

United States  
Environmental Protection  
Agency

Office of Public Affairs  
Region 5  
230 South Dearborn Street  
Chicago, Illinois 60604

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Ohio Wisconsin

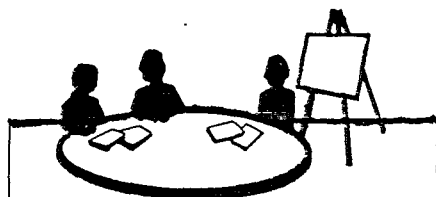


## Remedy for the PCB Areas Operable Unit

### Crab Orchard National Wildlife Refuge Superfund Site

Williamson County, Illinois

August 1990

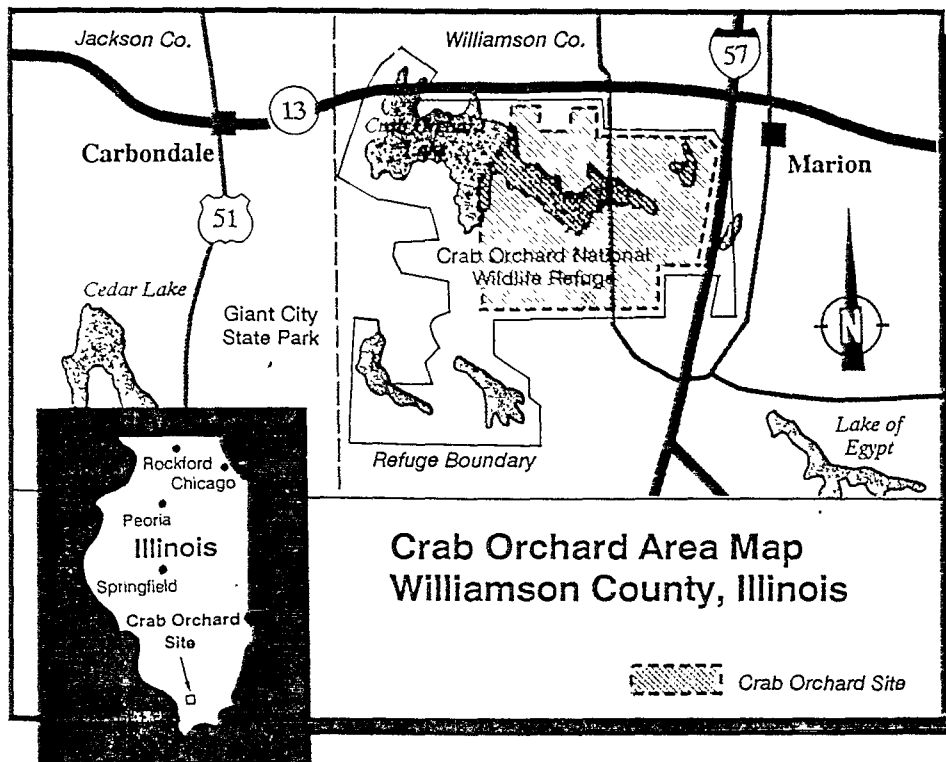


### Availability Session

U.S. EPA is sponsoring two availability sessions for residents of Williamson County and the surrounding area. At the sessions, U.S. EPA officials will be present to provide the public an opportunity to informally discuss the Record of Decision for the PCB Areas Operable Unit.

Time: 6 - 8 p.m.  
Date: Wednesday,  
August 8, 1990  
Location: Humanities Theater  
John A Logan College  
Carterville, Illinois

Time: 10 a.m. - 1 p.m.  
Date: Thursday,  
August 9, 1990  
Location: Humanities Theater  
John A. Logan College  
Carterville, Illinois



### Introduction

Contamination has existed at the Crab Orchard National Wildlife Refuge since the 1940s, when industrial tenants of the U.S. Department of Defense manufactured munitions and explosives. After World War II, manufacturing of PCB transformers and capacitors, plated metal parts, fiberglass boats, explosives, and other products continued on the Refuge.

In 1984, potential contamination problems at Crab Orchard were brought to the U.S. Environmental Protection Agency's (U.S. EPA) attention, which resulted in the sites placement on the

National Priorities List in 1987. Since that time, the U.S. Department of the Interior, in consultation with U.S. EPA, has been investigating Crab Orchard to determine the types and amounts of contaminants, as well as the extent of risks to public health and the environment. The investigation determined, among other things, that four areas of the Refuge contain an estimated 30,000 cubic yards of soil and sediment contaminated with an estimated 70,000 pounds of PCBs.

Long-term exposure to PCBs can cause liver damage, and is a suspected cause of cancer.



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On August 18, 1989, following a study of technologies to address the PCB-contaminated soil, U.S. EPA released a proposed plan for cleaning up the site.

The proposed plan included the incineration of approximately 30,000 cubic yards of PCB-contaminated soils and sediments in a mobile incinerator. Incineration ash and metal-contaminated soils and sediments would be treated and disposed of in an industrial landfill. A long-term monitoring and maintenance program would be implemented.

U.S. EPA held a public comment period for the PCB Areas Operable Unit from August 18 to December 1, 1989. Written and oral comments regarding the proposed plan and other cleanup alternatives were accepted during this period.

Public hearings were held on August 30 and October 3, 1989 to accept oral comments on the proposed plan for the PCB Areas Operable Unit.

At the conclusion of the public comment period, U.S. EPA reviewed and considered the submitted comments when making its final decision on the site. The final actions chosen for the Crab Orchard site reflect the comments received during the comment period.

At Crab Orchard, a risk assessment determined that human exposure to PCBs in some areas of the Refuge could result in as much as one additional case of cancer from every one thousand people exposed to PCB-contaminated soil and sediment for a period of 70 years. While other areas posed lower levels of risk, U.S. EPA considers risks of greater than one or more additional cases of cancer for every ten thousand to one million people exposed to a contaminant to be an unacceptable health risk. Be-

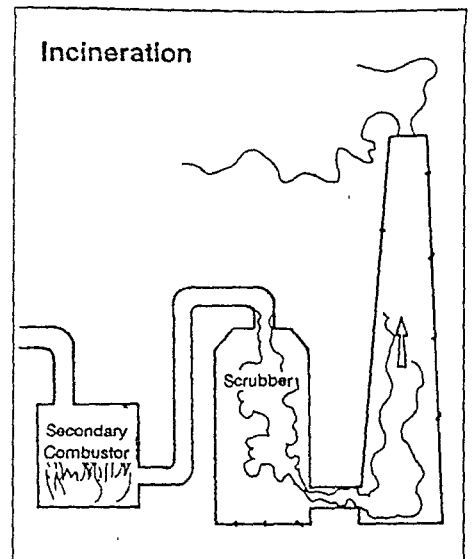
cause of the risks to human health and the environment, U.S. EPA is required by the Superfund law to choose permanent solutions to protect human health and the environment.

U.S. EPA has responded to oral and written comments in a document called a Responsiveness Summary. The Responsiveness Summary is available to the public as part of the Record of Decision (ROD) for the site. The public is encouraged to review the ROD and Responsiveness Summary and other documents related to the site. These documents are available in the site information repositories.

## The Selected Remedy

Following a thorough review of public comments, U.S. EPA reevaluated and modified the proposed plan for cleaning up the PCB Areas Operable Unit. U.S. EPA believes that treatment of PCBs is required to protect human health and the environment and to comply with Superfund regulations. As outlined in the proposed plan, incineration of PCB-contaminated soils and sediment is the treatment technology selected.

However, in-situ vitrification (ISV), an innovative alternative treatment technology, may be used instead of incineration if a successful demonstration of the technology is made. The selected remedy will permanently destroy PCBs by incineration or vitrification. Vitrification is a new technology which has not been fully demonstrated. However, to respond to community concerns and Superfund regulations which encourage the use of innovative technology, U.S. EPA will allow ISV to be substituted for incineration if it can be shown to be as effective as incineration. If a demonstration of ISV is not satisfactorily completed, the use of a mobile on-site incinerator will be implemented.



During the remedial design and construction phases of the project some minor changes in the clean-up plan may be made. The major components of the U.S. EPA's selected remedy include:

- Excavation of approximately 30,000 cubic yards of PCB-contaminated soil and sediment. The excavated material will be moved to a storage area on-site. Based on the results of sampling, hazardous and non-hazardous material will be stored separately.
- Incineration of all soil and sediment contaminated with PCBs where PCB levels are above the PCB remediation goal of 1 ppm for top soil and 0.5 ppm for sediments. The incinerator will be a temporary mobile unit. It will only be used to treat contaminated soils and sediment from the PCB Areas Operable Unit. Before the incinerator begins burning contaminated soil and sediment, a trial burn will be used to test the unit. During operation, the incinerator will be continuously monitored to ensure its effective and safe operation. After completion of incineration, the unit will be removed from the Refuge.

- Treat ash from incineration and soils and sediments containing hazardous levels of metals by stabilization/ fixation.
- Construct an industrial landfill on the Refuge.
- Place treated ash, soils and sediments in the landfill.
- Monitor groundwater and leachate and maintain the landfill.
- Fill excavated areas with clean soil.
- The total estimated cost of the remedy is \$25 million. Implementation of the remedy, which includes incineration is expected to be completed in three to five years. The mobile incinerator would actually be burning material for slightly less than one year.

1 If ISV is successfully demonstrated, the selected remedy may be modified in the following manner:

- Excavated soil and sediment will be moved to one of the existing areas of contamination rather than to a temporary storage area.
- Vitrification will be used to treat all contaminated soil and sediment. The contaminated material will be electrically heated to a temperature which will destroy PCBs and some other contaminants. Other contaminants, including metals such as lead, will be encapsulated in the glass-like material which results from vitrification.
- The vitrified area and other sections of the PCB Areas Operable Unit including the area where soil and sediment have been excavated, will be covered with a low-permeability cap. The cap will be designed to limit the flow of water

through the area below the cap. The cap will include a layer of compacted soil, a drainage layer, soil fill and topsoil.

- The total estimated cost of the remedy if ISV is implemented is \$17 million. Treatment by vitrification is expected to require two years to complete.

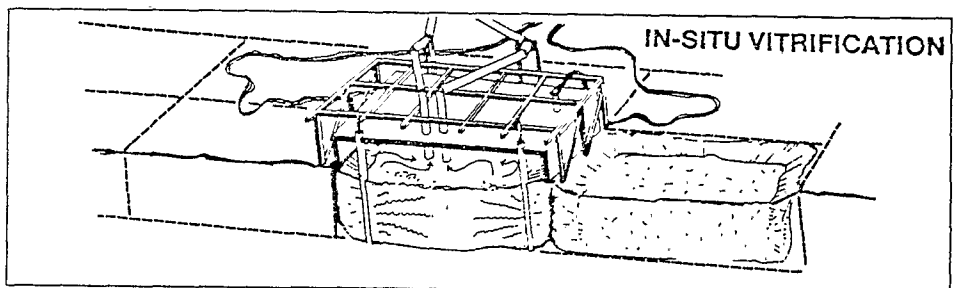
## Demonstration of ISV

For ISV to be approved by U.S. EPA and implemented, a demonstration must be successfully completed at the site and the following conditions must be met:

- Within a 120-day negotiation period the potentially responsible parties must inform U.S. EPA in writing that it intends to perform a test of ISV.
- A work plan for the ISV performance test must be submitted for U.S. EPA review and approval. If a work plan is not submitted and approved by U.S. EPA, incineration must be implemented.
- Upon approval of the work plan the test must be completed within the schedule approved by U.S. EPA in the work plan.
- When the ISV performance test results are due, proof must be provided that one or more vendors are able and available to implement vitrification within the schedule required. If a vendor is not

able or available, incineration must be implemented.

- For vitrification to be implemented, the test of its performance must:
  - Demonstrate that vitrification is able to destroy or remove at least 99.9999 percent of the PCBs. In addition, an evaluation of how effectively vitrification destroys dioxins and furans must be completed.
  - Meet or surpass the clean-up goals for soil, sediment, surface water and ground water.
  - Show that vitrification will immobilize hazardous metals so that they will not move into ground water.
  - Demonstrate that air emissions from the vitrification process meet or exceed Federal Clean Air Act standards.
  - As an alternative treatment technology, be shown to meet treatment standards for incineration set by the Federal Toxic Substances Control Act.
- U.S. EPA will review the performance test results. If the tests are shown to meet all performance standards, U.S. EPA will notify the responsible party that ISV can be implemented. The potentially responsible parties then must notify U.S. EPA within thirty days whether it will implement ISV or incineration.



## WHATS NEXT?

### Negotiation

U.S. EPA will negotiate with potentially responsible parties and state and federal agencies responsible for the site to reach an agreement concerning the implementation of the selected remedy and costs. The negotiation period typically lasts about 120 days and begins shortly after the Record of Decision is signed.

### Remedial Design

Once the remedy is selected and negotiations have been completed, the remedial design phase begins. In the remedial design phase, all technical drawings, specifications, and other supporting documents are prepared. These design documents and cost estimates are used as the basis for bids on site remedial work.

### Remedial Action

Following the approval of the remedial design, the actual construction

or implementation of the final remedy begins. This phase is conducted by contractors hired by parties responsible for implementing the remedy. U.S. EPA will supervise all aspects of remedial action including the selection and performance of the contractors.

### Operations and Maintenance

When the remedial action is completed, a long-term monitoring and maintenance program will be implemented.

## For More Information

### U.S. EPA Officials

If you would like to speak to a U.S. EPA official about this fact sheet or anything related to the Crab Orchard site, please contact:

MaryAnn Croce LaFaire  
Community Relations Coordinator  
Office of Public Affairs  
(312) 886-1728

Mary Logan  
Remedial Project Manager  
Office of Superfund  
(312) 353-9288

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Office of Public Affairs (5PA-14)  
230 South Dearborn Street  
Chicago, Illinois 60604

Toll Free: 1(800) 525-2515, 9a.m. to 4p.m.

### Information Repository

Information repositories are notebooks maintained by U.S. EPA in your community that contain information about the Superfund program and the Crab Orchard National Wildlife Refuge site. The remedial investigation (RI) report, feasibility study (FS) report, all Crab Orchard site fact sheets, and the proposed plans are among the documents available for review in the repository. You are encouraged to consult these documents for more detailed information about the activities described in this fact sheet.

U.S. EPA maintains four repositories for the Crab Orchard site:

Marion Carnegie  
Public Library  
206 South Market Street  
Marion, Illinois 62959

Southern Illinois University  
Morris Library  
Carbondale, Illinois 62901

Crab Orchard National  
Wildlife Refuge  
Refuge Headquarters  
Carterville, Illinois 62918

Carbondale Public Library  
405 W. Main  
Carbondale, Illinois 62901



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