



Corrective Measures Study (CMS)
Columbia Manufacturing Company (CMC) Restoration Project
Westfield, Massachusetts
Site Location and History



The purpose of this document is to review the operations and ownership history of the CMC facility in Westfield, Massachusetts (site) and provide an overview of the areas of concern (AOCs) on the site and the wastes associated with those AOCs.

Site Location and History

This section describes the following:

- Location of the site.
- Developmental history of the facility and the site.
- History of production activities at the site.
- History of manufacturing operations employed in production activities.
- History of wastes generated and disposed of at the site.
- Regulatory milestones through signature of the Consent Order.
- Solid waste management units (SWMUs) and AOCs



Site Location Map

Site Location

The site consists of a 23.7-acre parcel located at One Cycle Street at the southeast limit of a heavily developed portion of the City of Westfield, Massachusetts. The location of the site is shown on the [Site Location Map](#). The site is bounded to the north by residential properties on Cleveland, Lozier and Toledo Avenues, to the west by a railroad embankment, and to the south and east by agricultural land currently used for the cultivation of shade tobacco. South Meadow Road parallels the eastern site property line. The Little River flows along the edge of these agricultural fields. The direction of flow in the Little River is generally to the east; however, the river bed meanders to the west, south and east of the site, prior to its confluence with the Westfield River approximately one-half mile to the northeast of the site.

Developmental History of the Site

The buildings constructed on the site date back to the late 1800s and early 1900s. The metal warehouse building, constructed in 1969, is the last structure to have been erected on the site. Sanborn Fire Insurance Maps for 1924, 1947, and 1963 confirm the configuration of site buildings during that time period. These maps are included in the [RCRA Facility Investigation \(RFI\) Phase I Interim Report \(September 1994\)](#).



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A canal formerly crossed the property along its southwestern border, in the vicinity of the former lagoons and the current location of the Fire Pond. According to information available for examination in the historical collection at the Westfield Public Library, the Hampshire and Harnpdeu Canal was constructed sometime around 1825 for the purpose of transporting cargo. The canal extended from Northampton, Massachusetts to Southwick, Massachusetts and included 18 locks in Westfield and two aqueducts.

In the late 1840s, the development of the canal was abandoned as railroads became a more favorable means of transporting cargo. In many areas, the canal was filled and railroad beds were built upon it. The majority of the portion of the canal was on the site backfilled during the late 1800s, with the exception of the existing Fire Pond, Sanborn Fire Insurance Maps of the site dating back to 1924 indicate that the Fire Pond is essentially in its present configuration.

In 2008, as part of the overall site cleanup, many of the 100-year old building were deconstructed. Consistent with the Resource Conservation and Recovery Act (RCRA) many of the construction materials were recycled, including: steel, copper, wood flooring, wooden beams, brick, and glass window panes. Concurrent with deconstruction of the 100-year old buildings, manufacturing operations were relocated to the metal warehouse. The area formerly occupied by the manufacturing has been graded and seeded with grass.

Production History

The products manufactured at the site have consisted of a variety metal tube items including: bicycles, mopeds, lawnmowers; motorcycles, munitions (shells only), school furniture, and other tubing-based products (*e.g.*, exercise equipment and strollers). The primary manufacturing item over the history of the site was bicycles, until production was discontinued in 1991. Currently, the only manufacturing item is school furniture. With the exception of bicycles, the other items listed above were produced for short periods of time and then discontinued.

The production of bicycles at the site began when the original manufacturing buildings were constructed around 1897 by the American Bicycle Company. Between 1902 and 1932 the company operated as the Westfield Manufacturing Company, a subsidiary of the Torrington Company. In 1905, the Pope Manufacturing Company purchased the site from the American Bicycle Company and continued the manufacture of bicycles. Pope Manufacturing subsequently moved all bicycle manufacturing from their Hartford, Connecticut location to the site in 1906. Pope Manufacturing also diversified the production items to include the Pope Motorcycle, United States Army bicycles, and munitions shells for the Russian Government. The manufacture of children's bicycles began in 1919. During World War II, wartime products, including motorcycles and high explosive shells, were produced for the United States Government. School furniture production began around the mid-1950s.

In 1960, the company was incorporated under the name of the Columbia Manufacturing Company. A subsequent merger in 1967 with MTD transformed the company into a division of MTD. MTD continued operating the site until 1987, when CMC executives re-acquired operations from MTD. CMC continues to



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operate under private ownership and manufactures school furniture. The primary manufacturing operations at the plant include various machining operations, metal cleaning, electroplating, painting, assembly and distribution.

History of Manufacturing Operations

The four primary operations at the site have included the following:

1. Machining of tube metal
2. Metal cleaning
3. Electroplating
4. Painting

These basic operations have not changed significantly throughout the history of the site. Different methods may have been used; however, for different workpieces to maintain production. The locations of the former site buildings are shown on the [Historical Building Location Map](#).



Historical Building Location Map

Machining has included bending, welding, cuffing, heat treatment, and annealing of tube metal. Tumbling and annealing of cranks and other small metal parts has also been conducted.

Metal cleaning was undertaken to remove residual oil by degreasing with either a methylene chloride or trichloroethene vapor degreaser. Excess flux from welding was removed by immersing the parts in a phosphoric acid pickling solution. Currently, cleaning of school furniture workpieces is accomplished by immersion in an alkaline solution in the plating area.

Electroplating of metals (cadmium, copper, zinc, nickel, and chromium) to manufactured items has been an operation at the site since manufacturing began. Different forms of plating have been used during different periods. Chromium, for example, was apparently added in 1929. Currently, chromium is plated over nickel in production of school furniture.

Non-plated metal items, primarily bicycle frames, were coated with a phosphate solution prior to painting. This process is known as bonderizing and increases the chipping resistance of the finish. Frames and other items which required paint were then moved to the third floor of Building 1 to be painted. School furniture



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painting, primarily desk bodies, was completed in the southwest corner of the warehouse. Inadvertently painted items and equipment were stripped with a sodium carbonate solution.

Waste Generation and Disposal History

There is little factual data regarding waste disposal prior to 1967 when MTD began operations at the facility. A plan entitled Drainage Detail (Tighe and Bond [T&B], December 1967) showed the locations of grated surface drains, covered manholes, sanitary drains, and the locations of the receiving pipelines at that time. The liquid waste from the main office building (Building 14) and portions of Buildings 9, 10, and 15 in the northwest portion of the site was discharged to a municipal sewer manhole on Cleveland Avenue at that time. Limited portions of Buildings 1 and 2 in the northern portion of the site discharged liquid waste to a sanitary manhole on Lozier Avenue. Grated surface drains near Buildings 6 and 11 in the southwestern portion of the site discharged runoff to the Fire Pond.

The remainder of the liquid waste from the site was discharged to the Little River after passing through a discharge structure located near the southeastern property line. The liquid wastes created by the plating operations were discharged, without treatment, to the Little River outfall. Waste paints, paint solids, and solvents were apparently drummed and transported off the site for disposal. Solid wastes, waste packaging, and office paper were either disposed of off the site or burned in an incinerator formerly located west of the southwest portion of the warehouse.

A subsequent plan was prepared prior to construction of the wastewater treatment plant (WWTP). This site plan illustrates details of the diversion structure and the proposed piping to route wastewater from the site to the municipal sewer on Lozier Avenue. The plan indicated that an 18 inch storm water line, to be constructed, would continue to discharge to the Little River. The National Pollutant Discharge Elimination System (NPDES) permit currently held by the facility at that time (Permit No. MAR00A173) governed discharges from the two pipes discharging from the diversion structure. These pipes now convey only storm water runoff on a periodic basis.

In 1970, the WWTP was constructed. Liquid plating wastes discharged to the WWTP received either pH adjustment or metal hydroxide sludge precipitation, depending on the source of the wastewater. Cleaning and rinse water was pH adjusted and discharged to the NPDES outfall on the Little River. Contaminant monitoring of the rinse waters was performed prior to discharge. During winter months, the water was discharged directly to the Diversion Structure, where it flowed in two 16-inch pipes to the Little River. During warmer weather, a portion of the discharge was pumped to a pipe which ran in a northeasterly direction to the northern end of the Former Reflecting Pond (AOC 16). At the northern end of the pond, the pipe was connected to a perforated T-connection line. From this perforated pipe, the wastewater was discharged to the pond. The water in the pond was directed to a sump at the southern end of the pond which directed the water into the Diversion Structure for discharge to the Little River. CMC personnel indicate that the Former Reflecting Pond existed for aesthetic purposes.



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Wastewater generated in the plant which contained or may have contained heavy metals was piped to the WWTP where treatment vessels precipitated metal hydroxide sludges. The clarified liquid was discharged to the Little River outfall and the bottom slurry of metal hydroxide sludge was pumped to two lagoons (AOC 29) constructed for the purpose of dewatering this sludge (see [Historical Building Location Map](#)).

The remaining precipitate was recycled to the plating baths. The discharge of the clarified liquid and pH adjusted cleaning and rinse water solutions was redirected to the sanitary sewer system in the late-1980s. After the addition of a filter press in 1983, metal hydroxide sludges were generated and transported off the site as a hazardous waste. Metal hydroxide sludge from nickel filters was transported to the local landfill for disposal prior to 1988. Since that time, the sludge has been transported off the site as hazardous waste.

The former lagoons have been the focal point of a great deal of investigative activities at the site. According to a T&B report prepared in May 1986, the lagoons were used from late in 1971 until May, 1983. Each lagoon had an area of approximately 5,000 square feet and a depth of four feet). The bases of the lagoons were lined with drainage sand to facilitate drying of the sludge.

The lagoons were initially deemed an inappropriate method of waste disposal in 1981 by the Massachusetts Department of Environmental Quality Engineering (MA DEQE), now the Department of Environmental Protection (MA DEP). They were subsequently classified as regulated units under RCRA and required either a Part B permit or closure. In addition, groundwater monitoring was required by the MA DEQE. CMC elected in May 1983 to close the lagoons and excavate sludge which had built up over the 13-year operating period. This excavation was completed in the fall of 1983.

Prior to the passage of RCRA, waste paints, paint solids, solvents and oils were transported off the site for disposal. Wastes which were later characterized as hazardous by RCRA were transported off the site to treatment, storage, and disposal (TSD) facilities. Waste oil, which was not considered hazardous, was shipped as a Massachusetts regulated waste. Spent alkaline cleaners and pickling acids were pH adjusted and discharged to the sanitary sewer system.

Wastes have been generated primarily by the painting and electroplating operations at the site. Effluent from the on-site WWTP and cleaning and rinse waters from the plating operations comprise the majority of liquid wastes generated at the site. Waste paint, paint solids, and waste solvents have historically been generated from bicycle painting operations on the third floor of Building 1 and, more recently, from the school furniture painting operation in the southwest corner of the warehouse. Metal hydroxide sludges have been generated by the filter press and the nickel filters associated with the WWTP and the nickel plating baths, respectively.



Historical Building Location Map



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Wastes from other operations include waste oils from threading and machining and the distillation of degreasing solutions in stills. Spent alkaline cleaners have been generated from metal cleaning operations and paint stripping, and spent acids have been generated from pickling operations. Waste solvents, mainly methylene chloride and trichloroethene, have been generated from degreasing activities.

Regulatory History

The history of regulatory activities at the site is lengthy and complex. A brief summary of the regulatory history is provided below.

- MTD Products Inc. (MTD), the parent company of CMC at the time, submitted filings to the United States Environmental Protection Agency (USEPA) regarding hazardous waste handling in 1980. These filings included a Notification of Hazardous Waste Activity (08/05/80), General Information form (11/19/80) and Hazardous Waste Permit Application (11/19/80) (see [RFI Phase I Interim Report \[September 1994\]](#))
- A Notice of Violation (NOV) was issued to CMC on October 22, 1981 due to disposal of metal hydroxide sludges in the lagoons at the site.
- On April 12, 1983, the MA DEP sent a NOV to CMC following their inspection of the facility. The facility was found in violation of the groundwater monitoring requirements of state and federal regulations.
- CMC filed a closure plan with the MA DEP and proceeded to close the lagoons. The sludge was removed in 1983, samples were collected in the excavated area, and groundwater monitoring wells were installed.
- In 1985, USEPA requested submittal of a RCRA Part B permit application, a certification of compliance with the groundwater monitoring and financial assurance requirements of RCRA, and corrective action information. Requested corrective action information included a drawing of the facility showing each SWMU, descriptions of each SWMU, information regarding releases from the SWMUs, and corrective actions already undertaken at any SWMU. The information was requested in order to evaluate the need for corrective action at the site.
- CMC originally identified four SWMUs: the sludge roll-off box (AOC 9), the former lagoons (AOC 29), the former hazardous waste drum storage area (AOC 14b), and satellite storage of hazardous waste in the degreasing room in Building IA (SWMU 13). The location of these SWMUs and AOCs are shown on the [SWMU and AOC Location Map](#).



SWMU and AOC Location Map



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- A Consent Order was filed against MTD on June 5, 1985 as a result of the detection of contamination in soils underlying the former lagoons. The Consent Order outlined requirements for soil and groundwater quality assessment.
- A Preliminary Assessment of the site conducted by the MA DEP was completed on December 28, 1987. This assessment noted that the facility was being overseen by the RCRA section under USEPA lead and recommended no further action under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
- The [Consent Decree \(Civil Action No. 91-30044-F\)](#) guiding the RFI issued against both CMC and MTD was filed by the USEPA on February 22, 1991. The Decree references the RFI Proposal, prepared by T&B in June, 1993. In the RFI Proposal, the SWMUs which are considered AOCs were identified for assessment potential future corrective action.

The Consent Decree was signed on August 11, 1993, thereby starting the corrective action process. .

Solid Waste Management Units and Areas of Concern

A total of 52 SWMUs and/or AOCs have been identified at the site through numerous environmental studies. Earlier investigations, prior to the development of the RFI Proposal and as a result of the RCRA facility assessment (RFA) report identified 47 SWMUs. Two additional SWMUs were identified during the development of the RFI Proposal. Of the 52 SWMUs, 30 AOCs were identified for further investigation. Two of those AOCs were further subdivided during Phase I of the RFI to account for differences in location or use. Two separate areas were identified for the storage of hazardous waste drums, the current area (AOC 14a) and the former area (AOC 14b). Additional information regarding the former incinerator (AOC 33b) indicated that the unit was not located at the former strap metal fill area (AOC 33b). The locations of all SWMUs and AOCs are shown on the [SWMU and AOC Location Map](#). [Table 1 \(Status of SWMUs and AOCs\)](#) summarizes the SWMUs and AOCs and their current status.



SWMU and AOC Location Map