# FIVE-YEAR REVIEW REPORT
# OCONOMOWOC ELECTROPLATING SUPERFUND SITE
# ASHIPPUN, WISCONSIN
# SEPTEMBER, 1997

## I. INTRODUCTION

Section 121 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by SARA and Section 300.430(f)(4)(ii) of the National Contingency Plan (NCP), require that periodic (no less often than five years) reviews are to be conducted for sites where hazardous substances, pollutants or contaminants remain at the site above levels that will not allow for unlimited use or unrestricted exposure following the completion of all remedial actions for the site. The purpose of such a review is to assess whether the remedial actions implemented continue to be protective of human health, and the environment. This review focuses on the protectiveness of the Oconomowoc Electroplating Superfund Site located in Ashippun, Wisconsin.

The United States Environmental Protection Agency (U.S.EPA) has established a three-tier approach to conducting Five-Year Reviews, the most basic of which provides a minimum protectiveness evaluation (Level I review). U.S. EPA contemplates that a Level I review will be appropriate in all but relatively few cases where site-specific considerations suggest otherwise. The second and third levels (Level II and Level III) of review are intended to provide the flexibility to respond to varying site-specific considerations, employing further analysis. Site-specific considerations, including the nature of the response action, the status of on-site response activities, and the proximity to populated areas and sensitive environmental areas, determine the level of review for a given site. A Level I review is being conducted for the Oconomowoc Electroplating Superfund Site.

OSWER Directives 9355.7-02 (Structure and Components of Five-Year Reviews, May 23, 1991) and 9355.7-02A (Supplemental Five-Year Review Guidance, July 26, 1994) provide that U.S. EPA will conduct Five-Year Reviews as a matter of policy (Policy Review) at sites where no hazardous substances will remain above levels that allow unlimited use and unrestricted exposure after completion of a remedial action, but the remedial action goals specified in a Record of Decision (ROD), will require five or more years to attain, e.g. long-term response action sites (LTRA). The ROD for the Oconomowoc Site established groundwater clean-up standards which would allow for eventual remediation to attain unlimited use of groundwater at the Oconomowoc Site. To date, these groundwater standards have not been achieved. In addition, a groundwater pump and treat system continues to operate at the site.

A fund lead remedial action was performed at the Site in accordance with the ROD (signed September, 1990) because the responsible party had no significant assets. The remedial action selected for restoration at the Site is effective and protective of human health and the environment.

## II. SITE HISTORY AND CONDITIONS

The 10.5 acre Oconomowoc Electroplating Company, Inc. site ("OECI") comprises the 4 acre site of a former electroplating facility located at 2572 Oak Street, Ashippun, Wisconsin and 6.5 acres of an adjacent wetlands area located to the southwest of the former facility. The 4 acre OECI facility consisted of a main building which housed the office and process lines; a wastewater treatment building (to the west); parking area (to the north and east); two formerly used wastewater treatment lagoons (to the south); various storage tank and container deposit areas; a fill area and a lowland's area between the main building and adjacent property. The site also included Davy Creek and the adjacent wetlands.

OECI began operation in 1957. Electroplating processes performed at the facility used nickel, chrome, zinc, copper, brass, cadmium, and tin. Finishing processes have included chromate conversion, coating, and anodizing. OECI ceased operations in October 1990 due to financial hardship. The electroplating facility was demolished and removed in May 1992.

Wastewaters formerly generated at the OECI facility can be divided into three categories: 1) cyanide-bearing (from rinses following zinc, copper, nickel, brass, and cadmium plating); 2) chromium-bearing (from chrome and chrome conversion operations); and 3) acid-alkaline (from rinses following cleaning, anodizing, and plating operations). Tin plating was suspended at the facility in 1981 and chromium, copper, and nickel plating in 1982. Plating of cadmium ceased in October 1984, and as of February 1985, OECI had suspended all cyanide plating processes, and afterwards only utilized a zinc plating process.

In conjunction with the electroplating process, degreasing operations were also performed at the OECI site and contributed to the waste stream. A number of volatile organic compounds are believed to have been used by OECI and include: chloroform; 1-1-dichloroethane; 1-2 dichloroethane; 1,1-dichloroethylene; tetrachloroethylene; 1,1,1-trichloroethane, and trichloroethylene. These contaminants become incorporated in both sludge bottoms and wastewater streams. OECI ceased operations in October 1990 due to financial hardship.

A CERCLA preliminary assessment was performed in May, 1983 by the U.S.EPA Field Investigation Team (FIT). The site (including the Davy Creek wetlands) received a HRS score of 31.86 and was placed on the National Priorities List (NPL) September 8, 1993. By letter dated September 18, 1985, the U.S.EPA notified OECI that they had been identified as a Potentially Responsible Party (PRP) under CERCLA for the documented release or threatened release of hazardous substances. No other responsible parties have been named to date. On October 9, 1985, OECI informed the U.S.EPA that they did not have the financial resources to conduct a Remedial Investigation/Feasibility Study (RI/FS) and formally declined to participate in the CERCLA process.

During the summer of 1986, the Technical Assistance Team (TAT), a contractor to the U.S.EPA Emergency Response Section, conducted a limited sediment sampling survey in the wetlands. The analytical results of these samples indicated high concentrations of metals and cyanide in the wetlands area immediately south of OECI. In March and April of 1987, the TAT conducted an extensive sampling program which covered approximately 300 acres of wetlands along Davy Creek. This program also included sampling of the OECI sludge lagoons and soils at the ballpark located southeast of OECI. The analytical results indicated that several acres of the wetlands adjacent to OECI and the sludge is contaminated with cadmium, chromium, nickel, copper, zinc, (as high as 90,000 mg/kg in one area) and cyanide associated with the facility's electroplating process.

The RI concluded that metals along with volatile organic compounds (VOCs) contaminated the soil and the groundwater at the site as discussed above.

The soil contaminants posed the greatest risk to human health through dermal contact and ingestion by children. Concentrations of contaminants in the groundwater below the site continue to be above health based levels, and therefore pose a threat.

## III. REMEDIAL OBJECTIVES

A Record of Decision was signed for the site on September 20, 1990. The selected remedy has the following components:

1) For the surface water, metal hydroxide sludge and contaminated soils associated with the two RCRA Subtitle C lagoons located behind the OECI facility, the selected remedy included treatment and disposal of the surface water, sludge, and soils.

2) For all other contaminated soil around the OECI facility not associated with the RCRA lagoons, or beneath the manufacturing buildings, including the fill area, the lowlands area, the drainage ditches, and the parking lot, the selected remedy was for treatment and disposal of the contaminated soil.

3) For the contaminated groundwater associated with the site, the selected remedy was the construction of a groundwater pump and treat plant.

4) For the most highly contaminated sediments in the Davy Creek/Wetlands area, the remedy selected was treatment and disposal of the contaminated sediment. This was an interim action when the ROD was signed because cleanup goals had not been determined for the contaminated sediment.

5) For the building foundation, chemicals left inside, and underlying soils that require further investigation, the selected remedy was that the building, chemicals and soil be handled as a removal under remedial authority.

Explanations of Significant Differences signed on September 30, 1991, and March 8, 1994 addressed the removal of the building and hazardous chemicals inside under remedial authority and established cleanup goals for the wetlands and Davy Creek.

Health based performance standards in the ROD for the soil specified in the ROD are: arsenic, 47 mg/kg; lead, 300 mg/kg; cadmium, 500 mg/kg; nickel, 2500 mg/kg; copper, 1500 mg/kg; chromium, 1200 mg/kg; zinc, 4500 mg/kg; cyanide, 90 mg/kg; 1,1-dichloroethane, .07 mg/kg; toluene, .075 mg/kg; and 1,1,1-trichloroethane, .21 mg/kg. The cleanup goals for the wetland and creek sediment are: cyanide, 4 mg/kg; nickel, 54 mg/kg; and copper, 85 mg/kg. Cleanup goals for the groundwater are preventive actions levels established by the WDNR. The selected remedy eliminates the principle threat posed by the site by reducing the toxicity and mobility of the highly contaminated materials, thereby reducing the potential exposure to VOCs, and metals. The groundwater treatment train consists of: granular activated carbon for VOCs removal, chemical precipitation for metals, and chemical oxidation for cyanide.

On September 30, 1990, an Interagency Agreement was signed with the U.S. Army Corps of Engineers to perform a remedial design for the site. The remedial design for the site was completed June 30, 1993.

Removal of the building and the hazardous chemicals inside under remedial authority began April 27, 1991 and was completed March 31, 1992. The soil was also removed and stockpiled at that time because it posed a significant threat to surrounding residents. The hazardous chemicals and soil were removed for treatment and disposal at approved hazardous waste treatment facilities. EPA conducted a prefinal inspection on March 21, 1992 and found no outstanding construction items.

In August, 1994 remediation of the lagoons, stockpiled soil, and sediments in the wetland and Davy Creek sediment began. The hazardous soil and sediment was removed for treatment and disposal at an approved hazardous waste treatment facility. On June 12, 1995 a pre-final inspection was performed, in conjunction with the WDNR and a list of outstanding construction items was made.

On May 31, 1995, the RA contract was awarded for construction of the groundwater treatment system. A pre-final inspection was performed on September 25, 1996, in conjunction with the WDNR, and developed a list of outstanding construction items. Construction completion was certified on September 25, 1996. The treatment system has been in operation since September 1996. The RA activities were performed according to design specifications set forth in the June 1993 design package, which included construction for the groundwater treatment system and landscaping the site.

## IV. DEMONSTRATION OF CLEANUP ACTIVITY

Activities at the site were consistent with the ROD, and all work plans were issued to contractors for design and construction of the RA, including sampling and analysis. The RD Report, including a Quality Assurance Project Plan, incorporated all U.S. EPA and State quality assurance and quality control (QA/QC) procedures and protocol. U.S. EPA analytical methods were used for all validation and monitoring samples during RA activities. Sampling of soil followed the U.S. EPA protocol Test Methods for Evaluation of Solid Wastes, Physical/Chemical Methods.

The QA/QC program used throughout the RA was rigorous in conformance with U.S. EPA and state standards; therefore, U.S. EPA and the State determined that all analytical results are accurate to the degree needed to assure satisfactory execution of the RA and are consistent with the ROD and the RD plans and specifications.

## V. APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs)

Five-Year Review guidance establishes policy for the U.S. EPA to review and analyze the remedial action as it is effected by newly promulgated or modified Federal and State environmental laws. ARARS listed in the ROD pertaining to groundwater remediation and hazardous waste containment at the Oconomowoc Site remain essentially unchanged.

Groundwater that is extracted and treated at the OECI is discharged to Davy Creek and the wetlands. This activity is regulated by Section 304 of the Clean Water Act. Effluent from the OECI groundwater treatment plant has not continuously met all federal and State of Wisconsin, discharge requirements. The OECI plant shut-downs have occurred because of O&M problems that will be resolved by construction modification or by fine tuning of the plant by the end of 1997. The discharge exceedances during the first year of operation are not unexpected due to the plant complexity ( three different treatment trains for VOCs, metals and cyanide) and the stringent discharge requirements to a creek/wetland.

## VI. SUMMARY OF SITE VISITS

The Oconomowoc Site has been visited numerous times throughout the operation and maintenance period in 1996 and 1997. During each visit the site has been in very good condition. In addition, after the wetland restoration, the wetland is now home to several new bird species including a great blue heron.

## VII. RECOMMENDATIONS/TECHNOLOGY

U.S. EPA recommends that the groundwater pump and treatment plant continue to operate in order to contain the groundwater plume and reduce contaminant concentrations. Semi-annual groundwater sampling should continue to monitor contaminant concentrations in the aquifer, and

treatment plant effluent sampling should continue as required by the Chemical Data Acquisition Plan. Also, annual monitoring of residential wells near the site should continue.

## VIII. STATEMENT ON PROTECTIVENESS

The remedy selected in the ROD has been implemented and remains functional, operational and effective. All soil and sediment have been remediated to allow for unrestricted access and unlimited use and as long as the groundwater extraction and treatment system continues to operate, the remedy should contain the contaminant plume and reduce contaminant concentrations in the aquifer. The groundwater treatment system will continue to provide adequate protection of human health and the environment.

## IX. NEXT REVIEW

Since it is likely that hazardous substances, pollutants or contaminants will remain at the Oconomowoc Site with regard to the groundwater, U.S. EPA will conduct another Five-Year Review no later than September 30, 2001, although no further review is necessary for the remainder of the site because its use is nonrestricted and unlimited.

## X. IMPLEMENTATION REQUIREMENTS

Prior to the next Five-Year Review, the above mentioned recommendations should be implemented and maintained.

Wm. E. Muno

William E. Muno, Director
Superfund Division

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Date