



**Environmental  
Protection Agency**

John R. Kasich, **Governor**  
Mary Taylor, **Lt. Governor**  
Scott J. Nally, **Director**

**CERTIFIED**

September 26, 2012

Mr. Anton Marek  
Cytec Industries, Inc.  
5 Garret Mountain Plaza  
Woodland Park, NJ 07424

**Re: Final Director Initiated Modification  
Cytec Industries, Inc.  
OHD 004 341 509**

Dear Mr. Marek:

On September 26, 2012, Ohio EPA issued a Director Initiated Permit Modification (Permit) to Cytec Industries, Inc. (Cytec) for its facility at 1405 Greene Street, Marietta, Ohio 45750. The EPA Identification number for the facility is OHD004341509. The Permit authorizes Cytec to conduct certain remedies (implement approved corrective measures) to cleanup soil and ground water contamination on their property at the North Landfill, East Storage Pad, Concrete Tank Saddles, Drainage Swale, and Duck Creek. The Ohio EPA received written comments concerning this Permit and those comments were addressed in the enclosed responsiveness summary. The final modified Permit is also enclosed. Please note that this Permit remains in effect until it is renewed, withdrawn, suspended or revoked.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00 which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission  
77 South High Street, 17<sup>th</sup> Floor  
Columbus, OH 43215

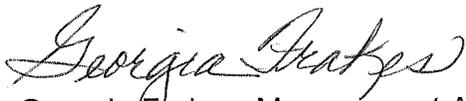
50 West Town Street, Suite 700  
P.O. Box 1049  
Columbus, OH 43216-1049

614 | 644 3020  
614 | 644 3184 (fax)  
[www.epa.ohio.gov](http://www.epa.ohio.gov)

Mr. Anton Marek  
Cytex Industries, Inc.  
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If you have any questions, please contact Donna Goodman in our Southeast District Office at (740) 380-5293.

Sincerely,



Georgia Frakes, Management Analyst  
Materials and Waste Management

Enclosure

cc: Dustin Tshudy, DMWM, CO  
Scott Hester, DMWM, CO  
Brad Hauser, DMWM, CO  
Todd Anderson, Legal  
Ed Lim, DERR, CO  
Laura Hughes, DERR, CO  
Donna Goodman, DMWM, SEDO  
John Rochotte, DERR, SEDO  
Scott Bergreen, DMWM, SEDO  
Erin Strouse, PIC, CO  
Amber Finkelstein, PIC, SEDO



ITS Programming

# PUBLIC NOTICE RECORD

Notification Type: HAZARDOUS WASTE FACILITY PERMIT ACTION

### Entity Info

**Name:** Cytec Industries, Inc.  
**Address:** 5 Garret Mountain Plaza  
**City/Township/Zip:** Woodland Park, NJ 07424      **County:** Washington  
**Description:** Hazardous Waste

### Notice Info

**Weekly Review**  
 **Public Notice**  
**Date Of Action:** 09/26/2012  
**Notification Number:** OHD004341509

**Receiving Waters:**

**Meeting Details:**

**Standard Remark:**

### Other Remark:

On September 26, 2012, Ohio EPA issued a director's initiated permit modification to Cytec Industries, Inc.'s (Cytec) hazardous waste facility installation and operation permit (Permit) for its facility at 1405 Greene Street, Marietta, Ohio 45750. The EPA ID number for this facility is OHD 004341509. Cytec is a former specialty chemical manufacturing plant that is permitted to conduct closure, post-closure, and corrective action activities at the facility. This permit modification authorizes Cytec to conduct certain remedies (implement approved corrective measures) to cleanup soil and ground water contaminated on their property at the North Landfill, East Storage Pad, Concrete Tank Saddles, Drainage Swale, and Duck Creek. District contact for this facility is Donna Goodman at the Southeast District Office, at (740) 380-5293.

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.

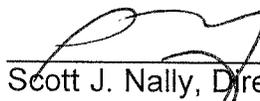
The Ohio Hazardous Waste Facility Installation and Operation Permit with the above-referenced permit number as issued by the Ohio Environmental Protection Agency and journalized on June 18, 2004, is hereby incorporated by reference in its entirety, except as it may be modified herein.

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 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.

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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

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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,

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.

- (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

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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;

- (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.

Ohio EPA DMWM SEP 26 2012

(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

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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

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

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).

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## 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

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:

- 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.

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