



## Proposed Plan for Cleanup of the Boerke Site

Oak Creek, Wisconsin

September 2000

### U.S. EPA Wants to Hear From You

U.S. EPA is offering two opportunities for the public to learn more about the proposed clean-up plan:

#### Open House

Monday, October 2, 2000  
12 noon to 4 p.m.  
Oak Creek City Hall  
8640 S. Howell Avenue  
Oak Creek, Wisconsin

This session will have an informal format and give residents an opportunity to talk with representatives from U.S. EPA, Wisconsin DNR, Wisconsin Division of Health, DuPont, El Paso, and City of Oak Creek. Pictures and maps of the site will be on display. There will be no presentation and oral comments will not be accepted.

#### Public Hearing

Tuesday, October 10, 2000  
7 p.m. to 9 p.m.  
Oak Creek City Hall  
8640 S. Howell Avenue  
Oak Creek, Wisconsin

The hearing will include a formal presentation explaining the proposed clean-up plan, followed by questions and answers and an opportunity for the public to provide oral comments. Residents may also give U.S. EPA written

### Introduction

This Proposed Plan announces the U.S. Environmental Protection Agency's (U.S. EPA's) recommended clean-up plan for the Boerke site in Oak Creek, Wisconsin. It describes the plan – referred to as Off-Site Stabilization with Off-Site Disposal – and discusses why U.S. EPA is recommending it.

U.S. EPA invites public input on the clean-up recommendation. Public input is important to the clean-up process. Based on new information obtained through public comments, U.S. EPA may modify its recommended plan or select another from the alternatives listed on page 4.

In considering U.S. EPA's recommended clean-up plan, the public may wish to refer to a site investigation report, which was recently completed and is summarized in this Proposed Plan. This report, called an Engineering Evaluation/Cost Analysis (EE/CA)<sup>1</sup>, described, analyzed and compared a number of cleanup alternatives for addressing the arsenic contaminated soil and **sediment**<sup>2</sup> at the Boerke site. The report is available

in the Oak  
Creek  
Public  
Library.



*Aerial view looking west*

<sup>1</sup>Section 300.415 (b)(4)(I) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and Section 113 (k)(2) of CERCLA require publication of a notice describing U.S. EPA's recommended alternative. The EE/CA must also be made available to the public for comment. This Proposed Plan is a summary of information contained in the EE/CA for the Boerke Site. Please consult the EE/CA for more detailed information.

<sup>2</sup>Words in **bold** are defined in the glossary on page 7.

## Recommended Clean-up Alternative

### Off-Site Stabilization with Off-Site Disposal (Alternative 3)

Under this plan, contaminated disposal area fill material, surrounding soil, and sediment (approximately 17,000 cubic yards or 24,000 tons) would be excavated, transported, treated, and disposed of at an appropriate off-site facility. Contaminated material would be excavated to a depth of approximately 10 feet in the disposal area, 5 feet in the surrounding soil area, 1 foot in the wetland, and to an average depth of 0.6 feet in the drainage swale. These depths are based on field investigations that identified the location and extent of the arsenic waste. Excavated areas would be backfilled with clean fill to match the original grade.

The swale would be covered and graded to accept surface water runoff from the site. Surface water from the wetland would be removed and treated. The wetland would be restored with appropriate vegetation. Institutional controls would be established to limit digging or other intrusive activities in the remediated areas in the future. Ground water would be monitored to evaluate the water quality beneath the site.

The cost of implementing this plan is \$5,393,000. This cost is presented as Present Net Worth, which is the total cost of an alternative in terms of today's dollars, using a discount rate of 7 percent, and an operation and maintenance period of 30 years.

U.S. EPA considers this plan the most favorable of all alternatives considered because it best satisfies the three evaluation criteria (see box on page 4). It provides for the removal of the most highly contaminated material, allowing for future industrial and/or commercial use of the site and prevents people from coming in direct contact with any residual soil containing elevated levels of arsenic. In addition, it requires only maintenance of the institutional controls after completion. Although this plan is more expensive than the other alternatives considered, it proves to be the most favorable for protecting human health and the environment.

## Site Location

The Boerke site is located in a rural area in Oak Creek, Wisconsin, about 15 miles south of Milwaukee. The vacant 70-acre site, which lies at the top of a steep bluff along Lake Michigan, is partially wooded and has a small wetland. The 50-acre portion of the site is currently owned by EPEC Polymers, Inc. (EPEC) – referred to in a previous fact sheet as El Paso – and is the subject of this Proposed Plan. The 20-acre western portion along 5<sup>th</sup> Avenue is currently owned by the Boerke Trust.

The site is bordered to the north by an industrial property now owned by E.I. DuPont de Nemours and Company (DuPont). Directly to the west across 5<sup>th</sup> Avenue is the Oak Creek water purification plant. Scattered residences are located to the north, west, and south, interspersed among mixed commercial and industrial properties. The nearest residence is 0.2 miles from the site. Directly to the south is Bender Park, a county recreational park and marina. Ryan Road borders the southern property boundary.

## Site Location

### Site History

Prior to the 1940s, a portion of the site measuring approximately one-quarter acre served as a disposal area for arsenic wastes from an adjacent dye manufacturing facility located on the property directly north of the Boerke site. Results of investigations conducted by DuPont in the mid-1980s revealed that high levels of arsenic were present in several areas: disposal area soils; sediment in an adjacent wetland; and sediment in portions of a drainage **swale** that extends from the wetland to the north along the property boundary to Lake Michigan.

In December 1994, at the request of the Wisconsin Department of Natural Resources (DNR), U.S. EPA performed a site investigation to determine the need for U.S. EPA assistance and cleanup. After collecting and analyzing a limited number of soil and sediment samples at various locations on the site, U.S. EPA determined that the site posed a potential threat to human health and the environment and that a cleanup was needed.

### Engineering Evaluation/Cost Analysis Activities

In September 1995, U.S. EPA and DuPont, who U.S. EPA previously identified as a **potentially responsible party** for the placement of arsenic materials in the disposal area, signed an **Administrative Order by Consent** (Order). The Order required DuPont to conduct a site investigation study, called an EE/CA (see box in the next column) and to prepare a report. In August 1999, the Order was amended to include EPEC as a potentially responsible party.

#### *Field Investigations*

As part of the EE/CA study, the potentially responsible parties conducted a series of extensive field investigations to evaluate the nature and extent of arsenic contamination in the surrounding soil, sediment, surface water and ground water; and to

collect data needed to evaluate the potential risks to people and the environment by the presence of arsenic at the site.

These investigations were completed in three phases. During Phase I (November 1995 to February 1996), contractors for the potentially responsible parties collected and analyzed soil and sediment samples to evaluate the extent of contamination in the disposal area, surrounding soil, surface water, and swale sediment. On December 14, 1998, Phase II was conducted to evaluate shallow ground water at the site. In September and October 1999, the Phase III investigation took place to fill information gaps about contamination in disposal area soils, swale sediments, wetland sediments and surface water, shallow ground water, and seepage water identified along the Lake Michigan bluff.

#### **Engineering Evaluation/Cost Analysis**

An Engineering Evaluation/Cost Analysis or EE/CA is a document prepared to help decision makers better understand site contamination and clean-up needs. Specifically, the EE/CA documents:

- History of site operations resulting in contamination
- Site conditions such as **hydrogeology**, topography, and plant and animal life
- Location and type of site contamination
- Potential for people and the environment to come into contact with site chemicals
- Possible health risks to people and the environment
- Clean-up alternatives, including their costs, potential effectiveness, and implementability

In total, these investigations delineated the extent of arsenic contamination in the disposal area, surrounding soil, and wetland and swale sediments. These investigations revealed that surface water, shallow ground water, and seepage water did not contain arsenic at levels of concern to public health. This information collected was used to identify and evaluate appropriate clean-up alternatives. Areas of the Boerke site proposed for cleanup under the U.S. EPA-recommended clean-up alternative due to the presence of contamination are roughly defined as the colored areas of the enclosed map.

After completion of the field investigations, the potentially responsible parties installed erosion and sediment control devices around the wetland and swale to help prevent further movement of contaminated

#### **Explanation of the Evaluation Criteria**

U.S. EPA typically uses three criteria to compare the clean-up alternatives in an EE/CA and to recommend the most favorable clean-up remedy. The evaluation criteria consists of:

**Effectiveness.** U.S. EPA assesses the degree to which a clean-up alternative provides for overall long-term protection of human health and the environment as well as preventing potential short-term risk posed to workers, nearby residents, and the environment by implementing the cleanup alternative.

**Implementability.** U.S. EPA assesses how technically or administratively difficult the clean-up alternative will be to implement, and also considers community and State acceptance and the availability of goods and services.

**Cost.** U.S. EPA compares the costs of each alternative including estimated capital, operation, maintenance, and present net worth costs.

material away from the disposal area and installed a security fence around the site boundary.

## **Other Clean-up Alternatives Considered**

The EE/CA evaluated two other clean-up alternatives:

Alternative 1—Limited Action and Institutional Controls

Alternative 2—On-site Containment with Soil Cover

Detailed information on these two alternatives can be found in the EE/CA in the information repository.

## **Evaluation of Risks to People and the Environment**

A streamlined risk assessment was conducted as part of the EE/CA. This assessment looked at how people and the environment could be exposed to arsenic at the site and the potential health effects associated direct exposure to arsenic.

### ***People***

The site is vacant and unused for any routine activities and the property has deed restrictions to maintain the land use as commercial/industrial. The site is fenced, thereby controlling access.

People trespassing on the site may be exposed to contaminated materials in certain areas of the site. One possible way people may be exposed in these areas would be through incidental ingestion, which may occur when a person gets dirt on their hands and then put their hands in their mouths. Other ways of exposure may include dermal contact directly through the skin by touching contaminated materials or by breathing particles of contaminated material that may become airborne. Based on information developed by U.S. EPA and its partner agencies regarding the health effects associated with exposure to arsenic, the levels of arsenic at some locations of the site are considered to be significant enough so that frequent contact may increase a person's risk of developing skin and other types of cancer.



**BOERKE SITE  
PUBLIC COMMENT SHEET**

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Detach this page, fold on dashed lines, staple, stamp, and mail

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_

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Bri Bill  
Community Involvement Coordinator  
Office of Public Affairs  
U.S. EPA (P-19J)  
77 West Jackson Boulevard  
Chicago, IL 60604-3590

## ***Environment***

Plant and animal life may be exposed directly to the arsenic in the disposal area, the surrounding surface soil, and sediment in the wetland and drainage swale. Animals may be exposed to arsenic in areas where it was found by incidental ingestion of soil or ingestion of plants growing in soil with elevated levels of arsenic. Inhalation of soil particles with elevated levels of arsenic that may become airborne is not considered a significant exposure route for animals. The elevated levels of arsenic found in the disposal area and surrounding soil and sediment may pose an unacceptable risk to plant and animal life that are directly exposed to these areas of the site.

## **The Next Step**

U.S. EPA will evaluate public comments received during the public comment period before selecting a final clean-up plan. The final plan will be described in a document called an Action Memo. U.S. EPA will respond to comments in a document called a Responsiveness Summary which will be attached to the Action Memo.

After the final clean-up plan is selected, U.S. EPA will meet with DuPont and EPEC and request that they conduct the cleanup. Following these negotiations, the clean-up plan will be designed and implemented.

### **Glossary of Terms**

Sediment	Unconsolidated materials on the bottoms of rivers, lakes, and wetlands. Sediment consists primarily of clay, silt, sand, and gravel along with some organic material from decomposing plants and animals.
Swale	A long, narrow, trough-like depression. At the Boerke site, the swale provides drainage from the site during periods of heavy precipitation or snow melt.
Potentially Responsible Party	Parties that U.S. EPA has found to be potentially legally responsible for contamination and/or cleanup at a site. Under Superfund, these parties can include persons (including companies) that are owners or operators of Superfund-designated sites, persons who arranged for disposal of hazardous substances at a site, or certain persons who transported hazardous substances to a Superfund site. At the Boerke site, U.S. EPA has named DuPont and EPEC as potentially responsible parties.
Administrative Order by Consent (Order)	A legal agreement under the authority of the Superfund law between U.S. EPA and potentially responsible parties whereby these parties agree to perform or pay the cost of a cleanup or other action. The Order describes the problems at the site, actions to be taken, and relevant legal authorities if the order is not complied with.

## **For More Information**

U.S. EPA has established a file for public review called an information repository. The information repository contains general information about U.S. EPA's Superfund clean-up program as well as documents related to the project, including the EE/CA. The repository is located at the **Oak Creek Public Library**, 8620 South Howell Avenue, Oak Creek, WI 53154.

An administrative record, which the selection of the clean-up plan will be based on, is located at the Oak Creek Public Library and at the U.S. EPA office in Chicago, Illinois.

## Contact Information

To obtain more information about the Boerke site, please contact one of the individuals listed below.

*If you would like more information about the cleanup, please contact:*

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*You can also call U.S. EPA's toll-free hotline at (800) 621-8431.*

*If you have questions about health impacts from the site, please contact:*

**Chuck Warzecha**

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