PENTA WOOD PRODUCTS SITE
SIREN, WISCONSIN

I. Introduction

This Preliminary Close Out Report documents that the U.S. Environmental Protection Agency (U.S. EPA) completed all construction activities for the Penta Wood Products Site in accordance with Procedures for Completion and Deletion on National Priorities List Sites and Update (OSWER Directive 9320.2-09 A-P). U.S. EPA and the Wisconsin Department of Natural Resources (WDNR) conducted a pre-final inspection on September 27, 2000, and determined that the remedy was constructed in accordance with the Remedial Design (RD) plans and specifications.

II Summary and Conditions

Background

The Site was proposed for listing on the National Priorities List (NPL) on October 2, 1995 and was final on the NPL on June 17, 1996.

Site Description

The Penta Wood Products (PWP) site is an inactive wood treating facility located on Daniels 70 (former State Route 70) in Burnett County, Wisconsin. It is approximately 78 miles northeast of Minneapolis, Minnesota, and 60 miles south of Duluth, Minnesota. The Village of Siren, Wisconsin, is approximately 2 miles east of the site and there are three residences within 200 feet of the site using private wells.

The PWP property currently consists of approximately 82 acres which were actively used; 40 undeveloped acres consisting of forest were sold after the facility closed. The property is located in a rural agricultural and residential setting and is bordered to the east, west and north by forested areas. Some of these areas are classified by the State of Wisconsin as wetlands. With the exception of an 8-acre parcel, Daniels 70 forms the southern property boundary.

The PWP site is situated on a plateau with a 110-foot drop in elevation from the southern boundary to the northern boundary. The site stratigraphy consists of three layers: an upper sand, a glacial till that is not continuous throughout the site, and lower sand. The depth to groundwater is over 100 feet on the plateau. Groundwater occurs both in a thin unconfined aquifer and within a multi-layered semiconfined aquifer system. The regional groundwater flow direction is to the north. Since the closing of the onsite production well, groundwater flow at the site has been radial, with a strong downward vertical gradient.

A number of surface water bodies are present north and east of the site. Doctor Lake and an

unnamed lake are located 2,000 feet east and northeast of the site, respectively. Approximately 2,140 acres of lakes, 94 acres of bogs, and 7,500 acres of wetland are located within a 4-mile radius of the site. A wetland is located within 130 feet of the northern property boundary. The Amsterdam Slough Public Hunting area covers 7,233 acres and is located 1 mile north of the site.

Site History

PWP operated from 1953 to 1992. Raw timber was cut into posts and telephone poles and treated with either a 5 to 7 percent pentachlorophenol (PCP) solution in a No. 2 fuel oil carrier, or with a water borne salt treatment called Chemonite consisting of ammonia, copper II oxide, arsenate, and zinc (ACZA). During its 39 years of operation, PWP discharged wastewater from an oil/water pile in the northwestern portion of the property. Ash from a boiler was used to berm a cooling pond. Beginning in the 1970s, Wisconsin Department of Natural Resources (WDNR) investigators noted several large spills, stained soils, fires and poor operating practices.

PWP began an environmental investigation in 1987. In 1988 the onsite production well was closed for potable use when it was found to contain 2,700 ug/L of PCP. The State of Wisconsin Department of Justice (WDOJ) filed a preliminary injunction against PWP in 1991, citing Wisconsin Pollutant Discharge Elimination System (WPDES) violations and violations of other State statues regarding storage of raw materials, and waste handling practices. The facility voluntarily closed in May 1992 with the promulgation of the Resource Conservation and Recovery Act (RCRA) drip track regulations.

The site was put into the Superfund Accelerated Cleanup Model (SACM) pilot program, and a removal action was conducted by USEPA from 1994-1996. The ACZA treatment building and half of the oil/water separator building were demolished and remaining chemicals and sludges were disposed offsite. About 773 tons of grossly PCP- and metals-contaminated soils were also excavated and mixed onsite with cement to form a 3 acre concrete biopad. Emergency erosion control measures were taken in 1998 in an effort to reduce washout of contaminated wood debris from the lagoon wall into the wetlands. A total of 393 drums, 21,500 gallons of PCP liquids, and 18,800 gallons of ammonia copper arsenate liquids were removed from the site for proper disposal.

A Remedial Investigation/Feasibility Study (RI/FS) was conducted in 1997-1998, culminating wit the issuance of a Record of Decision (ROD) in September 1998.

Nature and Extent of Contamination

As a result of spills and past waste handling practices at the site subsurface soils to a depth of over 100 feet are contaminated with PCP/oil mixture beneath the gully where wastewater was discharged from an oil/water separator to a lagoon. Over the years, PWP filled erosion gullies with wood debris. This wood debris layer is semi-saturated with the PCP/oil mixture. The PCP/oil mixture, which has traveled to the groundwater and spread horizontally as a light non-aqueous phase (LNAPL) layer, is in equilibrium with pore pressures and is not expected to

continue spreading. An LNAPL of PCP/ oil is floating on the water table over an estimated 4-acre area.

A dissolved phase PCP plume exists in the groundwater and appears to be stable. PCP concentrations in groundwater have been monitored at the site since 1988, and some of the wells have 11 rounds of sampling data. PCP groundwater concentrations have shown consistent declines at the majority of monitoring wells over time. There is a general decrease in the size of the PCP plume, and the total contaminant mass of PCP in the saturated zone had declined since 1994. For example, PCP contamination detected at 2,000 g/L at MW 17 in 1994 has declined to non-detect levels in 1997. There is no evidence of contaminated groundwater discharging to the wetland or migrating below the wetland to surface water bodies.

Additional evidence that PCP is biodegrading in groundwater is supported by the natural attenuation parameter data. The groundwater is under anaerobic conditions in both the unconfined and semiconfined aquifer in the LNAPL plume area. The anaerobic plume is not expanding, which is important because aerobic biodegradation has a faster decay rate than anaerobic biodegradation; therefore, biodegradation should be capable of preventing the further expansion of the plume.

Wastewater containing PCP was discharged into a ravine filled with wood chips. Despite elevated levels of PCP and TPH detected in the wood chips, the soil and groundwater below the wood chip pile appear to be minimally impacted.

Surficial soils are contaminated with arsenic. The metals contaminated soil was found mainly around the treatment building and on the eastern portion of the site where ACZA-treated wood was stored. Surficial soil PCP contamination along the gully corridor and in hot spots near the rail tracks, treatment cylinder, and areas used to store the treated woods.

Remedial Construction Activities

The components of the remedy as specified in the Record of Decision (ROD) dated August 29,1998 are:

1. Building demolition
2. Segregation, select solidification, and placement of all arsenic contaminated soils in an onsite Corrective Action Management Unite (CAMU)
3. Consolidation of PCP/fuel oil soils and wood chips in the CAMU under a soil cover
4. Bioventing PCP/fuel oil contaminated material
5. Biopad removal and disposal onsite in the CAMU
6. Erosion control measures
7. Revegetation
8. LNAPL removal
9. Containment, collection, treatment, and discharge of grossly contaminated groundwater (exceeding 1,000 g/L PCP)

10. Monitored natural attenuation of groundwater contamination
11. Institutional controls
12. Point-of-entry (POE) carbon treatment for residences, if necessary

The Remedial Design (RD) was completed on January 20, 2000. Because there were no viable Potentially Responsible Parties (PRPs), Superfund money was used to perform the RA. The prefinal inspection was conducted by USEPA and WDNR on September 27, 2000 which concluded that RA activities were completed according to the ROD design specifications:

1. Buildings were demolished
2. Arsenic contaminated soils were placed in the CAMU and those above 400 ppm were solidified.
3. PCP contaminated soils and wood chips were placed in the CAMU.
4. A biovented system was installed and a building was constructed to house the bioventing and treatment systems.
5. The biopad was removed and placed in the CAMU.
6. Erosion control measures were implemented.
7. The site was seeded.
8-9. A groundwater extraction and treatment system was installed.
10. The groundwater will continue to be monitored according to the O&M plan.
11. Institutional controls will be established.
12. No residential wells have been contaminated, and monitoring will continue under the O&M plan.

The selected remedy eliminated the principal threat posed by the Site by preventing direct contact with contaminated materials, using bioventing to enhance the destruction of PCP materials and collecting and treating contaminated groundwater.

III. Demonstration of Cleanup Activity- Quality Assurance and Quality Control

Activities at the site were consistent with the ROD, and all work plans are issued to contractors for design and construction of the RA, including a Quality Assurance Project Plan, incorporated all USEPA quality assurance and quality control (QA/QC) procedures and protocol. U.S. EPA analytical results are accurate to the degree needed to assure satisfactory execution of the RA and are consistent with the ROD and RD plans and specifications.

IV. Activities and Schedule for Site Completion

The following activities will be completed according to the following schedule:

TASK	Estimated Completion	Responsible Organization

Approve RA Report and O&M Report	10-30-2000	U.S. EPA
Institutional Controls	3-30-2001	U.S. EPA
Approve Final Close Out Report	9-30-2030	U.S. EPA
Site Deletion	12-31-2030	U.S. EPA

V. Summary of remediation costs

The cost to implement the remedial action described in the ROD was $3.1 million and the estimate of the O&M costs is $5.0 million.

VI. Five-Year Review

Hazardous substances will remain at the site above health-based levels after the completion of the remedial action. Pursuant to CERCLA Section 121 C and as provided in OSWER Directive 9855.7-02, Structure and Components of Five-Year Review Guidance, July 26, 1994, U.S. EPA must conduct a statutory five-year review. A Five-Year Review Report will be initiated prior to July 2005.

Wm. E. Muno

William E. Muno, Director
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9/28/00
Date