessary during corrective measures implementation.

The CMI Work Plan shall include but not be limited to the following:

- A. Project Management Plan: The Permittee shall prepare a Project Management Plan which will address the following items, as necessary and appropriate:
1. Documentation of the overall management strategy for performing the design, construction, operation, maintenance, and monitoring of corrective measures;
 2. Description of the responsibility and authority of all organizations and key personnel involved with the implementation;
 3. Description of the required qualifications of key personnel directing the CMI, including contractor personnel;
 4. An outline of proposed field activities necessary to complete the CMI Design including proposed locations of groundwater monitoring wells and air monitoring stations;
 5. Description of how the conceptual design is expected to meet the technical requirements of the Statement of Basis and any amendments thereto; and
 6. Schedule of work including sequence of activities to be performed during the CMI, and proposed timing for submittals required during the CMI.

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- B. Public Involvement Plan: A Public Involvement Plan will be developed to describe the community relations program to be implemented by the Respondent during the design and construction. At the request of Ohio EPA, Permittee may participate in the preparation of information disseminated to the public and in providing information for public meetings that may be held or sponsored by Ohio EPA.

TASK II: CORRECTIVE MEASURE DESIGN

The Permittee shall prepare a Final Design Report including specifications and a construction plan to implement the corrective measures at the facility as set forth in the Statement of Basis and any amendments thereto.

- A. Design Plans and Specifications: The Permittee shall develop clear and comprehensive design plans and specifications which include, but are not limited to the following:
1. Discussion of the design strategy and the design basis, including: (a) compliance with all applicable or relevant environmental and public health standards; (b) minimization of environmental and public health impacts, and; (c) updated schedules, if necessary, from commencement through completion of construction of the CMI.
 2. Discussion of the technical factors of importance including: (a) use of currently accepted environmental control measures and technology; (b) the construct-ability of the design, and; (c) use of currently accepted construction practices and techniques.
 3. Description of models and assumptions made and detailed justification of these assumptions.
 4. Detailed drawings of the proposed design.
 5. Tables listing equipment and specifications;
 6. Appendices including: (a) sample calculations (one example presented and explained clearly for significant or unique design calculations); (b) results of laboratory or field tests; (c) list of specifications to be provided in full in the Final Design submittal, and; (d) list (an outline/table of contents) of documents and plans to be prepared and submitted with Final Design.

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7. Real Estate Easements, Environmental Covenant, and permit requirements.

B. Operation and Maintenance Plan: The Permittee shall prepare an Operation and Maintenance ("O&M") Plan to cover both the implementation and long term maintenance of the corrective measure(s). The O&M Plan shall identify and describe the processes to occur, submissions required during O&M, and schedule for O&M activities consistent with remedial objectives set forth in the Statement of Basis and any amendments thereto. The O&M Plan shall include, but not be limited to, the following elements:

1. Description of routine O&M including tasks required to operate and maintain treatment systems or other components of corrective measures and a schedule showing frequency and duration of each O&M task.
2. Description of potential operating problems including the procedures to be used to analyze and diagnose potential operation problems, sources of information regarding problems, and common or anticipated troubleshooting steps and remedies.
3. Description of routine monitoring and laboratory testing including a description of specific monitoring tasks required for the corrective measures, a description of required laboratory tests and their interpretation/reporting, a description of required QA/QC activities and, a schedule of monitoring frequency and date, if appropriate, and a description of what conditions may allow monitoring to cease or the frequency of monitoring to change.
4. Safety plan including description of precautions for specific equipment, etc., level of personal protection and type of monitoring for site personnel and, safety tasks required in the event of systems failure.
5. Description of equipment including the identification, layout and installation of monitoring components, maintenance of site equipment and, replacement schedule for equipment and installed components.
6. Records and reporting mechanisms including operating logs, inspections, laboratory records and test results, operating and maintenance cost records, mechanism for reporting emergencies, personnel and maintenance records, and progress reports to State and Federal agencies.

- C. Health and Safety Plan: The Permittee shall prepare a Health and Safety Plan to address all work to be performed at the facility to implement the corrective measures provided in Cytec's Part B Permit, Module E, Condition E.9. This document will be submitted to Ohio EPA for review, although it does not require approval by Ohio EPA. The Health and Safety Plan shall be designed to protect on-site personnel, area residents, and visitors from physical, chemical and other hazards posed by the CMI, including pre-design studies if applicable.

The major elements of the Health and Safety Plan should include but not limited to: facility description; description of known hazards and an evaluation of risks; list of key personnel responsible for site safety, delineation of work areas, description of protective clothing; procedures to control access; description of decontamination procedures for personnel and equipment; site emergency procedures; and procedures for protecting workers from weather-related problems.

The Health and Safety Plan, as appropriate, shall be consistent with U.S. EPA (1992) Standard Operating Safety Guides; U.S. EPA (2000) Hazardous Materials Incident Response Operations (165.5); OSHA regulations such as 29 CFR Section 1910.120 (Hazardous Waste Operations and Emergency Response); 29 CFR Section 1910.132 through 1910.138 (Personnel Protective Equipment); 29 CFR Section 1910.1000 (Air Contaminants); and 29 CFR Part 1926 (Safety and Health Regulations for Construction); and, U.S. Department of Health and Human Services (1985) Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities.

- D. Sampling and Analysis Plan/Performance Monitoring Plan: Permittee shall update the Sampling and Analysis Plan, including the QAPP as necessary and appropriate, to reflect changes in the following: responsibility and authority; personnel qualifications; inspection activities; sampling requirements; and, documentation and reporting. Additional revisions shall be made, or a separate document prepared (Performance Monitoring Plan) to describe the performance monitoring program that will be used to measure the effectiveness of the corrective measures provided in Cytec's Part B Permit, Module E, Condition E.9. The performance monitoring plan shall describe all sampling, monitoring, data analysis and reporting activities that will be completed to demonstrate the effectiveness of the corrective measures.

- E. Cost Estimate: Permittee shall refine the cost estimate developed in the CMS to reflect the more detailed/accurate design plans being developed and specifications being developed. The cost estimate shall include both capital and O&M costs.

TASK III: CORRECTIVE MEASURES COMPLETION OF WORK (CMCW) REPORT

Following Ohio EPA approval of the Final CMI Design Report, the Permittee shall implement construction in accordance with procedures, specifications, and schedules in the Ohio EPA-approved Final CMI Design Report and the Ohio EPA approved CMI Work Plan. During the Construction Phase, Permittee will continue to submit periodic progress reports (Task IV). The Permittee shall also implement the elements of the approved Sampling and Analysis Plan and O&M plan, as necessary and appropriate. Upon completion of construction and an initial period of performance monitoring, and in accordance with the schedule included in the Ohio EPA-approved CMI Work Plan and the Ohio EPA-approved Final CMI Design Report, Permittee will prepare and submit a CMI Corrective Measures Completion of Work (CMCW) Report.

The CMI CMCW Report shall describe activities performed during construction, provide actual specifications of the implemented remedy, and provide a preliminary assessment of CMI performance. The CMI CMCW Report shall include, but not be limited to, the following elements:

1. Synopsis of the corrective measures and certification of the design and construction;
2. Explanation of any modifications to the Ohio EPA-approved construction and/or design plans and why these were necessary for the project;
3. Listing of the criteria, established in the Ohio EPA-approved CMI Work Plan, for judging whether the corrective measures are functioning properly, and also explaining any modification to these criteria;
4. Certification by registered professional engineer that the construction is complete, consistent with contract documents and the Ohio EPA-approved Final CMI Design;
5. Signature of Permittee's responsible official as designated in accordance with Permit Condition A. 13.; and,
6. A summary of the Field log book, any problem identification and correction, photographic records, deviations from design and material specifications (with justifying documentation), and as-built drawings.

TASK IV: PROGRESS REPORTS AND SUBMISSIONS

The Permittee shall prepare plans, drawings, specifications, and reports as set forth in Tasks I through III to document the design, construction, operation, maintenance, and

monitoring of the corrective measure. The documentation shall include, but not be limited to the following:

- A. Quarterly Progress Reports of CMI: Until the Corrective Measures have been completed, the Permittee shall provide the Ohio EPA with signed, quarterly progress reports containing:
1. A description of the work performed during the preceding monitoring interval and estimate of the percentage of the CMI completed;
 2. Summaries of all findings;
 3. Summaries of all changes made in the CMI during the reporting period;
 4. Summaries of all contacts with representatives of the local community, public interest groups, or State or local government during the reporting period;
 5. Problems encountered and any actions taken to rectify problems;
 6. Changes in personnel during the reporting period;
 7. Projected work for the next reporting period; and
 8. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.
- B. Annual Progress Reports: Once the Corrective Measures have been completed, the Permittee shall provide Ohio EPA with signed annual progress reports and/or Corrective Measures Assessment Reports containing:
1. A narrative summary of principal activities conducted during the reporting period;
 2. Graphical or tabular presentations of monitoring data, including but not limited to groundwater levels and flow direction, and groundwater quality;
 3. A schedule of sampling and field activities to be performed and reported in the following year; and
 4. A Corrective Measures Assessment Report assessing the performance of the corrective measures over time. The Assessment Report shall include:

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- a. Summarized data representing corrective measure performance
 - b. Any proposed changes to the corrective measure and summary of previous changes;
 - c. Iso-concentration maps for each contaminant of concern listed in the CMI Design Plan; and,
 - d. Statistical assessment of the progress of the corrective measure towards achievement of media clean-up standards.
- C. Five-Year Report: In lieu of every fifth annual report, the Permittee shall provide Ohio EPA with signed Five-Year Corrective Measures Progress Reports containing:
1. All items required for the Annual Progress Reports; and
 2. In depth analysis of the CMI including:
 - a. Complete re-assessment of models, plans and goals used by the CMI process;
 - b. Changes and/or additions to the existing systems that may be required to meet CMI goals.
 - c. Notification that corrective actions media cleanup standards have been achieved, when appropriate.
- D. Attainment of Ground Water Performance Standards Report: Within 30 days after the Permittee concludes that the ground water performance standards have been attained, Permittee shall submit a written report and certification to Ohio EPA for review and approval. In the report, an independent registered professional engineer and Permittee's Project Coordinator shall state that the ground water performance standards have been attained in full satisfaction of the requirements of this Permit. The report shall be signed by a responsible official in accordance with Permit Condition A. 13.
- E. Final Completion of Work Report: This report shall be submitted by Permittee when construction is complete, performance standards have been attained, and O&M is complete. Within 30 days after Permittee concludes that all phases of the work (including O&M and monitoring) have been completed, Permittee shall schedule and conduct a pre-certification inspection to be attended by representatives of Permittee and Ohio EPA. After the pre-certification inspection and any pre-final or subsequent final inspections

required by Ohio EPA, Permittee shall submit within 30 days of a successful final inspection, a written Completion of Work Report to Ohio EPA for approval. In the report, an independent registered professional engineer and Permittee's Project Coordinator shall state that the corrective measures have been completed in full satisfaction of the requirements of this permit. The written report shall include as built drawings stamped by a registered professional engineer, unless there were no modifications to the corrective measures after submittal of as-built drawings at the completion of construction. The report shall be signed by a responsible official in accordance with Permit Condition A. 13.

F. Submittal Summary: A summary of the information reporting requirements is presented in the table below:

Submittal	Due Date
Draft CMI Work Plan Project Management Plan Public Involvement Plan	Within 90 days after the effective date of this permit modification.
Final CMI Work Plan (revision of Draft CMI Work Plan)	30 days after receipt of Ohio EPA's comments on Draft CMI Work Plan
Draft Final Design Report Design Plans and Specifications Operation and Maintenance Plan Health and Safety Plan/ Sampling Analysis Plan/Performance Monitoring Plan Cost Estimate	In accordance with the schedule in the Final CMI Work Plan
Final Design Report	30 days after receipt of Ohio EPA's comments on Draft CMI Work Plan
CMI Report Overview of CMI, design certification & construction, Explanation of modifications to approved plan Performance criteria listing Certification by Registered Professional Engineer	In accordance with the approved design schedule
Quarterly Progress Reports	Submitted by the last of every third month until completion of corrective measures.

Annual Progress Reports	Submitted in January, annually, except for years requiring a Five-year Report.
Five Year Report	Submitted in January every five years.
Attainment of Ground Water Performance Standards Report	Within 30 days after the Respondent concludes that the ground water performance standards have been attained.
Corrective Measures Completion of Work (CMCW) Report	In accordance with the schedule in the Final CMI Work Plan and Final CMI Design Report.
Final Completion of Work Report	30 days after Respondent concludes that all phases of the work (including O&M and monitoring) have been completed.

E.10 Newly Identified WMUs or Releases
 OAC Rule 3745-54-101

(a) General Information

The Permittee must submit to Ohio EPA, within 30 days of discovery, the following information regarding any new WMU identified at the Facility by Ohio EPA or the Permittee:

- (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) Specification of all waste(s) that have been managed at the unit.

(b) Release Information

The Permittee must submit to Ohio EPA, within 30 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

If Ohio EPA determines that a RFI is required for newly identified WMUs, the Permittee must submit a written RFI Workplan to Ohio EPA upon a time frame established in written notification by Ohio EPA in accordance with Permit Condition E.5. This determination will be made based on the information submitted in accordance with Permit Condition E.10.

Further investigations or corrective measures will be established by Ohio EPA in accordance with Permit Conditions E.5, E.8, and E.9.

Permittee must make the RFI Workplan submittal, and any other related submittals, 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 shall submit a Corrective Measures Completion of Work (CMCW) Report. The CMCW Report shall 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 4733.01

Preparation of the following Corrective Action documents constitutes the "practice of engineering" as defined by ORC 4733.01. If the Interim Measure or Corrective Measure constitutes the "practice of engineering," the following associated documents must be certified by a Professional Engineer licensed to practice in the State of Ohio:

Final Interim Measures Report

Corrective Measures Final Design

Corrective Measures Construction Completion Report

Corrective Measures Attainment of Groundwater 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 an independent, Professional Engineer licensed to practice in the State of Ohio.

MODULE F - POST-CLOSURE CARE

F. POST-CLOSURE CARE

This module covers post-closure care activities for Pond 2 and, when closure is complete and certified, for Pond 1. Pond 2 has been "clean-closed" by risk-based standards in soils; however, a ground water contamination plume extends from the unit and must be monitored for a period of 30 years in accordance with the site-wide Integrated Groundwater Monitoring Plan, unless the director of the Ohio EPA approves a petition from Cytec to reduce the post-closure care period in accordance with OAC Rule 3745-55-17(A)(2). Pond 1 is still undergoing closure and Cytec and Ohio EPA have had discussions regarding closing the former surface impoundment as a landfill since post-excavation sampling results revealed elevated levels of contaminants and the extent of impacted soils extends into the adjacent former production area to the north. At the time of permit writing, Cytec is gathering additional information on ground water conditions in the Pond 1 area to decide the final design requirements for Pond 1. ~~The Pond 1 Closure Plan has been amended to close the unit as a landfill instead of risk-based clean closure.~~ The individual post-closure groundwater monitoring plans for Pond 1 and Pond 2 were replaced by a site-wide Integrated Ground Water Monitoring Program. The permittee is required to submit a corrective action program for remediation of contaminated ground water from Pond 1 and Pond 2 concurrent with the submittal of the Corrective Measures Study required by Permit Condition E.8. Implementation of the selected remedy shall be pursuant to Permit Condition E.9.

F.1 Unit Identification

The Permittee must provide post-closure care for the following hazardous waste management units, subject to the terms and conditions of this permit:

Type of Waste Unit	Unit No. or Other Designation	Maximum Waste Inventory	Description of Wastes Contained	Hazardous Waste No.	Year Post-closure began
Surface Impoundment	Pond 1	33,000 yd ³	Production wastes	F004	To commence after closure is complete
Surface Impoundment	Pond 2	70,900 yd ³	Pond 1 supernatant, laboratory wastes, leachate	F004	1997

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F.2 Post-closure Procedures and Use of Property
OAC Rule 3745-55-17

- (a) The Permittee must conduct post-closure care for each hazardous waste management unit listed in Permit Condition F.1, to begin after completion of closure of the unit and continue for 30 years after that date. The 30-year post-closure care period may be shortened upon application and demonstration approved by Ohio EPA that the reduced period is sufficient to protect human health and the environment. The 30-year post-closure care period may be extended if the director finds that the extended period is necessary to protect human health and the environment. For landfill type (i.e., waste-in-place) closures, the groundwater must be monitored for a period of either 30 years or until such time as established concentration limits are achieved for a period of three consecutive years (i.e. 6 consecutive semi-annual sampling events).
- (b) The Permittee must maintain and monitor the ground water monitoring system and comply with all applicable requirements of OAC Rules 3745-54-90 thru 3745-54-99 and OAC Rule 3745-55-01 during the post-closure period.
- (c) The Permittee must comply with the requirements for surface impoundments in OAC Rule 3745-56-28 as follows:
 - (i) Maintain the integrity and effectiveness of the final cover, including making repairs to the cap, as necessary, to correct the effects of settling, subsidence, erosion, and other events; and,
 - (ii) Prevent run-on and run-off from otherwise damaging the final cover.
- (d) Reserved
- (e) The Permittee must comply with all security requirements, as specified in the part B permit application.
- (f) The Permittee must not allow any use of the units designated in Permit Condition F.1 which will disturb the integrity of the final cover, liners, any components of the containment system, or the function of the facility's monitoring systems during the post-closure care period.
- (g) The Permittee must implement the post-closure plans for Pond 1 and Pond 2. All post-closure care activities must be conducted in accordance with the provisions of the post-closure plans.

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F.3 Inspections
OAC Rule 3745-55-18(B)

The Permittee must inspect the components, structures, and equipment at the facility in accordance with the inspection schedule found in the post-closure plan.

F.4 Notices and Certification
OAC Rules 3745-55-19 and 3745-55-20

- (a) No later than 60 days after certification of closure of each hazardous waste disposal unit, the Permittee must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the director, a record of the type, location, and quantity of hazardous wastes disposed of within each cell or other disposal unit of the facility. For hazardous wastes disposed of before January 12, 1981, the Permittee must identify, to the best of his knowledge and in accordance with any records he has kept, the type, location, and quantity of the hazardous wastes.
- (b) Within 60 days after certification of closure of each hazardous waste disposal unit, the Permittee must:
- (i) Record, in accordance with Ohio law, a notation on the deed to the facility property, or on some other instrument that is normally examined during the title search, that will in perpetuity notify any potential purchaser of the property that:
- (1) The land has been used to manage hazardous wastes;
 - (2) Its use is restricted under OAC Rules 3745-55-10 thru 3745-55-20; and
 - (3) The survey plat and record of the type, location, and quantity of hazardous wastes disposed of within each cell or other hazardous waste disposal unit of the facility have been filed with the director and the city of Marietta.
- (ii) Submit a certification to the director, and a copy of the document in which the notation has been placed, signed by the Permittee, that he has recorded the notation specified in Permit Condition F.4(b)(i).
- (c) If the Permittee wishes to remove hazardous wastes and hazardous waste residues, or liner, if any, or contaminated soils, then he must request a modification to this permit in accordance with the applicable requirements

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in OAC Chapter 3745-50. The Permittee must demonstrate that the removal of hazardous wastes will satisfy the criteria of OAC Rule 3745-55-17(C).

By removing hazardous waste, the Permittee may become a generator of hazardous waste and must manage it in accordance with all applicable hazardous waste requirements.

If the Permittee is granted a permit modification or otherwise granted approval to conduct such removal activities, the Permittee may request that the director approve either:

- (a) The removal of the notation on the deed to the facility property or other instrument normally examined during title search or,
- (b) The addition of a notation to the deed or instrument indicating the removal of the hazardous waste.
- (d) No later than 60 days after completion of the established post-closure care period for each hazardous waste disposal unit, the Permittee must submit to the director, by registered mail, a certification that the post-closure care period for the hazardous waste disposal unit was performed in accordance with the specifications in the approved post-closure plan. The certification must be signed by the Permittee and an independent, qualified, registered professional engineer registered in the State of Ohio. Documentation supporting the independent, qualified, registered professional engineer's certification must be furnished to the director upon request until the director releases the Permittee from the financial assurance requirements for post-closure care under OAC Rule 3745-55-45.

F.5 Financial Assurance
OAC Rule 3745-55-45

- (a) The Permittee must maintain financial assurance during the post-closure period and comply with all applicable requirements of OAC Rules 3745-55-40 thru 3745-55-51.
- (b) Reserved
- (c) Reserved

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F.6 Post-closure Permit Modifications
OAC Rule 3745-55-18(D)

The Permittee must request a permit modification to authorize a change in the approved post-closure plan. This request must be in accordance with applicable requirements of OAC Rules 3745-50-40 to 3745-50-62, and must include a copy of the proposed amended post-closure plan for approval by the director. The Permittee must request a permit modification whenever changes in operating plans or facility design affect the approved post-closure plan, when there is a change in the expected year of final closure, or when other events occur during the active life of the facility that affects the approved post-closure plan. The Permittee must submit a written request for a permit modification at least 60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the post-closure plan.

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MODULE G - INTEGRATED GROUND WATER MONITORING
OAC Rule 3745-55-011

G. INTEGRATED GROUND WATER MONITORING

This module presents permit conditions addressing the requirements for an integrated ground water monitoring program at the Cytec Industries Inc., Marietta, Ohio facility. Ground water contamination from the hazardous waste management units (HWMUs) regulated under OAC Rules 3745-54-90 through 3745-55-01 has co-mingled with ground water contamination from solid waste management units (SWMUs) regulated under OAC Rule 3745-55-011 at the site. Therefore, it is not practical to separate the HWMUs and SWMUs either for ground water monitoring purposes or remedial efforts. A more efficient multifaceted approach is to combine the relevant portions of OAC Rule 3745-55-01 and OAC Rule 3745-55-011 for these areas. This combined approach is hereafter referred to as the Integrated Ground Water Monitoring Program or IGWMP.

Two hazardous waste management units historically regulated under OAC Rules 3745-54-90 through 3745-55-01 exist at the facility. These former surface impoundments are labeled Pond 1 and Pond 2 on Figure 1 of Appendix E-7 Integrated Ground Water Monitoring Program (~~April 2003~~) ~~REVISED April 2005~~ found in the Permit Application. All wastes have been removed from Pond 1, however some contaminated soil remains. Cytec and Ohio EPA have had discussions regarding closing the former surface impoundment as a landfill since post-excavation sampling results revealed elevated levels of contaminants and the extent of impacted soils extends into the adjacent former production area to the north. The Pond 1 Closure Plan has been amended to close the unit as a landfill, instead of risk - based clean closure. At Pond 2, all wastes and contaminated soils have been removed and the excavation has been backfilled.

Thirty-three (33) solid waste management units have been identified at the site. These units consist of landfills, former surface impoundments (including Ponds 1 and 2), storage areas, process areas and disposal areas. The SWMUs are listed and described in Section J and Table J-1 of the Part B Permit Application.

Ground water at the site is found in the following three hydrogeologic units which comprise the uppermost aquifer: unconsolidated overburden, weathered bedrock, and competent bedrock. The unconsolidated overburden at the site ranges from 0 to greater than 50 feet in thickness. This unit is thinnest near the base of the hills along the western and northern borders of the site, in the vicinity of Ponds 1 and 2, and areas immediately west of Hunter Avenue and north of well W-5. The overburden primarily consists of tan to brown, gray and dark green silty clays.

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Weathered bedrock encountered below the unconsolidated overburden consists of weathered shale and weathered sandstone ranging from 2 feet to 22 feet in thickness. In some areas, zones within the weathered bedrock interval have completely broken down from sandstone to sand and from shale or mudstones to silty clays. This sometimes makes it difficult to distinguish the contact with the unconsolidated overburden.

Competent bedrock, belonging to the Dunkard and Monongahela Group of the Pennsylvanian System, underlies the weathered bedrock at the site. These rock units consist primarily of sandstone and shale. In general, a higher percentage of sandstone is present in the upper portions of the bedrock at the site above 560 feet mean sea level (MSL). The competent bedrock interval below 560 feet MSL consists predominantly of shales. The shales grade to, and are interbedded with, shaley siltstones. The deepest bedrock penetrated at the site consists of oil bearing shale at an elevation of 480 feet to 510 feet MSL.

Based on the results of the Permittee's final status ground water monitoring program and samples collected from wells monitoring SWMUs, each of the three hydrogeologic units has been impacted with hazardous waste constituents. In general, site ground water flows east with hazardous waste constituents in ground water ultimately discharging to Duck Creek. Ground water samples from wells located east of Duck Creek indicate that hazardous waste constituents have not migrated in ground water beyond the Permittee's facility boundary, nor to the east of Duck Creek.

Concentration limits established in Table 1 in Appendix E-7 in accordance with OAC Rule 3745-54-94 of the Ground Water Protection Standard (GWPS) are known to be historically and currently exceeded at the Permittee's point of compliance. Therefore, the Permittee is required to implement a corrective action program in accordance with OAC Rule 3745-55-01 to bring the regulated units back into compliance with the GWPS. In lieu of the requirement to submit to the director a permit modification to establish a corrective action program meeting OAC Rule 3745-55-01, the Permittee proposed a compliance schedule in accordance with OAC Rule 3745-50-44 (B)(8)(e). Ohio EPA approved the compliance schedule in a letter dated February 4, 1998. In accordance with that letter, the Permittee shall submit information for ground water corrective action for Pond 1 and Pond 2 regulated units at the same time as submitting the Corrective Measures Study (CMS) as required in Permit Condition E.8. In accordance with Permit Condition E.8.a., the Permittee shall submit a CMS Workplan to Ohio EPA 120 days after the effective date of this permit.

The purpose of the CMS will be to develop and evaluate the corrective action alternatives and to outline one or more alternative corrective measures that will satisfy the performance objectives specified in Permit Condition E.9. The CMS shall also include proposed corrective measures for remediation of contaminated ground water emanating from the

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facility, in accordance with the provisions of Permit Condition G.9 and Module G of this permit.

Until the CMS is submitted, ground water is being controlled since the plume is not migrating off site, with the exception of the flow into Duck Creek. The Duck Creek contamination is mainly caused by the ground water contamination from SWMUs regulated under OAC Rule 3745-55-011 at the site. The Permittee has performed Interim Measures on SWMUs 3, 11, and 12, which have contributed to the contamination of Duck Creek. Currently, the Permittee is conducting an expanded investigation of Duck Creek and is performing a sitewide ecological risk assessment. The results of these investigations will be included in the RFI Report that is to be submitted in accordance with Permit Condition E.5.

G.1 Applicability
OAC Rule 3745-55-011

- (a) The Permittee shall comply with OAC Rule 3745-55-011 and institute corrective action as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous waste constituents from any waste management unit at the facility, regardless of the time at which waste was placed in such unit.

A RCRA Facility Assessment (RFA) was conducted by US EPA, and consisted of a preliminary review (PR) and visual site inspection (VSI). The RFA/PR was performed in May 1986 and the RFA/VSI was performed in November 1990. Twenty-six (26) WMU's were identified in this process. These units consist of three (3) landfills, three (3) ponds, eleven (11) storage areas, three (3) disposal areas, and six (6) process areas. Subsequent to the initial report, additional waste management units were identified, bringing the total to thirty-three (33) WMU's. These units are listed and described in Section J and Table J-1 of the Part B Permit Application.

SWMUs 8 and 13 are also considered HWMUs (Pond 1 and Pond 2, respectively). All wastes have been removed from Pond 1, however some contaminated soil remains. Cytec and Ohio EPA have had discussions regarding closing the former surface impoundment as a landfill since post-excavation sampling results revealed elevated levels of contaminants and the extent of impacted soils extends into the adjacent former production area to the north. At the time of permit writing, Cytec is gathering additional information on groundwater conditions in the Pond 1 area to decide the final design for Pond 1. Pond 2 was risk-based clean closed by removing all wastes and contaminated soils and backfilling the former impoundment with clean soil. Due to ground water contamination above concentration limits

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Pond 2 is in post-closure care. Both Pond 1 and Pond 2 have previously been monitored under OAC Rules 3745-54-90 through 3745-55-01.

(b) Reserved

G. 2 Ground Water Protection Standard

The Permittee must ensure that the hazardous constituents detected in the ground water from a unit listed in this Permit Condition do not exceed the concentration limits in the uppermost aquifer underlying the waste management areas beyond the point of compliance during the compliance period and to respond with any necessary corrective action to bring the ground water back into compliance with those limits. The GWPS has been established in this Permit due to hazardous constituents being detected in the ground water.

(a) List of Hazardous Constituents and Concentration Limits

The Permittee must monitor the ground water to determine whether units are in compliance with the GWPS. The hazardous constituents listed in the Appendix to OAC Rule 3745-54-98 detected in the ground water underlying a unit and reasonably expected to be derived from the waste removed from the unit to which the GWPS applies and their concentration limits are listed in Table 1 of Appendix E-7 of the permit application, and attached to this permit module.

In addition to the hazardous constituents listed in Table 1 of Appendix E-7 of the permit application, the Permittee must monitor the following parameters:

Field Parameters:

Temperature
pH
Specific Conductance
Turbidity

(b) Point of Compliance

The Permittee has integrated the ground water monitoring programs site-wide due to the close proximity of HWMUs and SWMUs to each other. The combined point of compliance (POC) where the hazardous constituents in Permit Condition G.2(a) must meet the concentration limits is indicated on Figure 1 of Appendix E-7 of the Permit Application. The Permittee must

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monitor the background wells, primary compliance wells, and secondary compliance wells as listed in Table 3 of Appendix E-7 of the Permit Application. The primary compliance wells represent the quality of ground water passing the point of compliance.

The Permittee must also monitor the ground water, as necessary, between the point of compliance and the downgradient property boundary to determine if the concentration limit has been exceeded at any point between the compliance point and the downgradient property boundary.

(c) Compliance Period

- (i) The compliance period, during which the GWPS applies, is equal to the number of years the waste management area was active including the time required to complete closure activities. Pond 1 began accepting waste in 1915 and is currently undergoing closure. Therefore, the compliance period is equal to the number of years from 1915 until Pond 1 closure activities are completed. The compliance period began on February 22, 1999 when the Permittee was issued a Revised Ohio Hazardous Waste Facility Installation and Operation Permit which required ground water monitoring for both ponds in accordance with OAC Rules 3745-54-90 through 3745-55-01.

Following closure certification of the unit, authority for ground water monitoring will be based upon post-closure care required under OAC Rule 3745-55-17(A)(1)(a). The post-closure care period extends 30 years after closure certification.

- (ii) During the compliance/post-closure care period the Permittee must establish and implement a monitoring program that will detect the presence of hazardous waste and hazardous waste constituents, and respond as necessary to protect human health and the environment, to all releases above the concentration limits at the point of compliance and between the point of compliance 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.
- (iii) The Permittee may discontinue corrective action activities during the compliance/post-closure care period when the GWPS has not been exceeded at any well listed in Permit Condition G.3(b) for any constituent listed in Permit Condition G.2(a) for three consecutive years (i.e. 6 consecutive semi-annual sampling events). The

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Permittee must continue a compliance monitoring program under OAC Rule 3745-54-99 for the remainder of the compliance/post-closure care period unless Ohio EPA approves a permit modification submitted by the Permittee under OAC Rule 3745-50-51 to continue under a reduced monitoring program.

- (iv) If the Permittee is engaged in a corrective action program at the end of the compliance/post-closure care period, corrective action ground water monitoring will be extended until the Permittee can demonstrate that the GWPS of OAC Rule 3745-54-92 has not been exceeded for a period of three consecutive years (i.e. six semi-annual sampling events).
- (v) When the 30 year compliance/post-closure care period ends, the Permittee and Ohio EPA will evaluate the ground water quality and determine whether post-closure care and ground water monitoring in compliance with the GWPS should be extended. If it is determined that an extension is required, the Permittee shall submit an application for a permit modification under OAC Rule 3745-50-51 to extend the compliance/post-closure care period under Permit Condition G.2(c)(i) for an additional 30 year time period.

G.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 unconsolidated overburden, weathered bedrock, and competent bedrock zones which are considered to be the uppermost aquifer. The samples must:
 - (i) Represent the quality of background water that has not been affected by leakage from the unit/area;
 - (i) Represent the quality of ground water passing the point of compliance, between the point of compliance and the downgradient property boundary, and beyond the property boundary, where necessary, to protect human health and the environment;
 - (ii) Allow for the detection and measurement of contamination for all potential release pathways to the uppermost aquifer from the waste management units based on site-specific hydrogeologic characterization when hazardous waste or hazardous constituents have migrated from the units to the uppermost aquifer; and,

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- (iii) Demonstrate the effectiveness of any corrective action program. The well system should be as effective as the compliance ground water monitoring system required by OAC Rule 3745-54-99 in determining compliance with the GWPS and in determining the success of the corrective action program.
- (b) The monitoring system consists of the ground water wells as specified on Figure 1 and Table 3 of Appendix E-7 found in the Permit Application and in conformance with the following list:

Well Identifier	Upgradient/ Downgradient	Purpose
W-1A	Upgradient	Background
W-20	Upgradient	Background
W-20B	Upgradient	Background
W-37wt	Upgradient	Background
W-43wtR	Downgradient	Primary Compliance
W-18	Downgradient	Primary Compliance
W-7A	Downgradient	Primary Compliance
W-7B	Downgradient	Primary Compliance
W-6	Downgradient	Primary Compliance
W-6B	Downgradient	Primary Compliance
W-5	Downgradient	Primary Compliance
W-16	Downgradient	Primary Compliance
W-17	Downgradient	Primary Compliance
W-27	Downgradient	Primary Compliance
W-13	Downgradient	Primary Compliance
W-32wt W-32WB	Downgradient	Primary Compliance
W-32WB	Downgradient	Primary Compliance
W-32B	Downgradient	Primary Compliance
W-30wt	Downgradient	Primary Compliance
W-30WB	Downgradient	Primary Compliance
W-30B	Downgradient	Primary Compliance
W-29	Downgradient	Primary Compliance

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Well Identifier	Upgradient/ Downgradient	Purpose
W-31WB	Downgradient	Primary Compliance
W-10	Downgradient	Secondary Compliance
W-14	Downgradient	Secondary Compliance
W-22	Downgradient	Secondary Compliance
W-23	Downgradient	Secondary Compliance
W-35WB	Downgradient	Secondary Compliance
W-24	Downgradient	Secondary Compliance
W-36WB	Downgradient	Secondary Compliance

- (c) Wells identified in Permit Condition G.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 Table 2 of Appendix E-7 of the Permit Application. 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.

Appendix E-1 of the Permit Application contains ground water monitoring well construction information which illustrate compliance with this Permit Condition.

- (d) Any well identified in Permit Condition G.3 that is removed or replaced shall be done so in compliance with OAC Rule 3745-50-51, permit modification process. Each change must be accompanied by a revised map and table (Figure 1 and Table 3 of Appendix E-7 found in the Permit Application) as specified in Permit Condition G.3(b).
- (e) Whenever any of the wells specified in Permit Condition G.3(b) are replaced, the Permittee must within a 90 day period of the date of replacement using means appropriate to the reason for replacement demonstrate to Ohio EPA that the ground water quality at the replacement well meets the criteria in Permit Condition G.3(a).

G.4 Sampling and Analysis Procedures

- (a) The Permittee must implement an IGWMP as found in Appendix E-7 of the Permit Application. This program includes consistent sampling and analysis

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indication of ground water quality below the units and is in compliance with this Permit Condition.

- (b) The Permittee's IGWMP as found in Appendix E-7 of the Permit Application includes 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 Appendix E-7 of the Permit Application.

G.5 Ground Water Surface Elevation

The Permittee must determine the ground water surface elevation at each well identified in the Table in Permit Condition G.3(b) each time ground water is sampled using the methods in Section 3.1 of Appendix E-7 of the Permit Application.

G.6 Sampling Frequency

Data on each hazardous constituent specified in Permit Condition G.2(a) will be collected from all wells listed in Permit Condition G.3(b). The sampling procedure and interval for each constituent is described in Section 3.3 and Table 3 of Appendix E-7 of the Permit Application.

- (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 values shall be established in the permit through the permit modification process in OAC Rule 3745-50-51. Background data may be updated as necessary in accordance with Appendix E-7 of the Permit Application to provide an accurate representation of background ground water quality.

G.7 Statistical Procedures

The Permittee must use the following statistical procedures in evaluating ground water monitoring results for each hazardous constituent in Permit Condition G.2(a) in each well in Permit Condition G.3(b) to identify statistically significant evidence of contamination, the exceedance of a concentration limit, and/or the effectiveness of corrective action:

- (a) The Permittee must conduct statistical procedures as presented in Section 4 of Appendix E-7 of the Permit Application utilizing a combination of time-trend graphs and the Mann-Kendall test, or another statistical method approved by the director.
- (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 concentration limits. 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 G.2(a) in each well.
 - (ii) The statistical method must be appropriate for the distribution of the data used to establish background or concentration limits. If the distribution for the constituents differ, more than one statistical method may be needed.
 - (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 if it is found to be protective of human health and the environment.
 - (v) If a tolerance or prediction interval procedure is used, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, must be proposed by the

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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 that are protective of human health and the environment. 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 using the methods outlined in the most recent version of SW-846.
- (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.

G.8 Recordkeeping and Reporting

Ground water monitoring data collected in accordance with this permit, including actual levels of constituents, must be maintained in the Permittee's operating record and the data must be submitted to Ohio EPA for review as follows:

- (a) Operating Record
OAC Rules 3745-54-73(B)(5) and 3745-54-73(B)(6)

The Permittee must enter all of the following information obtained in accordance with Permit Module G in the operating record:

- (i) The laboratory results from each of the wells and their associated qualifiers including the laboratory sheets for the full volatile, semi-volatile and pesticide analyses (must include method codes, detection limits, and units of measurement);
- (ii) The date each well was sampled (tabulated);
- (iii) The date, time, and identification of all blanks and duplicates;
- (iv) Any field log documentation of deviation from the procedures in Appendix E-6 of the Permit Application, including documentation of parameter omissions during the sampling event;

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- (v) The date the Permittee received the results from the laboratory;
- (vi) 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;
- (vii) The results of the data validation review per Permit Condition G.8(a)(vi) 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 %, surrogate recovery, and an explanation of any rejected results consistent with the U.S. EPA and Ohio EPA guidelines for data review;
- (viii) Results of all blanks and duplicates (trip, field, equipment, and method);
- (ix) Results of the field parameters;
- (x) The statistical evaluation of the data according to the statistical tests specified in Permit Condition G.7 (must include all computations, results of statistical tests, and date the statistical evaluation was completed);
- (xi) Any change in well status (i.e., going from unaffected to affected status and vice versa);
- (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;
- (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 GWPS per Permit Condition G.2.

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(b) Annual & Other Periodic Required Reporting
OAC Rule 3745-54-75

(i) Semi-Annual Reporting

Ground water monitoring data collected in accordance with this permit, including actual levels of constituents, must be submitted to the Agency for review as follows:

Sampling Schedule	Results due to the Director by:
1 st Semi-Annual Event	45 days after analytical results received from laboratory
2 nd Semi-Annual Event	75 days after analytical results received from laboratory, or by March 1 st of the following calendar year, whichever comes first

Once a ground water corrective action program has been implemented, the Permittee must report, in writing, semi-annually to the director on the effectiveness of the corrective action program. These reports must be submitted at the same time as the analytical data in accordance with the schedule above for each year until the corrective action program has been completed. If either of those dates falls on a weekend, the reports will be due the following business day. Each report must reference the titles and dates of any other periodic reports required by the permit or any updates to those reports (i.e. due to confirmation sampling), but generally does not need to include duplicates of hard copies previously submitted. The semi-annual reports must include, at a minimum, the information required by Permit Conditions G.5, G.6, and G.9.

(ii) Annual Reporting

The Permittee must submit an annual report to the director by March 1st of the following year or first business day thereafter if this date falls on a weekend. The annual reports must reference the titles and dates of any other periodic 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 G.6 and G.9, the ground water

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elevation data required by Permit Condition G.5 and G.8(a)(xii)&(xiii), and the results of any statistical analyses required by Permit Conditions G.7 and G.9. In addition, a copy, on disk, of all ground water and blank data must be submitted electronically in the format supplied by the director, a hard 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 as required by OAC Rule 3745-54-75.

(iii) Other Reports

The Permittee must comply with any other reporting requirements that become necessary under Permit Condition G.9 in accordance with the schedules covered by that permit condition. If any of these dates falls on a weekend, the reports will be due no later than the following business day.

G.9 Integrated Ground Water Monitoring Program
OAC Rule 3745-55-011

The Permittee is required to establish and implement a ground water monitoring corrective action program under OAC Rule 3745-55-011 and must take corrective action, as necessary, to ensure that units are in compliance with the GWPS as specified in Permit Condition G.2.

- (a) Concentration limits established in Table 1 in Appendix E-7 of the Permit Application in accordance with OAC Rule 3745-54-94 of the GWPS are known to be historically and currently exceeded at the Permittee's point of compliance. Therefore, the Permittee is required to implement a corrective action program, as necessary, that prevents hazardous constituents specified in Permit Condition G.2(a) from exceeding their respective concentration limits specified in Permit Condition G.2(a) at the compliance point specified in Permit Condition G.2(b) during the compliance period specified in Permit Condition G.2(c) by removing the hazardous waste constituents or by treating them in place.

The corrective action program shall be detailed in a Corrective Measures Study (CMS), as required by Permit Condition E.8, with the implementation schedule included in the CMS workplan. The purpose of the CMS will be to develop and evaluate the corrective action alternatives and to outline one or more alternative corrective measures that will satisfy the performance objectives specified in Permit Condition E.9. The CMS shall include

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proposed corrective measures for remediation of contaminated ground water emanating from the facility, in accordance with the provisions of Permit Condition G.9 and Module G of this permit.

- (b) Reserved
- (c) 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 any corrective action program. Ground water monitoring must be as effective as the program for compliance monitoring under OAC Rule 3745-54-99 in determining compliance with the GWPS in Permit Condition G.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 compliance point as defined in Permit Condition G.2(b), and, as necessary to protect human health and the environment, between the compliance point and the downgradient property boundary and beyond the property boundary. The ground water monitoring system must comply with the requirements in Permit Condition G.3.
 - (ii) Collection, preservation, and analysis of samples pursuant to Permit Conditions G.4, G.5, and G.6.
 - (iii) The Permittee must continue to conduct a sampling program semiannually for each chemical parameter and hazardous constituent specified in Permit Condition G.2(a) from each well (background and compliance) specified in Permit Condition G.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 compare the concentration of each hazardous constituent measured at each well at the compliance point specified in Permit Condition G.2(b), between the compliance point and the downgradient facility property boundary, and beyond the facility boundary, with its concentration limit each time ground water quality

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is determined in accordance with the procedures specified in Permit Condition G.7.

Wells 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 shall analyze samples from all monitoring wells for all constituents contained in Appendix to OAC Rule 3745-54-98 (Table 4 in Appendix E-7 of the Permit Application) once every two years to determine whether additional hazardous constituents are present in the uppermost aquifer. If the Permittee finds additional constituents present (i.e., not listed in Permit Condition G.2(a)), the Permittee must, if desired, re-sample the affected well(s) within one month for the additional detected constituents in Appendix to OAC Rule 3745-54-98. If the results of the second analysis confirm the presence of new hazardous constituents, then their concentrations must be reported to the director in writing within seven (7) days from completion of the second analysis. If the Permittee chooses not to re-sample, then he or she must report the concentrations of the additional constituents to Ohio EPA within seven days after completion of the initial analysis. Additional corrective action measures may be required and the Permittee must comply with Permit Condition G.9(a).
- (vi) Within 30 days of notifying the director in accordance with Permit Condition G.9(c)(v), the Permittee must submit to the Ohio EPA an application for a permit modification to incorporate the additional constituents into Permit Condition G.2(a). The application must include; an identification of the concentration of each new constituent detected at the compliance point and/or at any well downgradient between the compliance point and the downgradient property boundary; a proposed concentration limit for each new constituent under Permit Condition G.2(a); or, a notice of intent to seek an alternate concentration limit for a hazardous constituent.
- (vii) The Permittee must maintain a record of ground water analytical data as measured and in a form necessary for the determination of

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statistical significance under Permit Conditions G.7 and G.8 for the compliance period.

- (viii) The Permittee must determine the ground water flow rate and direction in the uppermost aquifer at least annually using the procedures specified in Section 3.1 of Appendix E-7 of the Permit Application.

(d) Response Action

- (a) Based upon the results of the Permittee's ground water monitoring program, the concentration limits detailed in Permit Condition G.2(a) have been exceeded at the Permittee's point of compliance. Therefore, the Permittee must implement a corrective action program, to remove or treat in place any hazardous constituents specified in Permit Condition G.2(a) that exceed their respective concentration limits specified in Permit Condition G.2(a) in the ground water.

The corrective action program shall be detailed in a Corrective Measures Study (CMS), as required by Permit Condition E.8, with the implementation schedule included in the CMS workplan.

- (ii) The corrective action program submitted by the Permittee shall contain all appropriate measures to ensure that ground water quality will achieve compliance in a reasonable time period.

Until such time that the CMS and a Corrective Action program is implemented in accordance with Permit Conditions E.8 and E.9, the Permittee shall follow an Integrated Ground Water Monitoring Program in accordance with the conditions of this permit module.

- (iii) The Permittee must continue corrective action measures during the compliance period to the extent necessary to ensure that the GWPS is not exceeded. If the Permittee is conducting corrective action at the end of the compliance period, the Permittee must continue corrective action for as long as necessary to achieve compliance with the GWPS.

The Permittee may discontinue corrective action activities during the compliance period when the GWPS has not been exceeded at any well listed in Permit Condition G.3(b) for any constituent listed in Permit Condition G.2(a) for three consecutive years (i.e. 6 consecutive semi-annual sampling events). The Permittee must

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continue a compliance monitoring program under OAC Rule 3745-54-99 for the remainder of the compliance period.

- (e) The Permittee must report in writing to the director on the effectiveness of the corrective action monitoring program on a semiannual basis according to Permit Condition G.8.
- (f) If the Permittee determines the corrective action monitoring program established by this permit no longer satisfies the requirements of OAC Rule 3745-55-011, 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.

End of Permit Conditions

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