U.S. Environmental Protection Agency (EPA) – Region 1
RCRA Corrective Action Program

Statement of Basis for a Corrective Action Completion Determination For Columbia Manufacturing Company (CMC) One Cycle Street, Westfield, Massachusetts EPA ID No. MAD001115609

August 26, 2011

Based upon investigation and remediation activities conducted at the Columbia Manufacturing Company site ("CMC site"), located at One Cycle Street in Westfield, Massachusetts, EPA is announcing its Completion Determination remedy proposal that Corrective Action obligations under the Hazardous and Solid Waste Amendments of the Resource Conservation and Recovery Act are "Complete with Controls."

Introduction

The U.S. Environmental Protection Agency – Region 1 (hereafter, "EPA") is announcing its Completion Determination remedy proposal under the Hazardous and Solid Waste Amendments of the Resource Conservation and Recovery Act.[1] This proposal states that Corrective Action obligations at the Columbia Manufacturing Company site (hereafter "CMC site"), located at One Cycle Street in Westfield, Massachusetts are "Complete with Controls." Investigation and remediation activities conducted at the CMC site demonstrate that releases of hazardous wastes or hazardous constituents do not pose a threat to human health or the environment for the proposed risk exposure under current and future land use assumptions and that the proposed final controls are protective of human health and the environment.

Brief Site Description
The facility's production history dates back to the late 1800s and early 1900s. Products manufactured over the years primarily consisted of bicycles, mopeds, lawnmowers, motorcycles, munitions (shells only), and school furniture.

This document summarizes the results of various investigation and remediation activities and the reasons for proposing that a Completion with Controls Determination is appropriate. EPA

[1] "Completion Determination" is a regulatory phrase that refers to a final disposition of a facility subject to Corrective Action obligations under the Resource Conservation and Recovery Act. In this case, the Completion Determination proposed for the CMC Site is one that is "Complete with Controls." More information on this category of Completion Determination can be found in the Federal Register notice entitled, Final Guidance on Completion of Corrective Action Activities at RCRA Facilities, 68 Fed. Reg. 8757 (Proposed Rule, Tuesday, February 25, 2003).

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is publishing this document to provide an opportunity for public review and comment on this proposal and will consider public comments as part of its decision making process. This document refers the reader to the administrative record, specifically the Corrective Measures Study (CMS), which contains more detailed information on site specific activities.

This Statement of Basis is intended to:

- Explain the opportunity for public participation, including how you may comment on this proposed determination and where the public can find more detailed information;
- Provide a brief description and history of the CMC site;
- Present the principal findings of investigations and activities performed at this site; and
- Present EPA's rationale for proposing that Corrective Action obligations under the Hazardous and Solid Waste Amendments of the Resource Conservation and Recovery Act are Complete with Controls for the anticipated current and future land use of the Site.

How Do You Participate

EPA solicits public review and comments prior to making a final decision on this proposed Completion Determination. All interested persons are invited to express their views on this proposal. This Statement of Basis provides only a summary of information about the CMC Site and additional information, a list of which appears at the end of this Statement of Basis, can be found in the Administrative Record at the following locations:

EPA Records Center, 5 Post Office Square, Boston, MA 02109
(617) 918-1420
Monday-Friday, 9:00 A.M. to 5:00 P.M.

AND

Westfield Anthenaeum Library, 6 Elm Street, Westfield, MA 01085
(413) 568-7833
Monday-Thursday, 8:30 A.M. to 8:00 P.M.; Friday & Saturday, 8:30 A.M to 5:00 P.M.

The public comment period will begin on August 27, 2011 and end 31 days thereafter on September 26, 2011. If significant comments are received, EPA would consider a request for a 15 day extension of the public comment period.

Written comments on this proposal will be accepted throughout the 31 day comment period. If, after reviewing the information on the CMC site, you would like to comment in writing on this proposal, or on any other issues related to this proposal, you should mail your written comments to the following address (postmarked no later than September 26, 2011) making sure to clearly indicate that you are commenting on this proposal:

Mr. Frank Battaglia
USEPA Region 1
5 Post Office Square, suite 100, OSRR07-3
Boston, MA 02109

Questions may be directed to Mr. Frank Battaglia at (617) 918-1362, battaglia.frank@epa.gov.

At the end of the public comment period, EPA will review all written comments received. EPA will write a summary and response to all comments. The Response to Comments will be incorporated into the Administrative Record for the Columbia Manufacturing, Inc. site. EPA can modify the proposed final remedy, or select another remedy based on technical or legal issues brought up by the community's comments.

Facility Description and History

The CMC site consists of a 23.7 acre parcel located at One Cycle Street in the City of Westfield, Massachusetts. Approximately half of the property was developed for industrial use while the other half was used for parking and transportation purposes. The site is bounded to the north by residential properties on Cleveland, Lozier, and Toledo Avenues and to the west by undeveloped land and a railroad embankment. The majority of the land to the south and east is currently used for the cultivation of shade tobacco. A site location map is provided as Figure 1.

Figure 1
Site Location Map

Figure 2
Facility Layout

The nearest surface water body to the site is the Little River. The Little River flows along the eastern edge of the tobacco fields and joins with the Westfield River approximately one-half mile northeast of the site. Storm water is captured in a storm water collection system and conveyed to the Little River.

The facility's production history dates back to the late 1800s and early 1900s. Products manufactured over the years primarily consisted of metal tube items such as bicycles, mopeds, lawnmowers, motorcycles, munitions (shells only), and school furniture. The primary product line over time was bicycles and the current product line is school furniture.

In 1960, the company was incorporated under the name of the Columbia Manufacturing Company. A subsequent merger in 1967 with MTD Products (hereafter MTD) of Cleveland, Ohio transformed the company into a division of MTD. MTD continued operating the site, under the CMC name, for the next 20 years, until 1987, when CMC executives acquired the business but not the property from MTD and began operations as Columbia Manufacturing, Inc. The Columbia Manufacturing, Inc. entity continues to operate the business and manufacture school furniture to the present day. In 2005, Columbia Manufacturing, Inc. purchased the property from MTD and in 2007 transferred ownership to Cycle Street Realty, LLC.

Today, as in the past, the primary manufacturing operations at the plant include various machining operations, metal cleaning, electroplating, painting, assembly, packaging and distribution. Chemicals used in the past and present at the facility include organic solvents and metal plating solutions. A facility layout is provided as Figure 2.

Releases of hazardous materials have occurred at the CMC site in the past. The releases consisted of organic solvents (tetrachloroethene and trichloroethene) from metal cleaning operations and metals (chromium, cadmium, nickel and zinc) from electroplating operations occurred at the facility as well as releases of heating oil and gasoline from above and below ground storage tanks. More detailed release information can be found in the "Site location and History" section of the Corrective Measures Study (CMS).

All drinking water, process water and wastewater discharge for the facility are purchased from the City of Westfield. There are no drinking water or process water wells on the property. The facility is surrounded on all sides by a chain link fence that is locked after manufacturing operations are completed each day.

Overview of Investigations and Remedial Work

In 1988, EPA, through its contractor, A.T. Kearney, Inc. inspected the property and identified 47 solid waste management units (SWMUs) and areas of concern (AOCs) at the facility where hazardous materials had been historically managed. This information was summarized in the RCRA Facility Assessment (RFA). In 1991, EPA issued the original Order (Consent Decree 91-30044-F), which was updated in 1993, that required MTD and CMC to investigate the areas identified in the RFA and conduct interim remedial measures (IRMs) in these areas as appropriate. Since that time, CMC and MTD have completed numerous investigations. These investigations, collectively referred to as the RCRA Facility Investigation (RFI) were designed to investigate the extent of contamination, identify areas that posed a risk and conduct IRMs as necessary. The RFI also identified 5 additional AOCs which brought the total number of

SWMUs/AOCs to 52. Soil and groundwater contamination included organic solvents and metals released from facility operations and petroleum hydrocarbons released from heating oil and gasoline storage tanks.

Numerous IRMs, addressing all 52 SWMUs and AOCs, have been completed concurrently with the RFI. The details of the site investigations, technical evaluations, and completion of the IRMs are provided in the *February 2010 Corrective Measures Study*, (CMS) and the *July 22, 2010 Technical Memo* requested by EPA to support the CMS. The IRMs were designed to be protective of human health and the environment and to remediate and close the SWMUs and AOCs. These measures focused on the treatment and/or removal of contaminant source areas which significantly reduced the amount of contaminated materials in the environment, particularly in areas where there was a high potential for these materials to migrate. The types of remedial response measures completed at the site included contaminated soil removal and off-site disposal, in situ chemical treatment of soil and groundwater, groundwater recovery and off-site disposal, and finally placement of a clean soil cap on the areas of the site not already covered by asphalt, concrete or buildings.

Summary of Completed Interim Remedial Measures

As a result of the environmental investigations, MTD/CMC has completed numerous IRMs at the site to control sources of contamination, control the spread of contaminated groundwater, and control potential human and ecological exposures to impacted soil and groundwater.

After decontaminating, decommissioning and removing former manufacturing buildings, lagoons and storage tanks, MTD/CMC paved the majority of the northwestern portion of the Site and uses this area for tractor trailer staging. MTD/CMC installed, maintains, and operates a state-of-the-art groundwater recovery system along Cycle Street that controls potential threats to human health and the environment from groundwater migrating off-site by providing effective capture and eventual treatment of impacted groundwater.

The remedial response measures completed at the site include the following:

- Excavation and off-site disposal of contaminated soil present within each of two former wastewater lagoons.
- Excavation and off-site disposal of contaminated soil/sediment present within the former Reflecting Pond and Fire Pond areas.
- Closure and dismantlement of the former metal plating operations conducted at the facility.
- Excavation and off-site disposal of metals-affected soils beneath the former plating building and adjoining alleyway.
- Removal of aboveground (ASTs) and underground (USTs) storage tanks associated with various production activities and fuel oil storage and delivery systems.
- Construction and operation of a system designed to recover hydrocarbons floating on the surface of the water table.

- Installation, maintenance, and monitoring of a groundwater extraction system to control the movement of groundwater present along Cycle Street thereby preventing the VOC plume from migrating beneath the residential neighborhood. This system is still in operation.
- Transport and discharge of recovered groundwater to the local City of Westfield POTW.
- Excavation and off-site disposal of affected soils associated with (ASTs) and (USTs) for fuel oil.
- *In-situ* treatment of contaminated groundwater.
- *In-situ* treatment of contaminated soil beneath production areas where hazardous materials were managed.
- Demolition, deconstruction and removal of former brick manufacturing buildings.
- Excavation and treatment of affected soils located adjacent to and underneath former building foundations and footers previously inaccessible before demolition activities.
- Placement of a soil cap on areas of the site not already covered by existing asphalt or concrete surfaces.

All 52 SWMUs/AOCs have been addressed. A description of each IRM is included in the "Soil Site Restoration Activities and Groundwater Site Restoration Activities" sections of the CMS.

Groundwater is sampled semiannually and groundwater monitoring reports are regularly submitted to EPA. These reports will be used for performance monitoring of the groundwater extraction system and natural attenuation.

Environmental Evaluation

The human health and ecological risk evaluation showed that, with the final administrative disposition of Corrective Action requirements for this site, the following three areas will require ongoing controls: North End Groundwater, South End Groundwater, and Site-Wide Soil. This

Site-specific, risk-based clean-up goals also known as Media Protection Standards (MPS) for groundwater were developed using the Massachusetts Contingency Plan (MCP; 310 CMR 40) as a guide. MPS for groundwater considered the following:

- Human health considerations for groundwater at the site
- Ecological considerations through groundwater migration to surface water

Site-specific, risk-based MPS for soils have been developed using the MCP as a guide. During the IRMs completed on soils at the site, S-1 soil standards protective of residential exposures to soil were utilized to guide excavations. These standards represent concentrations of hazardous substances in soils at or below which no further remedial response actions are required based upon residential land use. With the exception of locations where operational/building constraints were encountered, IRMs on soils achieved S-1 residential soil standards. The S-2 standards are used for all other locations where operational/building constraints are in play. An activity and use limitation (AUL) will be developed and placed on the deed to restrict activity and use of the property to industrial and to notify any future owner that residual contamination may exist under some buildings.

The site MPS for groundwater and soils are found in Table 1 and Table 2 which follow. Groundwater standards are based on the MCP GW-2 and GW-3 standards. Soil standards are based on the MCP S-2 standards.

Table 1
Groundwater Target Concentrations for Historical Detections of Constituents in Site Groundwater

CONSTITUENT	NORTH END GROUNDWATER(1) (protective of residential exposure to vapors in indoor air)	SOUTH END GROUNDWATER(1) (protective of facility workers exposure to vapors in indoor air)	SOUTH END GROUNDWATER(2) (protective of ecological receptors in surface water of Little River)
VOCs			
1,1,1-Trichloroethane	4.0	4	20
1,1,2,2-Tetrachloroethane	0.21 (3)	0.87 (4)	50
1,1,2-Trichloroethane	0.9	0.9	50
1,1-Dichloroethane (DCA)	50 (3)	50 (4)	20
1,1-Dichloroethene (DCE)	11.5 (3)	26 (4)	30
1,2,4-Trimethylbenzene	NA	NA	NA
1,2-DCA	0.13 (3)	0.052 (4)	20
1,2-Dichloropropane	0.003	0.003	50
1,3,5-Trimethylbenzene	NA	NA	NA
1,3-Dichloropropane	NA	NA	NA
1,4-Dichlorobenzene	0.2	0.2	8.0
2-Butanone	50	50	50
2-Methylnaphthalene	NA	NA	NA

Table 1
Groundwater Target Concentrations for Historical Detections of Constituents in Site Groundwater

CONSTITUENT	NORTH END GROUNDWATER[1] (protective of residential exposure to vapors in indoor air)	SOUTH END GROUNDWATER[1] (protective of facility workers exposure to vapors in indoor air)	SOUTH END GROUNDWATER[2] (protective of ecological receptors in surface water of Little River)
4-Isopropyltoluene	NA	NA	NA
Acenaphthene	6.0 [2]	6.0	6.0
Acetone	50	50	50
Benzene	50 [3]	50 [4]	10
bis(2-Ethylhexyl)phthalate	50 [2]	50	50
Bromodichloromethane	0.006	0.006	50
Bromomethane	1.0 [3]	2.4 [4]	0.8
Carbon disulfide	NA	NA	NA
Carbon tetrachloride	0.002	0.002	5.0
Chloroethane	NA	NA	NA

Table 1
Groundwater Target Concentrations for Historical Detections of Constituents in Site Groundwater

CONSTITUENT	NORTH END GROUNDWATER[1] (protective of residential exposure to vapors in indoor air)	SOUTH END GROUNDWATER[1] (protective of facility workers exposure to vapors in indoor air)	SOUTH END GROUNDWATER[2] (protective of ecological receptors in surface water of Little River)
Chloroform	1.4 [3]	3.4 [4]	20
Chloromethane	NA	NA	NA
cis-1,2-DCE	14 [3]	33 [4]	50
Dibenzofuran	NA	NA	NA
Di-n-butylphthalate	NA	NA	NA
Ethylbenzene	20	5.0	5.0
Fluorene	0.04 [2]	0.04	0.04
Isopropylbenzene	NA	NA	NA
m,p-Xylenes	9.0	5.0	5.0
Methyl tert-butyl ether	50	50	50
Methylene chloride	10	10	50
Naphthalene	26 [3]	31 [4]	20
n-Butylbenzene	NA	NA	NA
n-Propylbenzene	NA	NA	NA
o-Xylene	9.0	5.0	5.0
Phenanthrene	10 [2]	10	10
sec-Butylbenzene	NA	NA	NA
tert-Butylbenzene	NA	NA	NA
Tetrachloroethene (PCE)	1.2 [3]	2.8 [4]	30
Toluene	50	40	40
trans-1,2-DCE	12 [3]	29 [4]	50
Trichloroethene (TCE)	0.8 [3]	1.9 [4]	5.0
Vinyl chloride	0.013 [3]	0.052 [4]	50
Total petroleum hydrocarbon (TPH)	5.0	5.0	5.0

Table 1
Groundwater Target Concentrations for Historical Detections of Constituents in Site Groundwater

CONSTITUENT	NORTH END GROUNDWATER[1] (protective of residential exposure to vapors in indoor air)	SOUTH END GROUNDWATER[1] (protective of facility workers exposure to vapors in indoor air)	SOUTH END GROUNDWATER[2] (protective of ecological receptors in surface water of Little River)
Inorganic Compounds			
Aluminum	NA	NA	NA
Cadmium	0.009 [5]	0.009 [5]	0.009 [5]
Chromium	0.3 [2]	0.3 [2]	0.3
Copper	0.09 [6]	0.09 [6]	0.09 [6]
Iron	NA	NA	NA
Lead	0.01 [2]	0.01 [2]	0.01
Magnesium	NA	NA	NA
Nickel	0.2 [2]	0.2 [2]	0.2
Potassium	NA	NA	NA
Sodium	NA	NA	NA
Zinc	0.9 [2]	0.9 [2]	0.9

Constituent list based on historical detections in groundwater
All concentration expressed in mg/L (parts per million)
NA Not available
[1] Default GW-2 Standard (310 CMR 40.0974(2)) except as noted
[2] Default GW-3 Standard (310 CMR 40.0974(2)) except as noted
[3] Site-specific value for residential exposure – migration to indoor air
[4] Site-specific value for industrial exposure – migration to indoor air
[5] Site-specific background value
[6] Calculated value for GW-3 – potential migration to surface water

Table 2
Soil Target Concentrations

CONSTITUENT	CLEAN-UP GOAL [1]
Volatile organic compounds (VOCs)	
1,1,1-Trichloroethane	600
1,1-dichloroethane (DCA)	5
1,2,4-Trimethylbenzene	NA
1,3,5-Trimethylbenzene	NA
4-Isopropyltoluene	NA
Chloroform	0.3
cis-1,2-dichloroethene (DCE)	0.4
Ethylbenzene	1,000
Isopropylbenzene	NA
Methylene chloride (dichloromethane)	20
n-Butylbenzene	NA

Table 2
Soil Target Concentrations

CONSTITUENT	CLEAN-UP GOAL [1]
n-Propylbenzene	NA
o-Xylene	300
sec-Butylbenzene	NA
tert-Butylbenzene	NA
Tetrachloroethene (PCE)	10
Toluene	1,000
trans-1,2-DCE	1
Trichloroethene (TCE)	2
Semivolatile Organic Compounds (SVOCs)	
1-Methylnaphthalene	NA
2-Methylnaphthalene	80
Acenaphthene	3,000
Anthracene	3,000
Benzo(a)anthracene	40
Benzo(a)pyrene	4
Benzo(b)fluoranthene	40
Benzo(g,h,i)perylene	3,000
Benzo(k)fluoranthene	400
Carbazole	NA
Chrysene	400
Dibenzo(a,h)anthracene	4
Dibenzofuran	NA
Fluoranthene	3,000
Fluorene	3,000
Indeno(1,2,3-cd)pyrene	40
Naphthalene	40
Phenanthrene	1,000
Pyrene	3,000
Total petroleum hydrocarbon (TPH)	3,000
Inorganic Constituents	
Barium	3,000
Cadmium	30
Chromium, total	200
Copper	NA

Table 2
Soil Target Concentrations

CONSTITUENT	CLEAN-UP GOAL [1]
Lead	300
Nickel	700
Zinc	3,000

Constituent list based on historical detections in groundwater
Concentrations expressed in mg/kg.
NA Not available
[1] Default standard for Class S-2 soil and Class GW-2 groundwater (310 CMR 40.0974(6))

EPA's Proposed Completion Determination with Controls Decision

Although this is a formal Completion Determination and is intended to result in a final administrative disposition of Corrective Action requirements for the CMC site, this is not an "unrestricted use" or "walk-away" determination. *See* Final Guidance on Completion Determinations at 8761. All that remains, however, is implementation of an activity and use limitation, maintenance of the existing groundwater extraction system, and monitoring groundwater on and off-site as explained below. As these measures consist of the continued maintenance, operation, and monitoring of already completed remedial efforts, EPA has determined that a final administrative disposition of "Complete with Controls" is appropriate.

MTD has accepted responsibility for implementation, operation, maintenance, and continued monitoring associated with these proposed efforts and will annually certify that sufficient financial assurance has been provided to complete the required actions.

A variety of clean-up methods that could be successfully implemented at the site were evaluated to address the three areas requiring ongoing controls. General categories of the cleanup methods evaluated in determining the proper corrective actions, and whether a final determination was appropriate, included: 1) no action, 2) activity and use limitations (AULs), 3) in place treatment, 4) removal, 5) capping, and 6) natural attenuation. Individual methods were evaluated for their ability to meet the corrective measures objectives including their ability to meet media protection standards (MPS) which are site specific clean-up goals.

- **North End Groundwater – (Figure 3)**: The continuing requirements recommended for affected groundwater located along the northern property boundary are monitored natural attenuation (MNA) with continued operation of the existing groundwater recovery system which is composed of 9 recovery wells along the northern property boundary. Operation of the groundwater recovery system will continue until observed levels of contaminants in the recovery wells are below the MPS. When this performance threshold has been achieved, the operation of the groundwater recovery system will be discontinued, and further groundwater restoration will be accomplished through MNA. Natural attenuation relies on the physical, chemical, and biological processes that act without human intervention to meet clean-up goals. These processes will continue to be monitored by routinely collecting groundwater samples from monitoring wells installed along Cycle Street, both on the

Figure 3
North End Groundwater
Future Monitoring Network

property and in the residential neighborhood to the north. Groundwater samples are routinely analyzed for the chemicals previously found in the area until the MPS are met. For North End Groundwater, the MPS have been established based on GW-2 standards. These standards are protective of indoor air within buildings. Drinking water standards are not applicable since the MADEP has determined the groundwater to be unsuitable for drinking and water is supplied by the town of Westfield.

All monitoring wells are locked to prevent tampering. Installation of drinking water wells in the area is prohibited by State and local laws.

As part of this action, a contingent remedy would be implemented if groundwater monitoring results show that natural attenuation is not achieving the MPS. This contingent remedy, if needed, would be submitted to EPA for review and approval. The contingent remedy would be selected from the alternatives originally under consideration in the CMS.

The alternatives considered for the North End Groundwater included no action, MNA, *in situ* chemical oxidation, and groundwater extraction and treatment.

- **Site-Wide Soil – (Figure 4):** While a significant quantity of the affected surface and subsurface soil has been remediated through excavation, treatment, and disposal, a portion of the affected subsurface soil will remain on-site. These soils are primarily located along utility corridors or building structures where removal would compromise the integrity of the structure, and therefore EPA believes that these soils should remain. A final remedy has been completed for these remaining soils, as they have been capped with either asphalt, concrete, vegetative cover, or soil cover. The only remaining measure related to the chemicals present in these subsurface soils is maintenance of the cap. This ongoing control was selected because it maintains a barrier between the affected soil and potential human exposure to subsurface contaminants.

Figure 4
Corrective Measures Area for Site-wide Soil

The controls applying to these soils also include an AUL and inspection and maintenance of the soil cap in areas where the soil beneath the cap contains chemicals above clean-up goals for as long as this condition exists.

Restrictions on residential development and information notices for construction workers concerning contact with subsurface soil in specified areas are also included.

This final determination for this area was made because it would provide a method that has been proven to be effective, is easily implemented, and meets the corrective measures objectives for this area of the site by preventing contact with the soils.

The alternatives considered for affected subsurface soil included no action, capping of soils, and excavation and disposal of soils.

- **South End Groundwater – (Figure 5)**: The final remedy for affected groundwater located beneath CMC and extending across South Meadow Road, beneath the tobacco fields, is MNA. Natural attenuation relies on the physical, chemical, and biological processes that act without human intervention to meet clean-up goals. These processes will continue to be monitored by routinely collecting groundwater samples from monitoring wells installed along South Meadow Road, both on the property and in the tobacco fields to the east. Groundwater samples will continue to be analyzed for the chemicals previously found in the area until clean-up goals are met. For South End Groundwater, the MPS have been established based on GW-2 and GW-3 standards. These standards are protective of indoor air within buildings and of discharge to surface water bodies such as the Little River. Drinking water standards are not applicable since the MADEP has determined the groundwater to be unsuitable for drinking and water is supplied by the town of Westfield.

Figure 5
South End Groundwater
Future Monitoring Network

All monitoring wells are locked to prevent tampering. Installation of drinking water wells in the area is prohibited by State and local laws.

As part of this action, a contingent remedy would be implemented if groundwater monitoring results show that natural attenuation is not achieving the MPS. This contingent remedy, if needed, would be submitted to EPA for review and approval. The contingent remedy would be selected from the alternatives originally under consideration in the CMS.

The alternatives considered for the South End Groundwater included no action, MNA, *in situ* chemical oxidation, a permeable reactive barrier, and groundwater extraction and treatment.

- Other Maintenance and Monitoring Activities: As an extra margin of safety, groundwater quality is routinely monitored around the perimeter of the site where groundwater exits the property. The groundwater is analyzed for chemicals previously identified in soil and groundwater that were above clean-up goals. These results are compared with previous results to see if contaminant levels are continuing to decrease.

EPA's Rationale for Completion Determination

As is described above, EPA believes that a Corrective Action "Complete with Controls" Completion Determination is appropriate for the following reasons:

1. **A full set of corrective measures has been defined**

The CMC site has undergone a comprehensive investigation and evaluation of the contamination associated with the SWMUs /AOCs identified at the site and has completed a number of remedial measures to address the contamination identified. Based on the information provided in the *Corrective Measure Study* and EPA's oversight of the remedial work at this site, EPA believes that human health and environmental risks associated with this site have been adequately addressed. With the consideration of the ongoing controls provided herein, including operation of the exiting groundwater recovery system, MNA, AULs, and continued maintenance and groundwater monitoring as is outlined above, EPA believes that a full set of corrective measures have been defined, evaluated, and implemented.

2. **The facility has completed construction and installation of all required remedial actions**

Numerous remedial response measures have been completed at the CMC site associated with close-out of the SWMUs and AOCs that were identified in the RFA and RFI. The response measures were conducted to reduce the amount of contaminated materials identified in source areas, particularly in areas where there existed a high potential for the contaminated materials to migrate. Remedial measures were implemented in a phased manner where initial remedial measures focused on addressing the primary contaminant sources. The initial clean-up measures were followed by completion of additional remedial response measures to address residual sources that had the potential to impact groundwater. The remedial response measures completed at the CMC site were described in the previous section titled "Summary of Completed Interim Remedial Measures".

With EPA's final determination, MTD will continue to operate the existing groundwater recovery system as long as it is shown to be required by monitoring data, continue to monitor the remaining groundwater contamination associated with the CMC site, allow for MNA, comply with AULs, and inspect and maintain the cap associated with soils that could not be removed. MTD has installed/implemented all required remedial actions.

3. **Site-specific media cleanup goals have been developed and met in some areas**

MTD has met the cleanup objectives for all but three areas of the CMC site. For the areas where contamination remains, MTD has agreed to ongoing controls that EPA has determined are sufficiently protective of human health and the environment. When all of the cleanup objectives for this site are ultimately satisfied and the ongoing controls are no longer required, MTD can petition EPA to eliminate the requirement of ongoing controls associated with this final determination.

4. **All that remains is performance of the required operation, maintenance, monitoring, and compliance set forth herein**

In this case, all that remains are the continuing controls discussed above, which includes continued operation of the groundwater recovery system , AULs, and the continued monitoring, maintenance, and compliance for the three areas discussed above.

It is important to note again that this is not an "unrestricted use" or "walk away" decision. Instead, this decision requires ongoing monitoring of the above discussed controls. It is also important to point out that this Completion Determination proposal in no way affects the ongoing requirement of the facility to conduct Corrective Action for any future releases at the facility. *See* Final Guidance on Completion Determinations at 8761, n. 7.

Note 1: Notwithstanding this Completion Determination, EPA or an authorized State may conclude additional cleanup is needed if, subsequent to this Completion Determination, EPA or an authorized State discovers evidence of unreported or misrepresented releases. *See* Corrective Action Completion Guidance 1 at 50197; Corrective Action Completion Guidance 2 at 9177 n15.

<u>Evaluation of Remedy with respect to Standards and Decision Factors</u>
Significant flexibility is accorded to EPA in making completion determinations. *See* Corrective Action Completion Guidance 2 at 9177. EPA believes that, in addition to the rationale presented above, evaluation of the Facility with respect to Remedy Selection Criteria set forth in available EPA guidance provides a framework for measuring the effectiveness of a proposed remedy. *See* Corrective Action for releases from Solid Waste Management Units at Hazardous Waste Management Facilities, 61 Fed. Reg. 19432, 19449 (proposed May 1, 1996). These Remedy Selection Criteria are presented below:

Threshold Criteria:

<u>Overall Protection</u>. This completion determination proposal provides protection of human health and the environment. Specifically, the investigative and remedial work conducted and by the facility demonstrates protection of human health and the environment for current and future use consistent with the requirements of the MCP.

<u>Attainment of Media Cleanup Standards</u>. Although the property is likely to remain under industrial use, this proposed completion determination attains the more conservative residential MPS for soils in most locations where a building/structure does not exist. Where buildings/structures exist, an AUL will provide adequate protection. The GW-2/3 groundwater standards will be attained over time as the MNA remedy proceeds.

Controlling Sources of Releases. The available information demonstrates that the historical on-site releases of hazardous materials to soil and groundwater have been completely remediated in some source areas or controlled by engineering or institutional controls in others. These controls are appropriate for current and future land use scenarios.

Compliance with Waste Management Standards. The proposed remedy complies with all applicable requirements for the management of solid wastes.

Balancing Criteria:

Long-term Reliability and Effectiveness. This remedy is effective and reliable with respect to the long-term since MNA will continue to proceed on its own without the need for any outside assistance. The CMC site buildings/structures act as a cap to residual subsurface contamination. The groundwater extraction system is a short term activity that will be shut down when the MPS are attained. Therefore, this proposed Completion Determination provides for long-term reliability and effectiveness.

Reduction of Toxicity, Mobility, or Volume of Wastes. The toxicity, mobility and volume of waste impacting the environment as a result of CMC site operations has been reduced through active remediation to appropriate levels for the current and future use of the site.

Short-term Effectiveness. The proposed remedy is comprehensive in the short-term since there are no immediate risks to human health or the environment.

Implementability. This remedy is believed to be easily implemented since no further actions or construction operations are required to protect human health and the environment.

Cost. The facility has spent significant time and money to investigate and remediate the site over a period of 15+ years under strict EPA oversight. It has also demonstrated compliance with the State's cleanup regulations (i.e., the MCP). A Completion with Controls completion determination is appropriate for the facility.

Conclusion

Significant flexibility is accorded to EPA in making completion determinations. *See* Corrective Action Completion Guidance 2 at 9177. To this end EPA, has determined that this proposed Completion Determination with Controls demonstrates protection of human health and the environment based on currently available information. Specifically, the proposed final remedy is sufficiently comprehensive in the short-term as there are no immediate risks to human health or the environment. In the long-term, EPA has determined that the majority of historical on-site releases of hazardous substances to the soil and/or groundwater have been remediated to levels that are sufficiently protective; that the remaining contamination will naturally attenuate with time; and that sufficient protections for controlling any remaining risks, including AULs have

been incorporated herein. The toxicity, mobility, and volume of contaminants impacting the environment have been sufficiently reduced. The continued decreases in contaminant concentrations due to natural attenuation is expected to reduce the overall toxicity, mobility, and amount of contamination remaining at the site.

Accordingly, EPA, using all available information, is announcing its Corrective Action "Completion with Controls" Determination proposal for the CMC site. Specifically, investigations performed at the CMC site demonstrate that remaining contaminant levels are declining and do not pose a threat to human health or the environment based on the current use of the site; areas of the site have either attained the Media Protection Standards or where the applicable standards have not been attained monitoring or protective controls will continue; the site is currently an industrial facility and will remain so for the foreseeable future; and if this use were to change, the AUL identifies which areas of the property would need to be re-evaluated and possibly remediated in order to be protective of human health and the environment consistent with the new use of the property.

GLOSSARY

Activity and Use Limitation (AULs) – Easement granted to the Commissioner of the MADEP by the property owner and is recorded and/or registered with the appropriate registry of deeds and/or land registration office. The purpose of an AUL is to minimize the risk of human exposure to pollutants and hazards to the environment by preventing specific uses or activities at a property. It is also used to provide notice of the existence of residual contamination to future holders of an interest in a piece of property. An AUL is a tool which permits the remedial goals for a property to be dependent on the exposure risk associated with its use.

Administrative Record – Collection of documents (reports, correspondence, etc.) that form the basis for the remedy selection.

Areas of Concern (AOCs) – Area of a site that may be contaminated as a result of previous activities.

Corrective Measures Study (CMS) – Report that evaluates alternatives for cleanup of RCRA contaminated sites and may include a summary of previous investigations, interim remedial measures and media protection standards.

Groundwater Recovery System – Existing groundwater recovery system on the Site along the Cycle Street property line. This system pumps groundwater from a series of 9 wells into storage tanks located in a building on-site and then pumps the water thru underground pipes to the local Privately Owned Treatment Works (POTW) for treatment in accordance with a MADEP NPDES permit.

Interim Remedial Measures (IRM) – Actions taken prior to a final remedy decision to protect human health and the environment by controlling the spread or release of contaminants to the environment.

In-situ Chemical Treatment (ISCT) – An in place remediation technology that applies chemicals such as ozone and hydrogen peroxide to treat contaminants in the subsurface soil located above and/or

below the water table. This technology is used to treat contaminated areas beneath building foundations without the need for excavation. Contaminant levels in soil and groundwater are significantly reduced by this action.

National Pollutant Discharge Elimination System (NPDES) Permit – Permit issued from MADEP that allows and requires monitoring of the discharge of treated groundwater extracted from the Site to the Westfield River.

Operation, Monitoring and Maintenance (OM&M) – Continuing activities to operate installed corrective measures, monitor the continued effectiveness of the corrective measures, including groundwater monitoring, and the maintenance and repair, as needed, of the remedy components.

Media Protection Standards (MPS) – Screening values used during the CMS to evaluate the potential effectiveness of a technology or alternative to address Site conditions.

Massachusetts Contingency Plan (MCP) – MADEP regulations governing the requirements for remediation of contaminated sites.

Resource Conservation and Recovery Act (RCRA) – This law regulates the management and disposal of hazardous wastes. RCRA, in Section 3008(h), also authorizes the federal government to respond directly to releases of hazardous waste which may be a threat, or potential threat, to public health or the environment.

RCRA Facility Investigation (RFI) – Investigation to determine the nature and extent of contamination at a facility. The scope of an RFI can vary widely from a small specific activity to a complex study. If the evaluation of results indicate that remediation may be necessary, a Corrective Measures Study would be the next step.

Risk Assessment – Formal process to evaluate the hazards presented by environmental conditions at the Site.

Solid Waste Management Unit (SWMU) – Area of a property where solid waste, as defined by RCRA, is managed.

Statement of Basis (SB) – Document presenting the proposed remedy for a facility to the public. The Statement of Basis provides a brief summary of the facility conditions, potential risks, and alternatives studied in the detailed analysis phase of the CMS.

REFERENCES

Corrective Measures Study (CMS), (RMT, February 2010)

Technical Memorandum, (RMT, July 22,2010)

Technical Memorandum, (Haley & Aldrich, August 2011)

LEGEND

Site Boundary and Fence Line

Figure 1
Site Location Map

Columbia Manufacturing Company
Westfield, Massachusetts

LEGEND

Site Boundary and Fence Line

Notes:
Structures with white labels have been deconstructed.
Structures with blue labels still exist as of December 2010

Figure 2
Facility Layout

Columbia Manufacturing Company
Westfield, Massachusetts

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- Monitoring Well - GW Quality and Water Levels
- Monitoring Well - Water Levels Only
- Recovery Well - GW Quality and Water Levels
- Site Boundary and Fence Line

Figure 3
North End Groundwater
Future Monitoring Well Network

Columbia Manufacturing Company
Westfield, Massachusetts

LEGEND

Site Boundary and Fence Line

Areas for Final Corrective Measures

Activity and Use Limitations Area for Site Wide Soil

Approximate Location of Proposed Right-of-Way

Figure 4
Corrective Measures Area for Site Wide Soil

Columbia Manufacturing Company
Westfield, Massachusetts

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- Monitoring Well - GW Quality and Water Levels
- Monitoring Well - Water Levels Only
- Recovery Well - GW Quality and Water Levels
- Site Boundary and Fence Line

Figure 5
South End Groundwater
Future Monitoring Well Network

Columbia Manufacturing Company
Westfield, Massachusetts

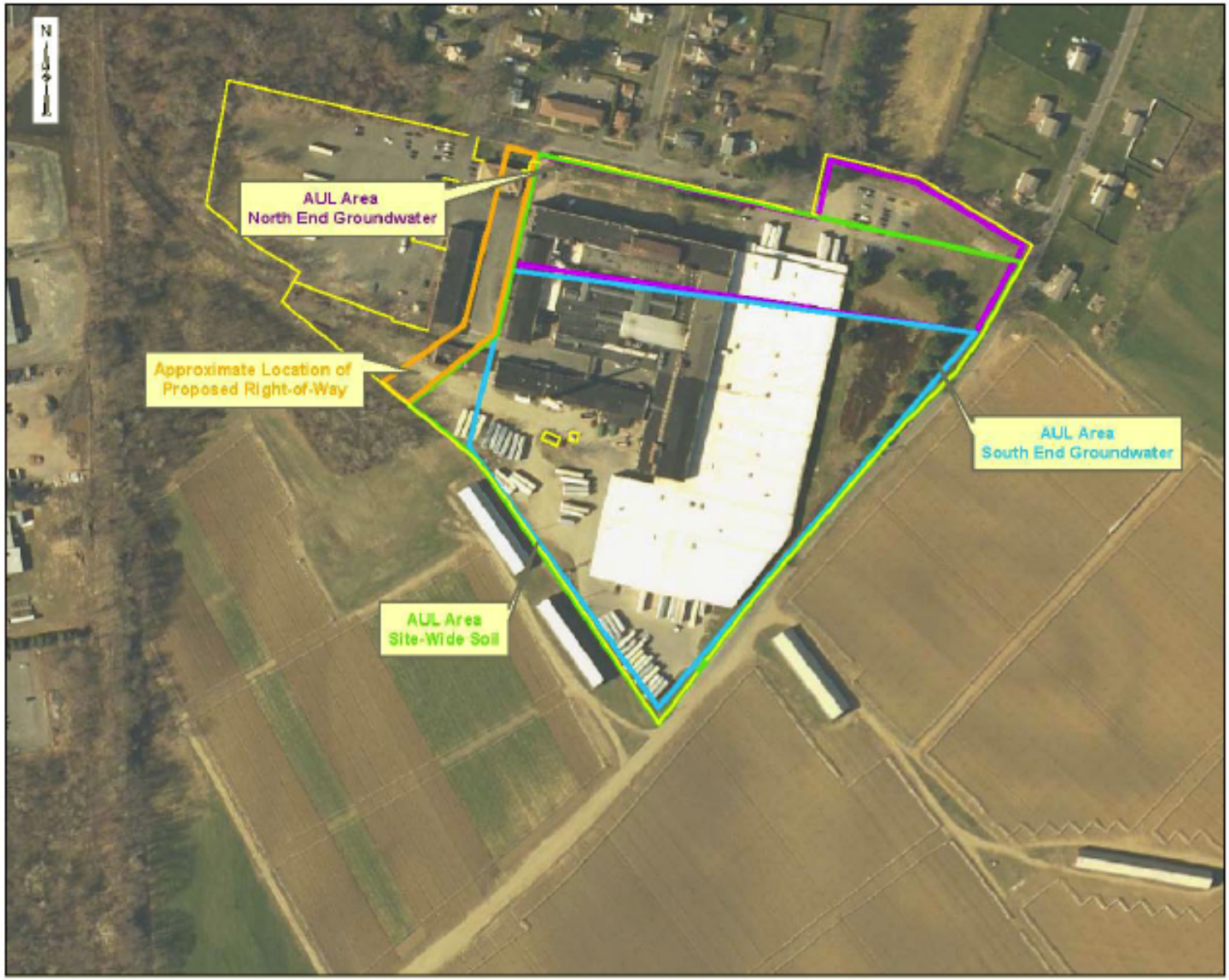

Figure 6
Activity and Use Limitation Areas
Columbia Manufacturing Company
Westfield, Massachusetts