Ohio Environmental Protection Agency

Division of Hazardous Waste Management

Response to Comments

Project: Cytec Industries Inc. (Cytec), Class 3 Modification
Ohio EPA ID No: OHD 004 341 509

Agency Contacts for this Project

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Ohio EPA held a public hearing on March 18, 2010, regarding a draft permit modification initiated by Ohio EPA on February 11, 2010, in order to authorize Cytec to implement corrective measures at their Marietta facility. This document summarizes the comments and questions received at the public hearing and during the associated comment period, which ended on March 29, 2010.

Ohio EPA reviewed and considered all received comments. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health. Sometimes, public concerns fall outside the scope of that authority. Ohio EPA may respond to those concerns in this document by identifying another government agency with more direct authority over the issue.

GENERAL RESPONSES TO WRITTEN COMMENTS
RECEIVED DURING THE PUBLIC COMMENT PERIOD

Comment 1:
Several comments were received which requested that Ohio EPA deny the permit modification.

Ohio EPA Response 1:
The draft permit modification was proposed by Ohio EPA rather than by Cytec Industries Inc. (Cytec) to authorize Cytec to implement corrective measures (undertake activities which clean up contaminated areas) at their Marietta facility. After considering the public comments received during the public comment period, Ohio EPA is issuing a modified permit which, it believes, takes into consideration the comments received from the public.

Comment 2:
Several comments were received which referenced the “original cleanup plan”, requesting that future permit modifications maintain and/or improve upon the plan.

Ohio EPA Response 2:
Previous cleanups were conducted at the site to address the most contaminated areas that posed the biggest concerns to human health and the environment. Some examples of this include the removal of wastes from Pond 1 and 2, the removal of waste from the old DDT production area, and demolition of contaminated buildings. These wastes were removed and taken offsite because they presented a direct impact to Duck Creek and a continuing source of contamination to soil and groundwater, and/or were areas that presented principal threats at the site. These areas contained wastes that were highly toxic, highly mobile and could not be readily contained by a cap.

The current cleanup plans proposed by Ohio EPA are for areas of the site where wastes and/or contamination remain that were not previously addressed during earlier cleanup phases or were not cleaned up to final standards. Ohio EPA has used the Final Remedy Selection for Results Based RCRA Corrective Action, USEPA guidance for cleanups, as well as other Ohio EPA guidance and criteria in order to develop the cleanup plans. These criteria include: attainment of soil or groundwater cleanup standards; compliance with environmental laws; controlling sources of contamination; reduction or elimination of future releases; long term reliability and effectiveness; reduction in toxicity, mobility or volume of waste; short term effectiveness; implementability; and cost. These criteria are consistent with previous decisions and cleanups made at Cytec. In addition, Ohio EPA has used its 30 years of collective experience from remedies employed at other hazardous waste sites to make the decisions about Cytec's cleanup remedies. The remedies selected by Ohio EPA are protective of human health and the environment and maintain that protection over time. Ohio EPA considers the Cytec site a high priority, and will use a high degree of Agency involvement and oversight before, during, and after the remedies have been completed. Ohio EPA also uses a team approach for the Cytec site, whereby multiple individuals with varying levels of technical expertise are involved and make decisions on the project.

Comment 3:
Several comments were received which requested that the site be "returned to Brownfields status", so that re-use of the site can continue in the future generating revenue as a tax base for the City of Marietta and Washington County.

Ohio EPA Response 3:
Although U.S. EPA's definition of a "Brownfield" excludes facilities like Cytec that have a hazardous waste permit that is being modified to require implementation of corrective measures/action, this does not preclude the site from being re-developed for future industrial use. The goal of Ohio EPA's Corrective Action permit is to require facilities, like Cytec, that have treated, stored, or disposed of hazardous wastes (TSDs) to clean up environmental contaminants released into soil, ground water, and surface water at their sites regardless of the time of the release. Cleanup and revitalization of properties contaminated with hazardous waste is a priority at Ohio EPA. Thus as Cytec successfully moves through the clean up process, portions of the Cytec site will become eligible for industrial re-use. An example of this is Building 10. Re-use of this building is allowed under the Corrective Action program, and may include other areas of the site. Some areas of the site will have use restrictions due to the presence of

hazardous chemicals. The use restrictions may include limiting soil excavation in areas where the presence of hazardous chemicals is known and/or prohibiting the drilling of water wells onsite. Other examples of use restrictions include limitations on disturbing capped areas of the site.

Comment 4:
Several comments were received that questioned whether funds will be available from Cytec over the long term to assure that contamination will be contained onsite, and that any future remediation that may be required will be addressed.

Ohio EPA Response 4:
OAC Rule 3745-54-101 requires financial assurance for Corrective Action facilities, such as Cytec. Corrective action activities will be specified in the permit and the permit will contain assurances of financial responsibility for completing such corrective action. This rule requires that the company have adequate funds now and in the future to perform clean up and monitoring specified in the permit. Also, Cytec's permit requires the company, and their successors, to properly maintain the site in the future. This legally enforceable document requires that if a new owner takes over the site, they would be held to the same strict standards for clean up and monitoring as Cytec. Cytec's permit condition E.9(b) requires that within 30 days of receiving approval of the Corrective Measures Implementation (CMI), the Permittee must provide financial assurance in the amount necessary to implement the corrective measures. This permit requires Cytec, and any possible successor, to maintain adequate financial assurance now and for any future corrective action obligations.

Comment 5:
Several comments were received that suggested that any further modifications to the permit should include improvements to all storm sewer discharge points along or near Hunter Avenue.

Ohio EPA Response 5:
This is a valid concern but it is not related to site cleanup plans that have been proposed. Ohio EPA understands that Cytec is working with the City of Marietta on this issue and has sent a proposal to the City to repair culverts and conduct other drainage work on Hunter Avenue.

During construction of the remedies, Ohio EPA will monitor storm water discharges from the Cytec site and make sure there are no impacts to Duck Creek.

Comment 6:
Several comments were received that expressed concern about leaking or deteriorating barrels of waste disposed of in the landfill which could contaminate soils and water.

Ohio EPA Response 6:
At the time of disposal, the wastes, some of which were contained in metal and fiber drums (barrels), typically consisted of dye filter cakes, still bottoms, off-spec product, raw materials, solid still residue from chemical processes, rubble and scrap lumber. The results of the RCRA Facility Investigation found no records showing that free liquids were disposed in this landfill,

and thus, no leakage (escape of liquids) from the drums is anticipated. The current condition of the drums is not known, but this may be irrelevant since the drums are not expected to remain in good condition when buried in the ground for so many years. If any contaminants from drums would come into contact with subsurface water, the groundwater hydraulic control system (vertical extraction wells and groundwater treatment system) would be designed to collect and treat the contaminants.

Comment 7:
Several comments were received that included concerns about lateral groundwater movement through WMU 1 and flooding of the landfill from Duck Creek.

Ohio EPA Response 7:
During the public comment period, a concern has been raised about infiltration of surface water from surrounding areas that result in lateral movement of groundwater through Waste Management Unit 1 (WMU 1, a.k.a. North Landfill) as well as other areas of the site. Ohio EPA has taken this issue into account while developing the final permit modification and selecting the remedies for the Cytec site. It was assumed that, besides from rain and melted snow, some water may have infiltrated into WMU 1 from the adjacent Pond 2 while it was in operation. Once Pond 2 was closed (i.e., drained and then filled with clean soil material), this source was eliminated and the potential for lateral movement of water through the landfill was greatly reduced. Based on this fact, Ohio EPA reasoned that the appropriate remedy for WMU 1 would be to minimize infiltration of atmospheric water into the landfill (with a full featured Type 1 cap as described in greater detail in response to comment #8), and to install pumping wells to extract any remaining groundwater contamination. However, prompted by the public concern, Ohio EPA asked Cytec for additional information regarding current conditions at the site. Cytec responded by providing several geologic cross sections through WMU 1 which showed that the groundwater may still be infiltrating the waste. From this preliminary estimate, it transpired that more data needed to be gathered for better understanding of the current hydrogeology at WMU 1 and the surrounding area. In September, 2010, Ohio EPA approved a work plan prepared by Cytec to conduct an additional investigation involving the placement of five groundwater level wells around the landfill. These new wells will provide information on groundwater level fluctuations through an observation period of several months to a year. Ohio EPA and Cytec are evaluating the information as it becomes available, and the selected remedy will be based on the conclusions drawn from this investigation.

As indicated, several comments included concerns about a possibility of WMU 1 being flooded by the adjacent Duck Creek (flood actually being caused by the backflow from the Ohio River). Ohio EPA has investigated this issue and has determined that a small area in the northeastern part of the landfill may become affected by Duck Creek/Ohio River's 100 year flood event. According to available topographical maps, when Duck Creek rises to elevations above 595 feet, the flood waters will start flowing back through a storm water discharge pipe located in a ditch on Hunter Avenue and begin filling a storm water collection depression adjacent to the northeastern corner of the landfill. In case of a 100 year flood level (617 feet, April 1990 "Flood Hazard Evaluation Data" for Duck Creek at stream mile 1.8) the water would also enter into the depression by overflowing the old (abandoned) railroad embankment. While it's apparent that

even in the worst case scenario the flood would not reach high enough to inundate the top surface of the landfill, a possibility remains that water could come into contact with the waste material at some lower level. (See shaded areas indicating approximate floodplain boundary in attached Figure 1)

The flood issue will be evaluated by Ohio EPA before selection of the final remedy for WMU 1.

Comment 8:
Several comments suggested that WMU 1 (North Landfill) should be removed by excavation, instead of capping.

Ohio EPA Response 8:
Certain WMU's in the past were excavated because those units presented an immediate threat to the environment, such as directly leaking into Duck Creek, or capping remedies were determined not to be effective or implementable at the site. In some instances, these wastes were removed as a permanent and immediate measure to protect human health and the environment. For example, several feet of Pond 1 sludges were removed because Ohio EPA did not believe that these sludges could be reliably capped due to their high moisture content. In addition, the sludges in Pond 1 were highly contaminated with chemicals, presenting a direct threat to the groundwater and Duck Creek. In this case, Ohio EPA chose to have the sludges removed as a protective environmental remedy. WMU 1 (North Landfill) was, on the other hand, used for disposal of industrial wastes such as dye filter cake, still bottoms, off-spec products, raw materials, and metal and fiber drums. Due to the absence of free liquids in the waste at the time of disposal, this unit did not present the acute, immediate threat like some other areas which were promptly excavated. As explained in response to comment #7, leaving the waste in place, while providing a full featured RCRA cap (consisting of two separate low-permeability layers, a drainage layer, a protection layer and a surface layer) and a pump and treat system for contaminated ground water, seemed to be a reasonable remedy because at the time it was believed that lateral infiltration had diminished since closure of Pond 2 and the flood issue was unknown.

Ohio EPA considers several factors (criteria) when deciding on a certain remedy for a site. These criteria were outlined in Ohio EPA's response to comment #2, but will be restated here because of their importance. The first and foremost criterion is protection of human health and the environment. Other criteria take into account the following factors: whether the remedy can meet cleanup standards; compliance with environmental laws; controlling sources of contamination; reduction or elimination of future releases; long term reliability and effectiveness; reduction in toxicity, mobility or volume of waste; short term effectiveness; implementability; and cost. These criteria were developed to promote consistency in cleanups and were employed with previous decisions and cleanups made at Cytec.

The final remedy of the WMU 1 will depend on the results of the groundwater investigation described in response #7, and may have to incorporate geotechnical features to prevent infiltration of groundwater and flood water into the landfill as well as long term treatment of contaminated groundwater. Ohio EPA does not exclude excavation and removal of the waste as

an option that would meet the above criteria. After this additional information is evaluated, Ohio EPA will propose a remedy for WMU1, and will take public comments before selection of the final remedy.

SPECIFIC RESPONSES TO COMMENTS
RECEIVED DURING THE PUBLIC COMMENT PERIOD

Mr. Kenneth Strahler – comments 9-15

Comment 9:
On page 39 of 75 it mentions a prospective buyer for the site. At this time is there a buyer for the property?

Ohio EPA Response 9:
Ohio EPA is not aware of a prospective buyer for the site at this time. This language is included in the permit so that if a new buyer is identified, the new owner is held to the same standards and obligations as Cytec, so that the integrity of corrective measures, including monitoring systems, is maintained.

Comment 10:
On page 38 of 75 a drainage swale is mentioned. It says the swale is outside of the fence. What is the exact location? Is it between the fence and Hunter Ave. or between Hunter Ave. and Duck Creek or does it run from the fence clear to Duck Creek? Will Hunter Ave. need to be excavated for the cleanup?

Ohio EPA Response 10:
The drainage swale is located between Hunter Ave. and Duck Creek and is identified on the attached Figure 2. Additional confirmatory soil samples will first be taken in the drainage swale area. Based on the sample results, excavation of soil may or may not be necessary. If excavation is necessary, Hunter Ave. will not need to be excavated for the cleanup. However, there may be equipment in the area, including Hunter Ave., during the cleanup. See response to question #52 for more information.

Comment 11:
On page 43 of 76 it mentions a Public Involvement Plan. Will there be weekly meetings during the design stages and the construction?

Ohio EPA Response 11:
The Public Involvement Plan has not been developed yet. However, the purpose of such a plan is to interact with the public and keep them informed of the process. Public meetings will be identified as a component of the Public Involvement Plan.

Comment 12:
The draft mentioned environmental covenants. What does this mean in terms of the future use of the property as far as developing the site?

Ohio EPA Response 12:
The institutional control Ohio EPA is requiring is an environmental covenant under Ohio Revised Code 5301.80 to 5301.92. An environmental covenant serves to impose an activity and use limitation on the property. Two principal purposes are served by an environmental covenant. First, the covenant will ensure the land use restriction will be reflected on the land records and be effectively enforced over time. And second, an environmental covenant will assure that the property remains in the stream of commerce by offering a clear and objective process for its creation, modification or termination, thus encouraging transfer of ownership and property re-use.

While each environmental covenant is site-specific, industrial land use at a site may include, but is not limited to, facilities which supply goods or services to the public and facilities that manufacture or assemble goods. Examples of commercial and industrial land uses include, but are not limited to: chemical manufacturers; warehouses; building supply facilities; repair and service establishments; professional offices; retail businesses selling food or merchandise; parking facilities; personal service establishments; manufacturing facilities; hotels/motels (not including those which allow long-term residence); assembly plants; and limited access highways.

The environmental covenant will restrict certain site activities and uses such as restricting the site to industrial future use, thus preventing residential exposures. Another common site use limitation may be restricting soil excavation and/or drilling water wells onsite. Implementing the activity and use limitations is accomplished through the execution and proper filing of an environmental covenant with the county recorder. The covenant will run with the land and is perpetual.

Comment 13:
On page 7 under WMU #1, it says approximately 28,000 cubic yards of chemical are in the dump site. Is this the same material mentioned in the Corrective Measures Study, dated February 28, 2008 and completed by Arcadis BBL (Page 69, 6.7.1.4) for excavation with offsite disposal?

Ohio EPA Response 13:
Yes

Comment 14:
On page 19, under Ground Water, it mentions six extraction wells. Where are the suggested locations of these wells?

Ohio EPA Response 14:
The locations of the proposed extraction wells are identified on the Figure 2. The final locations of the wells will be determined after a design study is completed to pinpoint the exact location for the wells.

Comment 15:
We have previously discussed the well along Hunter Ave. that leaked this past year and was plugged recently. Several questions about this leakage:

How long was the well leaking?

What chemicals were in the liquid that leaked and laid in the ditch along Hunter Ave.?

What was the intended purpose of this well?

What are the health risks to the public?

At this time, I am requesting that you send to me all the pertinent information relevant to this well leaking.

Ohio EPA Response 15:
Well W-32wt is a groundwater monitoring well. The well is used to obtain water samples to determine groundwater quality. The leakage from W-32wt was noticed by Cytec in early December 2009, during vegetation clearing activities along the Hunter Avenue fence line. The leakage was not noted during Cytec's required weekly inspections conducted at the site prior to December, so the well was not leaking for a long period of time. Sampling results of the water leaking from the well reveal that acetone, benzene, chlorobenzene, 1,2 - dichloroethane, and toluene were present. The contaminants were present at levels below Ohio EPA established generic cleanup values for residential exposures. After noticing the leak, Cytec notified Ohio EPA immediately and plans were developed to plug and seal the well. The well was sealed in early February, 2010. Per your request, all information from our files related to the plugging and sealing of W-32wt was hand delivered to you during Ohio EPA's meeting with you on August 25, 2010. In addition, your questions were addressed by Ohio EPA's hydrogeologist during that meeting.

<u>Mr. Dean Rhine - comments 16-24</u>

Comment 16:
For WMU 1, 10, and Bldg 60/62, what is the most effective treatment currently available that minimizes the risk of exposure to the public and the environment?

Ohio EPA Response 16:
Ohio EPA's proposed remedies for the WMU's combine treatment and containment (capping) technologies to minimize exposure to hazardous chemicals to protect human health and the environment. In addition, the environmental covenant will provide further protections by limiting certain onsite activities (drilling wells, soil excavation) in areas where waste is known to be present.

Comment 17:
Excavation and/or soil removal were used to clean up at least 5 different WMUs from 1996 to 2005; what distinguishes WMU 1, 10, and Bldg 60/62 from these sites to make Ohio EPA recommend a different treatment alternative?

Ohio EPA Response 17:
Certain WMUs in the past were excavated because those units presented an immediate threat to the environment, such as directly leaking into Duck Creek. Portions of WMU 10 and Building 60/62 were excavated during the DDT cleanup which occurred in 2001-02. These wastes were removed as a permanent and immediate measure to protect human health and the environment. WMU 1 is a designated landfill for industrial wastes such as dye filter cake, still bottoms, off-spec products, raw materials, and metal and fiber drums. This unit does not present the acute, immediate threat that other areas which were promptly excavated did. The remedy for this WMU will be selected when the ground water level study determines whether groundwater infiltrates the waste in WMU 1 (See also response to Comment #8 above). WMUs 10 and Building 60/62 are former production areas with residual contamination that is also not an acute immediate threat. Capping of this entire area will prevent exposure to the public and minimize further environmental impacts.

Comment 18:
Are the threats posed to the public and the environment less severe from WMU, 10 and Buildings 60/62 than from the five other WMUs that would lead Ohio EPA to suggest a less effective treatment?

Ohio EPA Response 18:
As indicated above, the threats are less severe and thus require a different, but equally effective remedy.

Comment 19:
Based on locations of WMU's 1, 10 and Bldg 60/62 (proximity to Duck Creek) and the estimated volume of unknown materials contained in WMU 1, it would suggest that the threats these sites pose to the public and to the environment is equal to or greater than the threats posed from previous cleanups, which would make a reasonable and prudent person determine that the level of protection, or clean up in this case, would be equal to or greater than the treatment prescribed to the earlier cleanups. Wouldn't Ohio EPA agree to this rationale of thinking?

Ohio EPA Response 19:
Please see previous answers to questions #16, #17, and #18. Also, please see responses to questions #2 and #8 which are related to this question.

Comment 20:
Is Ohio EPA's determination of treatment made in the public interest?

Ohio EPA Response 20:
Ohio EPA's role is to protect human health and the environment. Consequently, all Ohio EPA's actions are carried out in the public interest.

Comment 21:
Why is Ohio EPA not asking Cytec to conduct a full cleanup and site remediation while they are still financially viable?

Ohio EPA Response 21:
Ohio EPA is asking Cytec to conduct an appropriate and effective cleanup and site remediation. The required remedies are spelled out in the final permit modification and they adhere to the criteria outlined in questions #2 and #8. These criteria are consistent with previous decisions and cleanups made at Cytec.

Comment 22:
Does the close proximity of the site to a National Wildlife Refuge, endangered/threatened freshwater mussels, and birds of prey that eat fish, elevate the standards for cleanup and do these standards provide sufficient protection for these species?

Ohio EPA Response 22:
The cleanup standards determined for the site are intended to protect all elements of the environment. A detailed and lengthy assessment of Duck Creek has been conducted over the past ten years, including fish tissue sampling, to assess the ecological impact to environmental receptors. There are no ongoing releases to the creek that would threaten the freshwater mussels or other environmental receptors living downstream. The proposed modification is believed to provide adequate protection. Ohio EPA and Cytec will continue collecting information on the environmental conditions in Duck Creek. If conditions change and it is determined that human health and the environment are not being adequately protected, measures will be instituted to address the problem.

Comment 23:
Does OEPA know how flooding on the Ohio River will affect Duck Creek and if backed up waters will inundate the buried toxic materials and cause further leaching of toxins?

Ohio EPA Response 23:
The OEPA has looked into the issue of flooding. Please see response #7.

Comment 24:
Why would Ohio EPA authorize a temporary fix that will eventually fail and require additional work, probably at taxpayer expense?

Ohio EPA Response 24:
The remedy proposed is considered an appropriate and effective remedy to address site wide contamination. All remedies require operation and maintenance. Cytec is required to pay for this through financial assurance regulations as described in response #4 above. These costs are not passed on to the taxpayers.

Mr. Mark Dailey, Washington County Soil and Water Conservation District

Comment 25:
Please deny the proposed permit modification. The cleanup plan must be improved and the outcome of the modification should restore the site to Brownfield status.

Ohio EPA Response 25:
Please see responses # 1, 2 and 3 above.

Elin Jones

Comment 26:
Given the lateral movement of groundwater in Washington County, the proposal to cap Cytec's 28,000 cubic yards of chemical waste should be rejected in favor of removing the waste material for treatment and offsite remediation so that there is no risk of toxic material migration. The site should continue to be monitored and storm sewer runoff addressed.

Ohio EPA Response 26:
Please see responses #5, #7, and #8 above.

Mrs. Linda Masters & Mr. Robert Masters

Comment 27:
The Masters are concerned about the presence of arsenic in their drinking water well.

Ohio EPA Response 27:
Ohio EPA evaluated the potential for arsenic in the Masters' well to be related to the Cytec site. Cytec has been monitoring groundwater at the Greene Street site since the 1980's and Ohio EPA reviewed this data for relevant information regarding arsenic concentrations. Historic concentrations (through November 2009) of arsenic (both total and dissolved results) in monitoring wells across the Cytec site reveal that arsenic is present in the wells, but are generally below the previous Maximum Contaminant Level (MCL) of 50 ug/l and the current MCL (MCL) of 10 ug/l. None of the arsenic concentrations are 10 times the MCL ("legally safe limit") as the commenter indicates is present in their well. Metals such as arsenic are typically not very mobile in groundwater. Groundwater at the site flows towards the east and discharges into nearby Duck Creek. The Masters' residence is approximately 2000 ft. south of the site and 1000 ft. west of Duck Creek. Since the site groundwater does not flow towards the Masters' well, but rather discharges into Duck Creek, it is not likely to impact the Masters' residential well.

Please be advised that Ohio EPA does not regulate private wells, but, rather, the local Washington County Health Department has jurisdiction over private wells.

Ms. Dawn Wittberg - comments 28-33

Comment 28:
The draft modification for Cytec's hazardous waste permit should be denied and another plan be designed.

Ohio EPA Response 28:
Please see responses #1 and #2 regarding denial of the permit modification and redesigning the plan.

Comment 29:
I have no confidence that if the proposed monitoring plan showed offsite migration in say, 30 years, that there would still be a 'Cytec" to be responsible for the additional remediation.

Ohio EPA Response 29:
Please see response #4 regarding Cytec's long-term financial responsibility for remediation.

Comment 30:
A cap with leachate collection on the North Landfill is not adequate for this flood prone area as it does not address lateral movement of water through the soil.

Ohio EPA Response 30:
See response #7 above which addresses lateral movement of groundwater and flooding.

Comment 31:
Offsite disposal would solve the current and potential future problem. In the long run, it could be cheaper than having to address problems in the future at unknown costs.

Ohio EPA Response 31:
Please see response #8 above which addresses offsite disposal.

Comment 32:
The proposed plan for the D.D.T. contaminated area is inadequate. I understand that the levels are considered "low", but there is no "low" when it enters the water, enters the food chain, and is amplified.

Ohio EPA Response 32:
The levels found in Duck Creek, which has been studied extensively, are significantly below cleanup levels used by USEPA. Ohio EPA is continuing to investigate the ecological impacts of DDT on aquatic life in Duck Creek.

Comment 33:
The commenter asked why isn't the local EPA office "local"?

Ohio EPA Response 33:
The Southeast District Office of Ohio EPA is a regional office that serves 23 counties and is approximately centrally located within that area in order to best serve all counties.

Mr. Joe Tucker, Engineer, City of Marietta - comments 34-38

Comment 34:
The commenter asked that Ohio EPA deny the permit modification.

Ohio EPA Response 34:
Please see response #1 above.

Comment 35:
Future modifications should maintain or improve the original cleanup plan, including but not limited to complete removal of all hazardous chemicals buried underground and removal of contaminated soil.

Ohio EPA Response 35:
Please see responses #2 and #8 above.

Comment 36:
Request that future modifications should include improvements to all storm sewer discharge points along or near Hunter Avenue. These should be continuous across Hunter Avenue and the discharge points should be constructed with proper headwalls, backflow prevention valves and riprap at the final discharge points located along Duck Creek.

Ohio EPA Response 36:
Please see response #5 above. The City should work with Cytec and ODOT as needed to resolve these issues as it is not directly related to site cleanup and is not within Ohio EPA's jurisdiction. During construction of the remedies, Ohio EPA will monitor storm water discharges from the Cytec site to make sure there are no impacts to Duck Creek.

Comment 37:
To ensure the outcome of proposed modifications, Ohio EPA should restore the site to Brownfield standards.

Ohio EPA Response 37:
Please see response #3 above.

Comment 38:
How many barrels of toxic waste are still buried onsite? What is the current condition of these barrels? What is the remaining estimated service life of the barrels before they begin to leak? Once they start to leak, will toxic chemicals contaminate surrounding soils and infiltrate into the water, ending up in Duck Creek and the Ohio River? If the barrels deteriorate over time, why would Ohio EPA not require those chemicals to be excavated now before they contaminate additional soils and groundwater?

Ohio EPA Response 38:
Due to the lack of records and the long history of operation of the facility, there is inadequate information on the number or condition of containers of hazardous waste. Please see responses #6 and #8, above.

Mr. Matthew Halfhill, Duck Creek Watershed Partnership - comments 39-42

Comment 39:
My main concern is leaving the contaminants in the ground and installing caps. I understand that the removal and treatment of the waste and contaminated soil poses some health risk to the surrounding community. However, I feel that leaving the waste in the ground, especially the north landfill, poses greater long-term health risks for the community. I realize that Cytec must prove that it has the financial means to implement this plan for a thirty-year period, but in today's turbulent business world, it's hard to believe in a thirty-year commitment. That being said, leaving the waste in the ground will most likely lead to a situation that lasts much longer than thirty years.

Ohio EPA Response 39:
Please see responses #4 and #8 above.

Comment 40:
It was stated that the three aquifer layers affected by the contamination would be pumped and treated before being released into Duck Creek. How long does the EPA expect the contamination to be entering the aquifer? Also, isn't there some danger to the public by operating a treatment facility onsite for decades?

Ohio EPA Response 40:
Ohio EPA is proposing to send collected groundwater to the Marietta wastewater treatment plant, so there would be no danger to the public from an onsite discharge. Ohio EPA's goal is to minimize or reduce the contaminants that enter the aquifer. The contaminants already present in the groundwater will be collected by the proposed groundwater pumping system, which will protect Duck Creek. The exact amount of time it will take for contaminants to completely dissipate is not known. Ohio EPA will require monitoring for as long as it is necessary to show

the effectiveness of the remedy in place is protecting human health and the environment, now and in the future.

Comment 41:
As barrels in the landfill continue to decay, the contamination could last much longer than thirty years. If we remove and properly dispose of the waste, it seems much more likely that the aquifers could be cleaned up due to less new contamination entering them. Given that the north landfill is no more than a gully filled with 28,000 cubic yard of hazardous waste and then covered with soil, I am extremely concerned with the plastic cap plan. At the public hearing I was not convinced that the EPA had considered lateral movement of water through the landfill as thoroughly as they should. Even if no lateral movement of water results from higher aquifer elevations in the area surrounding the cap, isn't it conceivable that Duck Creek at flood stage could easily move water laterally in and out of the foot of the landfill? Lateral infusions of water could drive newly released hazardous materials into the aquifer or out into the creek as floodwaters recede.

Ohio EPA Response 41:
Please see responses #6, #7 and #8.

Comment 42:
In the previous cleanup done at the Cytec site, the hazardous chemicals and contaminated soils have been removed and placed in proper landfills. It is my opinion that the rest of the site should be treated in the same manner. We should avoid leaving such a large amount of hazardous waste in an unlined landfill beside a floodplain. We should deal with the problem now, rather than leaving it there for future generations to deal with. There's no guarantee that Cytec will be in business in five years from now, no matter how it looks on paper. We can clean things up now with Cytec paying the bill, and maybe even have a site for future industrial use; or we can clean it up decades from now, possibly at taxpayers expense, and have an unusable hazardous waste site until that time.

Ohio EPA Response 42:
Please see responses #4 and #8. Please also see response #3 concerning re-use of the site in the future.

<u>Steven Weber, President, Washington Co Commissioners - comments 43-48</u>

Comment 43:
The commenter indicated that lateral infiltration of water into the landfill could occur during flooding.

Ohio EPA Response 43:
Please see response #7.

Comment 44:
The commenter indicated that chemicals in the landfill are stored in old metal barrels which will leak, causing contamination of soil and Duck Creek.

Ohio EPA Response 44:
Please see response #6.

Comment 45:
The commenter indicated that the Cytec property is graded toward Duck Creek and sits in a flood zone that extends beyond the City of Marietta. A "No Fish Consumption" advisory has been issued along Duck Creek, well beyond the city limits. Therefore, the cleanup is a countywide or regional issue.

Ohio EPA Response 45:
The Cytec property is graded toward Duck Creek, but only a very small portion of the site is within the 100-year flood zone. Please see comment #7 which discusses the extent of the Cytec property that sits in the flood zone, and how a flood could affect the Cytec property. Cytec is responsible for addressing contamination that may occur beyond the facility limits. Regarding Duck Creek, Cytec is monitoring the creek to determine the extent of contamination and any potential ecological impacts. Any possible impact from Cytec's property is being monitored, and will be controlled by the remedial measures proposed by Ohio EPA. It is not accurate that a "No Fish Consumption" advisory is in place. That type of advisory prohibits consumption of all fish. Rather, a "Fish Consumption Advisory" is in effect for total DDT and mercury in certain fish species in Duck Creek, both up and downstream of the site. This means that certain species should only be consumed once per month.

For more information, please see:
http://www.epa.state.oh.us/dsw/fishadvisory/pamphlet.aspx.

Comment 46:
The commenter indicated that waste should be removed from the landfill because leaving it in place will not resolve the problem of existing and future contamination.

Ohio EPA Response 46:
Please see response #8.

Comment 47:
The Washington County Commissioners strongly encourages the Ohio EPA to adopt a plan that will enable the site to reach Brownfield status.

Ohio EPA Response 47:
Please see response #3.

Comment 48:
Future modifications should include improvements to storm sewer discharge points along or near Hunter Avenue.

Ohio EPA Response 48:
Please see response #5.

Gary Wroblewski, Cytec Industries, inc. - comments 49 – 52

Comment 49:
The remedy selections for WMUs 2, 3, 8, 10, 11, 14, 19, 20, 25, 28, west tank farm, OSC A groundwater, and Duck Creek are appropriate and Cytec agrees with them.

Ohio EPA Response 49:
Ohio EPA is in agreement with Cytec for the remedies for the above WMUs.

Comment 50:
Cytec would like to include a demonstration of equivalency for the existing cap on the WMU #1 landfill to meet the Type 1 requirements.

Ohio EPA Response 50:
The remedy for WMU 1 will be selected when the groundwater level study determines whether groundwater infiltrates the waste in WMU 1. After this additional information is evaluated, Ohio EPA will propose a remedy for WMU 1, and will take public comment before selection of the final remedy.

Comment 51:
Cytec requests that OEPA consider a remedy selection for WMU 26 (East Storage Pad) that includes source remediation but allows for Cytec to minimize the volume of material that requires transportation and offsite disposal.

Ohio EPA Response 51:
OEPA's original proposal was excavation and offsite disposal of soils. Cytec offers an alternative remedy involving excavation and biotreatment of soils. Ohio EPA agrees with the general aspects of the proposal but details would need to be developed and approved. If Cytec wishes to proceed with this option, they need to provide additional supporting documentation of the viability of this approach in their proposed CMI work plan. Ohio EPA agrees that an alternative remedial alternative should be available if the biotreatment alternative does not meet treatment objectives. The language in condition E.9(b)(xi) of the modified permit reflects this approach.

Comment 52:
Cytec requests that confirmation sampling first be conducted at the drainage swale to delineate the extent of soil/sediment at concentrations greater than applicable screening levels.
Ohio EPA Response 52:

Ohio EPA agrees with this approach. As suggested, if no exceedances of applicable direct contact standards are present, no action would be required. However, if exceedances are found, the recommended alternative of excavation with offsite disposal would be implemented. The details regarding the sampling methodologies for the drainage swale can be proposed in the CMI work plan.

Ms. Marilyn Ortt - comments 53-55

Comment 53:
If due to the poor economy, government funding is affected and there is no governmental oversight of the groundwater treatment work or the environmental covenant at Cytec in coming years, Cytec could walk away and their absence not be noticed.

Ohio EPA Response 53:
Cytec is a high priority site for Ohio EPA, as it is a permitted treatment, storage or disposal facility (TSD), and groundwater and other site activities will continue to be monitored in the future by Ohio EPA staff. For more information on this, please see response #4 above. Ohio EPA inspects TSD facilities annually and conducts quarterly visits to Cytec to make sure activities at the site are current with the permit. More frequent site visits are usually performed when cleanup activities are being conducted at the site. With regard to the environmental covenant, the covenant is recorded in the land recording system with the deed and provides actual and constructive notice of the remediation and use restriction, thus ensuring its long-term viability (please see response #12 above). Additionally, there is standard language in Ohio EPA's covenants requiring the submittal of an annual compliance report to Ohio EPA on the facility's compliance with the terms and conditions of the covenant.

Comment 54:
Horizontal movement of groundwater in the WMU1 landfill ("North Dump"), as well as flooding of Duck Creek, will penetrate the landfill and saturate its contents. The only way to protect human health and the environment is to remove the contents of the WMU 1 landfill.

Ohio EPA Response 54:
Please see responses #6, #7 and #8.

Comment 55:
The only way Duck Creek will be cleaned of contamination seeping from the landfill is by flooding, which will then move the contamination downstream.

Ohio EPA Response 55:
Please see responses #7 and #22.

Mayor Michael Mullen's letter to Honorable Garrison on behalf of City of Marietta

Comment 56:
Ohio EPA wishes to functionally end the Cytec site remediation, cap a large volume of waste in place, and enter into a closure and monitoring mode. This seems inappropriate. The site has been a superfund site since 1996, and a significant quantity of hazardous materials including DDT, PCB's and arsenic remaining in place threaten to undermine the future public health of Marietta.

Ohio EPA Response 56:
Site remediation does not end with issuance of a modified permit but rather allows Cytec to proceed with design and implementation of a selected remedy. The remedies selected by Ohio EPA will protect human health and the environment and maintain that protection over time. The contents of the landfill are addressed in OEPA's response #6. The Cytec site has never been a Superfund site and Ohio EPA has been involved with oversight of activities at Cytec since the 1970's. Please see response #2 and #8 regarding Ohio EPA's rationale for selecting the cleanup remedies.

City of Marietta Resolution No. 15 (10-11) – comments 57-59

Comment 57:
The City passed a resolution which requests that Ohio EPA deny the application for issuance of a modified permit. In support of this, the City referenced the objections of Mr. Joe Tucker, City Engineer, in his March 18, 2010 letter.

Ohio EPA Response 57:
Please see response #1 regarding the denial of the permit modification. Please see responses #34 through #38 regarding Mr. Tucker's comments.

Comment 58:
The City's resolution requests that any further permit modifications require the removal and offsite disposal of remaining hazardous wastes onsite, remediation to the point that little to no risk or migration or to human health remains onsite.

Ohio EPA Response 58:
Please see response # 8 regarding removal of waste, and #16 regarding minimization of risk.

Comment 59:
The City's resolution requests that the site be remediated to Brownfield status.

Ohio EPA Response 59:
Please see response #3.

VERBAL COMMENTS EXPRESSED DURING THE
MARCH 18, 2010 PUBLIC HEARING

Ms. Karen Jones

Comment 60:
Ms. Jones was concerned about surface and subsurface water drainage, erosion, and debris onsite. Additionally, she was concerned about infiltration of surface water.

Ohio EPA Response 60:
Cytec is required by the permit to maintain the site. Among other tasks, this requires them to address drainage, erosion and any debris that may accumulate onsite. Ohio EPA conducts quarterly inspections of Cytec to ensure that they are meeting their requirements for site maintenance, and is working with them to address erosion, drainage, infiltration and debris. If citizens identify a problem at the site, they are encouraged to contact Ohio EPA, Southeast District Office to report it.

Dr. Eric Fitch

Comment 61:
Please look into the removal of wastes left in the landfill (WMU1) because if left onsite, percolation from areas surrounding the cap, as well as lateral movement of groundwater into the landfill will result in continuing risk to the public and the environment.

Ohio EPA Response 61:
Percolation and lateral groundwater movement are addressed in response #7. Regarding removal of waste from the landfill, please see response #8.

Mr. Richard Wittberg

Comment 62:
Ohio EPA is “giving up” on the site. The site remediation plan is not adequate for the future as we do not know what will happen with Cytec in the future. A permanent solution should be found. Ohio EPA should move their office to Marietta.

Ohio EPA Response 62:
Regarding Ohio EPA “giving up” on the site, and the future responsibility of Cytec as well as covenants restricting future site development, please see responses #3 and #4. Regarding a permanent solution for the site, please see responses #2 and #8. Regarding the suggestion to move Ohio EPA office, the Southeast District Office of Ohio EPA serves 23 counties and is approximately centrally located within that area in order to best serve all counties.

Mr. Joe Tucker

Comment 63:
Mr. Tucker read a letter that was submitted formally during the public comment period. His comments were addressed as responses #34 - #38 in this document. Mr. Tucker had one additional verbal comment that was not included in his letter: Mr. Tucker requested that contaminated materials and/or contaminated soils be removed from the former DDT production area.

Ohio EPA Response 63:
Under Ohio EPA's oversight, Cytec conducted soil excavation and removal activities in the old DDT production area in 2001 – 2003. This cleanup consisted of excavation of DDT contaminated soils, removal and plugging the former pipeline that connected Pond 1 to Duck Creek, and a secondary phase of soil removal near Hunter Ave. As indicated in response to comment #1, these wastes were removed and taken offsite because they presented a direct impact to Duck Creek and a continuing source of contamination to soil and groundwater. After the excavation and removal activities, post-excavation soil samples were taken in the area which revealed low levels of contaminants in the soil. Ohio EPA is proposing capping of the former DDT production area because the low levels of contamination can be safely contained under a cap which will be designed to reduce infiltration, control exposure to the public, while reducing overall site risks.

END OF RESPONSE TO COMMENTS